DCN 1555

BRAC 95 DATA CALL #12 **ACTIVITY UIC: 00421**

"LAB" JOINT CROSS-SERVICE GROUP
DATA CALL #12

NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISION
PAX RIVER

Complete Data Call Revision

This Data Call is provided as a replacement for all previous submissions of Data Call #12. This submission supersedes all previous submissions and incorporates responses to questions raised by the BSAT on 1 August, 9 August, and 12 August 1994.

PLUS REVISIONS DATED
8-22-94
9-6-94
9-15-94

PLUS APPENDIX D
DATED 9-16-94

Section I. Introduction

Navy Fixed and Rotary Wing aircraft operating from ships are exposed to a broad spectrum of physical conditions, constraints, and requirements ranging from the harsh at-sea environment and space limitations aboard ship to takeoff and landings on an aircraft carrier deck in every conceivable type of weather condition. These operational requirements translate into unique design requirements such as increased structural strength, size and weight limits, corrosion resistance, ability to perform in both the high speed strike role as well as in low speed shipboard landing regimes, and invulnerability to high intensity electromagnetic fields aboard ships. In addition, the Navy has unique Anti-Submarine Warfare (ASW) and Anti-Surface Warfare (ASUW) missions. Because of the critical performance requirements associated with operation aboard ship, Navy aircraft and their associated systems must be developed and tested in the sea-level maritime environment.

NAWCAD Patuxent River Complex has the singular combination of required laboratory, ground and flight test facilities for conducting full RDT&E of Maritime aircraft and their associated systems. **Patuxent River posseses the unique facilities required to ensure that maritime aircraft are suitable for aircraft carrier and air-capable ship operations**. These facilities include but are not limited to: the catapult and arrestment facility; electromagnetic environmental effects test facilities including the shielded hangar, Electromagnetic Pulse facility, Hazard of Electromagnetic Radiation to Ordnance (HERO) facility, and the Air Combat Environment Test and Evaluation Facility (ACETEF); installed engine test facility; ASW/ASUW test facility; Ship Ground Station; helicopter/shipboard integration and test facility; and a modern, highly automated radar cross section and Electronic Warfare flight test range. **These facilities, combined with numerous other laboratories, ground and flight test facilities make Patuxent River the only DoD activity with the capability to provide fully integrated maritime aircraft system RDT&E and Fleet Support.**

The DoD Bottom Up Review sustained the need for 12 aircraft carriers and sea-based aviation. New Navy aircraft under development (V-22 and F-18E/F), the DoD acknowledgment of the requirement for a Naval variant of the Joint Advanced Strike Technology aircraft, and the continual upgrades and service life extensions for existing aircraft will continue to place demands on the Navy Research, Development, Test and Evaluation (RDT&E) infrastructure.

To better respond to both the continuing demand to develop and test highly capable aircraft at affordable costs and to downsize the defense infrastructure, the Navy has consolidated RDT&E and in-service support functions around the Patuxent River Hub. The relocation of the Naval Air Systems Command, the former Naval Air Development Center (Warminster), and the former Naval Air Propulsion Center (Trenton) to Patuxent River consolidates the majority of its aircraft acquisition, development and test team. The resultant integration of these activities is providing a more efficient workforce and, more importantly, it is allowing its RDT&E facilities to be used by a far broader spectrum of Navy RDT&E engineers and aircraft development contractors.

The information contained in this data call focuses on the R&D capabilities and facilities at Patuxent River. The ongoing relocation of the Warminster and Trenton RDT&E functions and facilities to Patuxent River adds a far broader spectrum of capability to the continuum of RDT&E functions to be performed at the site. The result will be the combining of several current facilities that have similar functionality and the obviating of the need for investment in certain new facilities were the activities were to remain separated. This data call focuses only on the R&D capability of the various activities wherein another data call focuses on the T&E facilities. Assessment of capabilities in these focused areas can lead to sub optimal recommendations and decisions. Therefore, information on the T&E facilities is also included as an appendix in this data call so that a better picture of the complete spectrum of capability can be seen.

NAWCAD PATUXENT RIVER

DATA CALL TWELVE

COMPLETE RESUBMIT 8-15-94
SUPERCEDES ALL PREVIOUS SUBMITS FOR DC 12

"LAB" JOINT CROSS-SERVICE GROUP GUIDANCE PACKAGE

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3.0 Mission
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B. List of Activities
C. Common Support Functions
D. Technical Facilities

SECTION I: TASKING

In accordance with the Deputy Secretary of Defense memorandum dated 7 Jan 94, the Laboratory Joint Cross-Service Group (LJCSG) with DOD components should, where operationally and cost effective, strive to: retain in only one Service militarily unique capabilities used by two or more Services; consolidate workload across the Service to reduce capacity; and assign operational units from more than one Service to a single base. Specifically, the purpose of the LJCSG is:

- Determine common support functions and bases to be addressed by LJCSG
- Establish guidelines, standards, assumptions, measures of merit, data elements and milestone schedules for DOD Component conduct of cross-service analysis of common support functions
- Review excess capacity analysis
- Develop closure or realignment alternatives
- Analyze cross-service trade-offs

The following information identifies to the Services common support functions and data element requirements necessary to support the cross-service analysis of these common support functions.

1.1 Guidelines

Because the DOD components are organized differently, "Lab" activities are considered to be those involved in the following life cycle efforts: Science and technology, and/or engineering development, and/or in-service engineering.

Service missions and force structure will be as stipulated in the FY1995-2000 Defense Planning Guidance and Interim Force Structure Plan.

The Military Departments will use the projected funding in the FY95 President's Budget Submission (Future Years Defense Plan -- FYDP) and an estimate of funds that will be received from outside the military department for execution.

If "lab" excess capacity exists, the Military Departments will start to reduce it where operationally and cost effective through a combination of downsizing in place within the departments, internal service consolidation, and cross service alternatives.

The Military Departments will gather, exchange, and analyze data collected per this guidance call for Common Support Functions (Appendix C) at "lab" activities (Appendix B) in accordance with the milestones and schedule dates identified in Appendix A.

Cross-service alternatives will result in an aggregate reduction in the overall "lab" infrastructure across the Military Departments -- personnel/funding/facilities and equipment.

Common cross-service Measures of Merit will be consistently applied for all cross-service alternatives.

Integration of weapon systems/components into operational forces will remain with the individual Military Departments responsible for those forces.

1.2 Standards

Evaluation of cross-service alternatives will be consistent with PL 101-510 (as amended) and the eight BRAC criteria. Only certified data will be used.

The COBRA cost model will be used to calculate estimated costs, estimated savings, and Return on Investment (ROI) of alternatives leading to proposed closures and realignments. Common inputs will be used for Military COBRA runs incorporating cross-service alternatives.

Military value analysis will be conducted by the Military Departments IAW Title 10, USC responsibilities.

1.3 Assumptions

"Lab" Common Support Functions and activities identified herein represent the major opportunities for developing cross-service alternatives. The Military Departments are not precluded from proposing other cross-service alternatives to reduce excess capacity as they assess the full complement of "lab" functions.

Previous BRAC decisions will be factored into cross-service alternatives.

"Lab" capacity will be based on budgeted workyears. A workyear is considered to be 2080 hours adjusted for time not on the job (e.g. sick leave, annual leave, etc.)

1.4 Measures of Merit

The following Measures of Merit represent the outcome from the DOD component final realignment and closure recommendations that are supported by the capabilities data which will be gathered by activity and common support function in Section III of this guidance.

- Reduction of "lab" infrastructure
- Return on investment (COBRA)
- Military value (BRAC criteria 1-4) -- the composite assessment of the quality of the remaining "lab" infrastructure

1.5 Activities

The Military Departments will collect capacity data for each "lab" activity identified in Appendix B. The "lab" activities were selected by considering all individual aggregates of personnel and facilities located at one base, under the same commander, performing predominantly science and technology (S&T), engineering development, and/or in-service engineering work. Small subelements of these "lab" activities were included with the activity. Larger subelements were broken out and defined as separate activities. The list of activities was then narrowed down to the list in Appendix B based on a joint Military Department assessment of common support functions with cross-service potential.

1.6 Common Support Functions

The common support functions (CSFs) were selected as shown in Appendix C based on a joint Military Department assessment of commonalty and cross-servicing potential. Common support functions which were already consolidated and being cross serviced were not included.

Common Support Functions are divided into two categories: product and pervasive. Product functions include all S&T, engineering development, and in-service engineering efforts associated with a product from all funding sources. Pervasive functions only include those efforts that are S&T funded, i.e. Technology Base (6.1)/Exploratory Development (6.2)/Advanced Development (6.3).

SECTION II: CAPACITY OF DOD COMPONENTS

2.1 **Workload**. Use the following table to describe historic and projected workload at each activity in terms of funding and workyears. Assume previous BRAC closures and realignments are implemented on schedule. Projected funding will be derived from FY95 President's Budget Submission (Then year dollars). Past fiscal year data shall begin with FY86 or at the inception of the activity as it existed on 1 Oct 93. (BRAC Criteria I & IV).

This Chart reflects NAWCAD Patuxent River after BRAC 91/93 Realignments

Information Required	Fiscal Years											
	86	87	88	89	90	91	92	93	94	95	96	97
Total Funds Prog ($M)	274.8	287.1	293.7	329.8	344.0	447.5	420.2	430.8	793.1	762.4	1004.8	981.5
Total Actual Funds ($M)	265.5	280.5	320.7	353.8	409.1	426.9	440.0	522.5				
Prog WYs	3892	3863	3994	4039	4207	4242	4308	3861	4804	4618	6183	5873
Actual WYs	3922	3887	4015	4078	4251	4283	4338	4372				

- Budgeted workyears are the selected indicator of the "lab" infrastructure's capacity at an aggregate level for each Military Department. They include both workyears funded directly by the Military Department and the workyears funded from organizations outside the Military Department.

Workyears = government personnel and on-site FFRDCs and SETAs

2.2 Excess "Lab" Capacity -- Measured at the DOD Component Level

- Excess "Lab" Capacity = Sum of the Peak Workyears - Sum of the Projected Workyears
  -- Peak at each activity = Highest value between FY86 (or since inception of organization) and FY93
  -- Projected at each activity = Estimated at FY97

SECTION III: CAPABILITY OF ACTIVITIES TO PERFORM COMMON SUPPORT FUNCTIONS (CSFs): Provide the information described for each common support function listed in Appendix C in which you are actively engaged.

3.0 Mission: Describe the major capabilities at your activity contributing to the common support function in bulletized format. Describe any relationship and interconnectivity with other functions (common or otherwise) in support of the overall activity mission.

The information contained in this section focuses on the R&D capabilities and facilities at Patuxent River in the 1996 timeframe. The ongoing relocation of the Warminster and Trenton RDT&E functions and facilities to Patuxent River adds a far broader spectrum of capability to the continuum of RDT&E functions to be performed at the site. The result will be the combining of several current facilities that have similar functionality and the obviating of the need for investment in certain new facilities were the activities were to remain separated. This data call focuses only on the R&D capability of the various activities wherein another data call focuses on the T&E facilities. Assessment of capabilities in these focused areas can lead to sub optimal recommendations and decisions. Therefore, information on the T&E facilities is also included as an appendix in this data call so that a better picture of the complete spectrum of capability can be seen.

Under BRAC-91, the Naval Air Warfare Center Aircraft Division, Warminster is being realigned to become part of the Naval Air Warfare Center at Patuxent River, MD and is scheduled to be relocated in the 1995/96 timeframe. This submission addresses the personnel, missions and facilities anticipated to be relocated under that realignment.

Current Missions

- **Air Undersea Warfare Systems and Sensors**
- **Aircraft-installed Reconnaissance and Surveillance Systems**
- **Air Vehicle Systems, materials and Processes**
- **Tactical Aircraft Systems (Pre-deployment) and Sensors**
- **Aircrew Systems and Human Factors**
- **Management and execution of the majority of the Naval Aviation Technology Base programs.**

As a result of BRAC-91 and BRAC-93 the following NAWCAD Trenton functions will become part of the Patuxent River Complex: Small engine air-breathing propulsion systems, power drive systems, fuels and lubricants. This capability will serve the Naval Air Systems Command and other U.S. and international customers.

Particular mission tasks include:

- **Test and evaluate all small aviation engines (turboprop, trainer, turboshaft, UAV, and cruise missile) at operational speeds and altitudes.**
- **Test and evaluation small engines under unusual operating conditions such as gyroscopic loads and variable attitudes;**
- **Test and evaluate helicopter gearboxes, transmissions and drive trains under simulated operational loads;**
- **Test and evaluate critical turbine engine rotating parts for strength and life under simulated operating loads and fatigue cycles;**
- **Test and evaluate aircraft engine accessories, such as starters and auxillary power units under simulated operating conditions;**
- **Test and evaluate aircraft fuels and lubricants.**

The following functions are scheduled to remain at Webster Field and transfer to NAWCAD, Patuxent River as a result of BRAC 93.

- **MATCALS testing which is uniquely sited with the instrumented landing systems testing facility at NAWCAD Patuxent River.**

- **Specialized communications support for Joint Command Systems Element mobile platforms.**

- **Wide Area Network design and development for the Special Operations Community (Navy, Air Force, Joint).**

- **Communications design and integration of vans for Special Operations Forces (Army, Navy, Air Force).**

- **Communications design and integration of vans for White House Communications Agency.**

- **Communications engineering and technical support for the Lighweight Deployable Communications (LDC) Program for USASOC.**

- **Communications design and integration of unique surface platforms for Special Forces (Special Boats, etc., Riverine Assult Craft, High Speed Boats).**

- **Develop, test, evaluate and provide software support for the Fleet Area Control and Surveillance Facility (FACSFAC).**

ADVANCED MATERIAL

Unique NAWCAD Warminster mission capabilities that will be expanded at Patuxent River in the 1996 timeframe due to BRAC 91 to include:

- **AIR VEHICLES**
  - **Conduct research, development and acquisition support for Air Vehicles materials, structures, and processes**
  - **Prototype and evaluate advanced high risk aircraft subsystems**
    - **Electrical**
    - **Hydraulic**
    - **Flight Control**
    - **Aerial Refueling Stores**
  - **Research and Develop, prototype and limited production of aircraft materials**
    - **Aircraft Paints**
    - **avionics coolants**
    - **lubricants**
    - **cleaners**
    - **composite repair processes**
    - **protective coatings**
    - **signature reduction systems**

- **TECHNOLOGY BASE**
  - **Perform the majority of the in-house Naval Aviation technology base work**
    - **Air Vehicles (manned and unmanned)**
    - **Airborne Materials (structural and non-structural)**

Unique NAWCAD Trenton mission capabilities that will be expanded at Patuxent River in the 1996 timeframe due to BRAC 91 to include:

- **Test and evaluate critical turbine engine rotating parts for strength and life under simulated operating loads and fatigue cycles;**

AIR VEHICLES, FIXED, AVIONICS

Unique NAWCAD Warminster mission capabilities that will be expanded at Patuxent River in the 1996 timeframe due to BRAC 91 to include:

- **AIRBORNE UNDERSEA WARFARE**
  - **Navy's Lead for Development and Major Update of Air ASW Systems and Sensors**
  - **Conducts Research & Development for new air ASW Sensor/system Integration - Unique collocation of Sensor Development/Software/ Aircraft Integration expertise**
  - **Conducts Software Support Activity for all Air ASW System Platforms with unique high fidelity Laboratory assets**
  - **Conduct governmental engineering and acquisition activities for major ASW System and Sensor Developments**
    - **P-3, S-3, H-60**
    - **ASW Mission Planning Systems**
    - **Sonobuoys**
  - **Develop Acoustic ASW System Software**
  - **Develop acoustic algorithms & processing software**
  - **Develop sensor simulation software for Platform tests**

- **SENSORS AND MISSION AVIONICS**
  - **Develop Undersea technology concepts and systems compatible with unique airborne ASW mission requirements**
  - **Conduct all Navy airborne ASW Acoustic Sensor and Signal Processor R&D and Developmental T&E**
  - **Develop Navy unique RF Sensor performance specifications**
  - **Develop RF technology to address AAW, AEW, ASW, non-cooperative target identification**
  - **Develop Radar, antennas, radomes and signature control**
  - **Conduct airborne environmental & performance measurements**

- **RECONNAISSANCE AND SURVEILLANCE**
  - **Perform R&D, Developmental T&E, Acquisition and Fleet Support for all all Navy Airborne Reconnaissance and Surveillance Systems**
  - **Conduct in-house Development of Navy airborne concepts and systems**
    - **Infrared Search and Track (IRST)**
    - **Airborne Reconnaissance systems**
    - **F-14 Tactical Airborne RECCE POD Systems**
    - **F-18 Conformal Pallet**
    - **Expendable Unmanned Aerial Vehicle Real-time RECCE**
    - **Tactical Optical Surveillance System (TOSS & NATO TOSS)**
  - **Provide expertise and In-house engineering for Definition, specification and evaluation of:**
    - **IRST, Advanced Reconnaissance sensors and Optics**
      -RECCE and Surveillance Systems enhancement and Upgrades

- On-call Support and Fleet Training
- Operate Navy Unique Large Aperture collinator

o TACTICAL AIRCRAFT SYSTEMS
- Formulate new system concepts/designs
- Prepare system specifications
- Conduct engineering & acquisition activities for major development (e.g. F/A-18E/F, A-X)
- Develop and Updates TACAIR support systems
  - mission planning systems
  - tactical simulations for development & training
  - imagery and identification systems
  - electronic warfare decoys/expendables
- Conduct system engineering (Tri-service) for all Unmanned Aerial Vehicle's (UAV's)
- Assure transfer of new technology into in-service platforms, e.g.:
  - F-14 Infrared Search & Track
  - F-14 Heads Up Display
  - F-14 and F-18 Reconnaissance systems
  - High speed fiber optic busses

o TECHNOLOGY BASE
- Perform the majority of the in-house Naval Aviation technology base work
  - Air Vehicles (manned and unmanned)
  - Airborne Electronic Warfare (expendables)
  - Airborne Surveillance (micro-wave and electro-optics)
  - Air USW Surveillance (acoustics, non-acoustics & signal processing)

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Unique NAWCAD Warminster mission capabilities that will be expanded at Patuxent River in the 1996 timeframe due to BRAC 91 to include:

° AIRBORNE UNDERSEA WARFARE
- Navy's Lead for Development and Major Update of Air ASW Systems and Sensors
- Conducts Research & Development for new air ASW Sensor/system Integration - Unique collocation of Sensor Development/Software/ Aircraft Integration expertise
- Conducts Software Support Activity for all Air ASW System Platforms with unique high fidelity Laboratory assets
- Conduct governmental engineering and acquisition activities for major ASW System and Sensor Developments
  - P-3, S-3, H-60
  - ASW Mission Planning Systems
  - Sonobuoys

- Develop Acoustic ASW System Software
- Develop acoustic algorithms & processing software
- Develop sensor simulation software for Platform tests

- SENSORS AND MISSION AVIONICS
  - Develop Undersea technology concepts and systems compatible with unique airborne ASW mission requirements
  - Conduct all Navy airborne ASW Acoustic Sensor and Signal Processor R&D and Developmental T&E
  - Develop Navy unique RF Sensor performance specifications
  - Develop RF technology to address AAW, AEW, ASW, non-cooperative target identification
  - Develop Radar, antennas, radomes and signature control
  - Conduct airborne environmental & performance measurements

- AIR VEHICLES
  - Conduct research, development and acquisition support for Air Vehicles materials, structures, and processes
  - Prototype and evaluate advanced high risk aircraft subsystems
    - Electrical
    - Hydraulic
    - Flight Control
    - Aerial Refueling Stores
  - Research and Develop, prototype and limited production of aircraft materials
    - Aircraft Paints
    - avionics coolants
    - lubricants
    - cleaners
    - composite repair processes
    - protective coatings
    - signature reduction systems
  - Track and analyze the fatigue life of all Navy tactical aircraft in fleet to insure flight safety
  - Develop Navy and Threat aircraft mission performance estimates for use in NATOPS Manuals and intelligence estimates

  - Analyze, model, compute and prepare Navy aircraft Flight Dynamics
    - Prepare flying quality specifications
    - Prepare Design Handbooks
    - Provide Crew-carried performance charts
    - Develop aircraft mission planning data

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- o TACTICAL AIRCRAFT SYSTEMS
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    - tactical simulations for development & training
    - imagery and identification systems
    - electronic warfare decoys/expendables
  - Conduct system engineering (Tri-service) for all Unmanned Aerial Vehicle's (UAV's)
  - Assure transfer of new technology into in-service platforms, e.g.:
    - F-14 Infrared Search & Track
    - F-14 Heads Up Display
    - F-14 and F-18 Reconnaissance systems
    - High speed fiber optic busses

- o TECHNOLOGY BASE
  - Perform the majority of the in-house Naval Aviation technology base work
    - Air Vehicles (manned and unmanned)
    - Airborne Materials (structural and non-structural)
    - Airborne Electronic Warfare (expendables)
    - Aircrew Systems and human factors
    - Airborne Surveillance (micro-wave and electro-optics)
    - Air USW Surveillance (acoustics, non-acoustics & signal processing)
    - Propulsion

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    - cleaners
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    - protective coatings
    - signature reduction systems
  - Track and analyze the fatigue life of all Navy tactical aircraft in fleet to insure flight safety

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- Develop Navy and Threat aircraft mission performance estimates for use in NATOPS Manuals and intelligence estimates
- Analyze, model, compute and prepare Navy aircraft Flight Dynamics
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- Conduct system engineering (Tri-service) for all Unmanned Aerial Vehicle's (UAV's)

o TECHNOLOGY BASE
- Perform the majority of the in-house Naval Aviation technology base work
  - Air Vehicles (manned and unmanned)
  - Airborne Materials (structural and non-structural)

AIR VEHICLES, ROTARY, AVIONICS

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° SENSORS AND MISSION AVIONICS
- Develop Undersea technology concepts and systems compatible with unique airborne ASW mission requirements
- Conduct all Navy airborne ASW Acoustic Sensor and Signal Processor

R&D and Developmental T&E
- Develop Navy unique RF Sensor performance specifications
- Develop RF technology to address AAW, AEW, ASW, non-cooperative target identification
- Develop Radar, antennas, radomes and signature control
- Conduct airborne environmental & performance measurement

° RECONNAISSANCE AND SURVEILLANCE
- Perform R&D, Developmental T&E, Acquisition and Fleet Support for all all Navy Airborne Reconnaissance and Surveillance Systems
- Conduct in-house Development of Navy airborne concepts and systems
- Provide expertise and In-house engineering for Definition, specification and evaluation of:
  - IRST, Advanced Reconnaissance sensors and Optics
  - RECCE and Surveillance Systems enhancement and Upgrades
  - On-call Support and Fleet Training
  - Operate Navy Unique Large Aperture collinator

o AIRCREW SYSTEMS
- Design, Develop, Acquire and Support all Naval Aircrew, Life Support, Escape and Survival systems
  - Environmental protective clothing
  - Anti-exposure Gear
  - G-Suits
  - Helmet Oxygen systems
  - Laser Eye Protection
  - Night Vision Devices
  - All Life protection/Survival Equipment (except man-rated parachutes)
  - Life Vests
  - Rafts
  - Survival gear, etc.
  - Operate the World's largest, most sophisticated human centrifuge as a Dynamic Flight Simulator (Unique in Free World)
  - Fully equipped, outside world view Pilots cockpit
  - Continuous motion control
  - Rapidly Changing G-field simulation
  - Operate Only man-rated ejection system evaluation Tower that is used by USN and USAF

o TECHNOLOGY BASE
- Perform the majority of the in-house Naval Aviation technology base work
  - Air Vehicles (manned and unmanned)
  - Airborne Materials (structural and non-structural)
  - Airborne Electronic Warfare (expendables)
  - Aircrew Systems and human factors
  - Airborne Surveillance (micro-wave and electro-optics)

- Air USW Surveillance (acoustics, non-acoustics & signal processing)

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

As a result of BRAC-91 and BRAC-93 the following NAWCAD Trenton functions will become part of the Patuxent River Complex: Small engine air-breathing propulsion systems, power drive systems, fuels and lubricants. This capability will serve the Naval Air Systems Command and other U.S. and international customers.

- Test and evaluate all small aviation engines (turboprop, trainer, turboshaft, UAV, and cruise missile) at operational speeds and altitudes.
- Test and evaluation small engines under unusual operating conditions such as gyroscopic loads and variable attitudes;
- Test and evaluate helicopter gearboxes, transmissions and drive trains under simulated operational loads;
- Test and evaluate critical turbine engine rotating parts for strength and life under simulated operating loads and fatigue cycles;
- Test and evaluate aircraft engine accessories, such as starters and auxillary power units under simulated operating conditions;
- Test and evaluate aircraft fuels and lubricants.

HUMAN SYSTEM

Unique NAWCAD Warminster mission capabilities that will be expanded at Patuxent River in the 1996 timeframe due to BRAC 91 to include:

o AIRCREW SYSTEMS
  - Design, Develop, Acquire and Support all Naval Aircrew, Life Support, Escape and Survival systems
    - Environmental protective clothing
    - Anti-exposure Gear
    - G-Suits
    - Helmet Oxygen systems
    - Laser Eye Protection
    - Night Vision Devices
    - All Life protection/Survival Equipment (except man-rated parachutes)
    - Life Vests
    - Rafts
    - Survival gear, etc.
    - Operate the World's largest, most sophisticated human centrifuge as a Dynamic Flight Simulator (Unique in Free World)
    - Fully equipped, outside world view Pilots cockpit
    - Continuous motion control

- Rapidly Changing G-field simulation
- Operate Only man-rated ejection system evaluation Tower that is used by USN and USAF

o TECHNOLOGY BASE
- Aircrew Systems and human factors

R

AIR VEHICLES, FIXED, PROPULSION

- PROVIDE ENGINEERING EXPERTISE AND PROGRAM MANAGEMENT FOR NAVY - DOD FIXED-WING AIRCRAFT AND PROPULSION - POWER SYSTEMS THROUGH
  - Advancment of the current state-of-art
  - R & D engineering
  - In-service engineering support

INTERCONNECTIVITY WITH AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

R

AIR VEHICLES, ROTARY, PROPULSION

- HELICOPTER TRANSMISSION/DRIVE SYSTEMS
  - Evaluate advanced concepts for drive systems
  - Provide Engineering support for current and future sytems

- PROVIDE ENGINEERING EXPERTISE FOR NAVAL HELICOPTER/PATROL AIRCRAFT PROPULSION SYSTEMS TO:
  - Advance the current state-of-the-art
  - Conduct engineering development efforts
  - Support propulsion ISE

INTERCONNECTIVITY WITH AIR VEHICLE FIXED PROPULSION

R

WEAPONS, CRUISE MISSILE (UAV AIR-BREATHING PROPULSION)

- PROVIDE ENGINEERING EXPERTISE AND PROGRAM MANAGEMENT FOR NAVY - DOD CRUISE MISSILE AND UNMANNED AERIAL VEHICLE PROPULSION - POWER SYSTEMS THROUGH
  - Advancment of the current state-of-art
  - R & D engineering
  - In-service engineering support

INTERCONNECTIVITY WITH AIR VEHICLES ROTARY AND FIXED PROPULSION AND FLIGHT SUB-SYSTEMS.

R

WEAPONS, GUIDED PROJECTILES

Unique Air Combat Environment Test and Evaluation Facility (ACETEF) capabilities include:

- ELECTROMAGNETIC ENVIRONMENT EFFECTS (E3)
  - Electromagnetic Compatibility
  - Electromagnetic Vulverability
  - Electromagnetic Interferrence

NAWCHQ Change
VBC 9/20/94
NAWC-21D

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C4I SYSTEMS, FIXED GROUND-BASED C4I

The following functions are scheduled to remain at Webster Field and transfer to NAWCAD, Patuxent River as a result of BRAC 93.

- **MATCALS testing which is uniquely sited with the instrumented landing systems testing facility at NAWCAD Patuxent River.**
- **Specialized communications support for Joint Command Systems Element mobile platforms.**
- **Wide Area Network design and development for the Special Operations Community (Navy, Air Force, Joint).**
- **Communications design and integration of vans for Special Operations Forces (Army, Navy, Air Force).**
- **Communications design and integration of vans for White House Communications Agency.**
- **Communications engineering and technical support for the Lighweight Deployable Communications (LDC) Program for USASOC.**
- **Communications design and integration of unique surface platforms for Special Forces (Special Boats, etc., Riverine Assult Craft, High Speed Boats).**
- **Develop, test, evaluate and provide software support for the Fleet Area Control and Surveillance Facility (FACSFAC).**

R

3.1 Location

3.1.1 **Geographic/Climatological Features:** Describe any geographic/climatological features in and around your activity that are relevant to each CSF. Indicate and justify those that are required versus those that just serve to enhance accomplishing the mission of the activity. For example, clear air at high altitude that increases quality of atmospheric, ground-based laser experiments in support of the weapons CSF. (BRAC Criteria I) R

ADVANCED MATERIALS

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AIR VEHICLES, FIXED, AVIONICS

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NAWCHQ Change
VBC 9/20/94
NAWC-210

R-

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WEAPONS, CRUISE MISSILE

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WEAPONS, GUIDED PROJECTILES

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C4I SYSTEMS, AIRBORNE C4I

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C4I SYSTEMS, FIXED GROUND-BASED C4I

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- Rapidly Changing G-field simulation
- Operate Only man-rated ejection system evaluation Tower that is used by USN and USAF

o TECHNOLOGY BASE
- Aircrew Systems and human factors

CONTINUED ON TOP OF REVISED PAGE 19aR dated 9-6-94

3.1 Location

3.1.1 **Geographic/Climatological Features:** Describe any geographic/climatological features in and around your activity that are relevant to each CSF. Indicate and justify those that are required versus those that just serve to enhance accomplishing the mission of the activity. For example, clear air at high altitude that increases quality of atmospheric, ground-based laser experiments in support of the weapons CSF. (BRAC Criteria I)

The following geographic/climatological Features applies to the Test and Evaluation workload currently performed at Patuxent River and was addressed in Data Call #13 and not in Data Call #12. When final implemenation of BRAC 91/93 occurrs in October of 96, these features will apply to all the Common Support Functions.

ADVANCED MATERIAL

The preponderance of effort associated with the Patuxent River complex is the RDT&E of Aviation systems. The research and Development process requires a series of well equipped laboratories and skilled personnel to produce the product. The synergism with T&E allows for an efficient transition from laboratory to Airborne development test and back to the laboratory for further refinements as necessary. In addition the in-service engineering functions conducted under R&D generally require validation of development efforts prior to deployment to the fleet. Therefore the predominant geographic constraints are those associated with the conduct of flight operations in support of the R&D process.

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AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

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TOTALLY REPLACED BY 20R thru 20eR dated 9-15-94

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AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

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AIR VEHICLES, FIXED, STRUCTURES

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3.1.2 **Licenses & permits:** Describe and list the licenses or permits (e.g., environmental, safety, etc.) that your activity currently holds and justify why they are required to allow tests, experiments, or other special capabilities at your location for each CSF. For example, permit to store and use high explosives. (BRAC Criteria I)

The following Licenses/permits and MOU'S are currently in effect for the Naval Air Station, Patuxent River Maryland. The BRAC 91/93 final implementation is scheduled for completion in October 96. Until final implementation these licenses & permits apply to the Test and Evaluation workload currently being performed at the Patuxent River site. It is unknown at this time whether the licenses/ permits and MOU'S will be applicable to the Common Support Funtions addressed in this data call. Therefore, they will appear under each CSF.

We operate under several permits that require periodic renewal. The renewal process is automatic and subject to fulfillment of reporting requirements and fees. These permits include:

ADVANCED MATERIALS

ACOE Nationwide Permit	RR-90-03766-1	Flow controls at Supply Pond
ACOE Dredging	RR-85-0595	Dredge Structures 656, 317, & 1488
Boiler Operation	18-00017	Boiler Operations at Bldg 501
County Open Burning	28-89	Req'd for Open Burning @ Landfill
Const. (PMB unit at B307)	18-9-0012N	Permit to construct PMB Unit
Air Stripper Operation	18-9-0013N	Permit/Air Stripper @ Fuel Farm
Const (Paint Booth/B104)	18-6-0017N	Const/Paint Booth @ B104
Const (Air Stripper/B106)	APPL	Const/Air Stripper @ B106
Const (Boiler B2188)	18-5-0001N	Const/Boiler B2188
Const (2 Boilers B111A)	18-4-0095/96 R	Const/2 Boilers B111A
Const (2 Boilers B110A)	18-4-0093/94 R	Const/2 Boilers B110A
Const (2 Boilers B109A)	18-4-0091/92 R	Const/2 Boilers B109A
Const (2 Boilers B101A)	18-4-0087/88 R	Const/2 Boilers B101A
Const (Boiler B104)	18-4-0090 R	Const/Boiler B104
Const (Boiler B103)	18-4-0089 R	Const/Boiler B103
Const (Boiler B177)	18-4-0098 R	Const/Boiler B177
Const (Boiler B117)	18-4-0097 R	Const/Boiler B117
Const (Boiler B2119)	18-4-0086N	Const/Boiler B2119
Const (Boiler/Water Heat B2188	18-5-0011/12N	Const/Boiler/Water Heater B2188
Const (2 Boilers @ B115A/201A	18-5-0002/0003N	Const/2 Boilers @ B115A/201A
Const (2 Boilers B2185	18-5-0006/0007N	Const/2 Boilers B2185
Const (A.). Smith Boiler 1.25MBTU/hr B2187	18-5-0010	Const A.O. Smith Boiler B2187
Const (Cleaver Brooks, 12.56 MBTU/hr B2187	18-5-0004/0005	Const/2 C. Brooks Boilers B2187
Const (Weil McLain 1.67		

NAWCHQ Charge
VBC 9/20/94
NAWC-21D

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Const (Boiler B177)	18-4-0098 R	Const/Boiler B177
Const (Boiler B117)	18-4-0097 R	Const/Boiler B117
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Const (Weil McLain 1.67		
MBTU/hr B2187	18-5-0009	Const (Weil McLain Boiler B2187
Desg Haz Sub Facility	A-222	Permits Storage of Hazard Wastes
Part "A" Application	MD7170024536	Facility Operates in Interim Status
Part "A" Application Revision	MD7170024536	Facility Operates in Interim Status
Part "B" Application	MD7170024536	Allows for Full Operational Status
Refuse Disposal (Active Landfill)	89-18-08-04A	Controls OPS for Sanitary Landfill
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NPDES Modification	90-DP-2518A	Allows Discharges from Outfalls
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ACOE Dredge Shoreline & Const	F/4-77-0820	Hog Point Shoreline Project
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Boiler Operation	18-00017	Boiler Operation at B501
Designated Has Sub Facility	A-222	Permits Storate of Hazardous Waste
Refuse Disposal	85-18-08-04A	Controls Operation of Sanitary Landfill
Refuse Disposal	Application	Permit to Operate Rubble Landfill
NPDES	MD0020150	Allows Discharges from Various Outfalls
Sewage Sludge Utilization	S-83-18-858-B	Allows Sludge Application to Land
Sewage Sludge Utilization	S-82-18-711-ABE	Allows Sludge Application to Land
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R

NAWCHQ Change
VBC 9/20/94
NAWC-210

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R

NAWCHQ Change
VBC 9/20/94
NAWC-21D

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Const (2 Boilers B110A)	18-4-0093/94 R	Const/2 Boilers B110A
Const (2 Boilers B109A)	18-4-0091/92 R	Const/2 Boilers B109A
Const (2 Boilers B101A)	18-4-0087/88 R	Const/2 Boilers B101A
Const (Boiler B104)	18-4-0090 R	Const/Boiler B104
Const (Boiler B103)	18-4-0089 R	Const/Boiler B103
Const (Boiler B177)	18-4-0098 R	Const/Boiler B177
Const (Boiler B117)	18-4-0097 R	Const/Boiler B117
Const (Boiler B2119)	18-4-0086N	Const/Boiler B2119
Const (Boiler/Water Heat B2188	18-5-0011/12N	Const/Boiler/Water Heater B2188
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Const (2 Boilers B2185	18-5-0006/0007N	Const/2 Boilers B2185
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ACOE Construction	F-4-78-0217	Cedar Point Fishing Pier
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Boiler Operation	18-00017	Boiler Operation at B501

ed Has Sub Facility	A-222	Permits Storate of Hazardous Waste	
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Disposal	Application MD0020150	Permit to Operate Rubble Landfill Allows Discharges from Various Outfalls	
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Sludge Utilization	S-82-18-711-ABE	Allows Sludge Application to Land	
Sludge Utilization	S-89-18-2016-ABE	Allows Sludge Application to Land	
NAS Patuxent River	89-OP-0665	Operation of Oil Transfer Facility	B2188
Solomons Annex	89-OP-0670	Operation of Oil Transfer Fa cility	/201A
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WEAPONS, CRUISE MISSILES

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3.1.3 **Environmental constraints:** Describe and list the environmental or land use constraints present at your activity which limit or restrict your current scope for each CSF, i.e., would not allow increased "volume" or "spectrum" for the CSF. Example -- Volume: frequency of a type of experiment. Example -- Spectrum: Current permit to detonate high explosives will not allow detonation or storage of increased quantity of explosives without legal waiver (state law) or relocation of surrounding (non-govt.) buildings. (BRAC Criteria II)

The following Environmental Constraints apply to the Test and Evaluation workload currently performed at Patuxent River and was addressed in Data Call #13 and not in Data Call #12. When final implemenation of BRAC 91/93 occurrs in October of 96, these constraints may apply to any of the Common Support Functions addressed in this data call.

ENTIRE PAGE REPLACED WITH [redacted] REVISION OF P41R DATED 9-15-94

3.1.3 **Environmental constraints:** Describe and list the environmental or land use constraints present at your activity which limit or restrict your current scope for each CSF, i.e., would not allow increased "volume" or "spectrum" for the CSF. Example -- Volume: frequency of a type of experiment. Example -- Spectrum: Current permit to detonate high explosives will not allow detonation or storage of increased quantity of explosives without legal waiver (state law) or relocation of surrounding (non-govt.) buildings. (BRAC Criteria II)

The fundamental ability to provide laboratory resources conducive to quality RDT&E is not limited by any environmental factor. We are currently constructing a modern laboratory complex to house the functions being transferred from Warminster and Trenton and there are no overarching environmental limitations on their use. This syngerism between the laboratories and the Air Operations allowed by the local environment will foster an efficient and effective delivery of products to the Fleet.

Future environmental impacts on air, land, and sea space for research, development testing are difficult to predict. Land use and wildlife refuge/wilderness area overflights are the biggest issues affecting air use and will affect all defense aviation activities. Naval Air Station Patuxent River does not own or control any land ranges. Our water ranges appear secure from environmental impact restrictions. We are pursuing additional National Environment Policy Act documentation to ensure the continued availability of these ranges. Not all Maryland state environmental laws are applicable, but some are. Maryland, relative to other states, is fairly conservative in the application of environmental rules. We are currently in compliance with all known environmental requirements and do not anticipate any unmanageable impacts due to emerging regulations. Naval Air Station Patuxent River has a well-trained staff of environmental professionals to deal with any future requirements.

ADVANCED MATERIALS

NONE

AIR VEHICLES, FIXED, AVIONICS

NONE

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

NONE

AIR VEHICLES, FIXED, STRUCTURES

NONE

AIR VEHICLES, ROTARY, AVIONICS

NONE

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

NONE

HUMAN SYSTEMS

NONE

NAWCHQ change
VBC 9/20/94
NAWC-21D

The Patuxent River complex exists in a rural area which has a low population density. The total population in Southern Maryland, which includes the counties of St. Mary's, Charles, and Calvert, has grown by 61,000 people between the years 1980 and 1990. The 1990 census shows a total population in these three counties of 228,500. This growth during the 1980's was concentrated in regions 45 miles to the north and west of Patuxent River. In addition, the Maryland Eastern Shore area is experiencing the lowest growth rate of any area on the East Coast.

The St. Mary's County land use plan and zoning ordinance recognized the importance of the naval establishment. The county manages one of the strictest and most supportive Air Installation Compatible Use Zone provisions ever enacted. The Air Installation Compatible Use Zone provision has provided and will continue to provide a very effective buffer against encroachment.

The vast majority of flying at Patuxent River occurs over water. Most work involving Range tracking facilities utilizes the R-4002 and R-4005 airspace sectors. Except for takeoff and landing from one runway, only the southern tip of St. Mary's County is overflown. Flight testing at the Patuxent River complex simply does not use airspace over congested population areas. Almost all areas of flight over land involve population densities below 50 people per square mile. Both the low population density and the low rate of population increase substantiate the judgment that the area will continue to easily support a diverse aircraft flight testing mission.

The total population within various radii are:

50 mile radius - 1,132,793 persons
100 mile radius - 9,048,269 persons
150 mile radius - 17,660,919 persons
200 mile radius - 24,209,467 persons

Aircraft operations are essentially unconstrained and have access to the Chesapeake Bay and the East Coast open ocean test ranges (NAWCAD Patuxent River Departure and Arrival Control has been delegated by the FAA to control 28 airfields in a 4,600 square-mile Mid-Atlantic region. The rural peninsula location of Patuxent River naturally restricts ground vehicle commercial routes from bisecting the base. The commercial shipping lane transiting the Chesapeake Bay is well clear of target areas, and has no impact on operations. Seasonal public use recreational traffic is cleared through range control clearance boats prior to any hazardous mission profile being flown.

Due to our rural geographic location on a peninsula, encroachment from community growth is not a serious issue. We have also purchased restrictive easements where necessary, and the St. Mary's County Planning and Zoning Department has incorporated Air Installation Compatible Use Zone requirements into the local zoning ordinance.

R

AIR VEHICLES, FIXED, PROPULSION

NONE

AIR VEHICLES, ROTARY, PROPULSION

NONE

WEAPONS, CRUISE MISSILE

None, No Cruise Missile launches occur at Patuxent River.

WEAPONS, GUIDED PROJECTILES

Work that is done under this CSF does not include live fire test and therefore no constrainsts exist.

C4I SYSTEMS, AIRBORNE C4I

NONE

C4I SYSTEMS, FIXED GROUND-BASED C4I

NONE

The fundamental ability to provide laboratory resources conducive to quality RDT&E is not limited by any environmental factor. We are currently constructing a modern laboratory complex to house the functions being transferred from Warminster, and there are no overarching environmental limitations on their use. This syngerism between the laboratories and the Air Operations allowed by the local environment will foster an efficient and effective delivery of products to the Fleet.

Future environmental impacts on air, land, and sea space for research, development testing are difficult to predict. Land use and wildlife refuge/wilderness area overflights are the biggest issues affecting air use and will affect all defense aviation activities. Naval Air Station Patuxent River does not own or control any land ranges. Our water ranges appear secure from environmental impact restrictions. We are pursuing additional National Environment Policy Act documentation to ensure the continued availability of these ranges. Not all Maryland state environmental laws are applicable, but some are. Maryland, relative to other states, is fairly conservative in the application of environmental rules. We are currently in compliance with all known environmental requirements and do not anticipate any unmanageable impacts due to emerging regulations. Naval Air Station Patuxent River has a well-trained staff of environmental professionals to deal with any future requirements.

3.1.4 **Special Support Infrastructure:** List and describe the importance of any mission related special support infrastructure (e.g. utilities) present at your location for your activity. (BRAC Criteria I)

The following Special Support Infrastructure applies to the Test and Evaluation workload currently performed at Patuxent River and was addressed in Data Call #13 and not in Data Call #12. When final implemenation of BRAC 91/93 occurrs in October of 96, the Infrastructure Capacity & Load may apply to any of the Common Support Functions addressed in this data call.

Table 3.1.4.a Base Infrastructure Capacity & Load for Patuxent River Complex

	On Base Capacity	Off base long term contract	Normal Steady State Load	Peak Demand
Electrical Supply (KWH)	52,575	N/A	18,592	26,644
Natural Gas (CFH)	400,000	N/A	80,000	175,000
Sewage (GPD)	45,000	1,200,000	677,033	856,600
Potable Water (GPD)	6,212,000	N/A	954,878	1,218,000
Steam (PSI & lbm/Hr)	N/A	N/A	N/A	N/A
Long Term Parking	318,060	0	263,989	317,895
Short Term Parking	13,207	0	10,962	13,207

3.1.4 **Special Support Infrastructure:** List and describe the importance of any mission related special support infrastructure (e.g. utilities) present at your location for your activity. (BRAC Criteria I)

When final implemenation of BRAC 91/93 occurrs in October of 96, the Infrastructure Capacity & Load may apply to any of the Common Support Functions addressed in this data call.

R

Table 3.1.4.a Base Infrastructure Capacity & Load for Patuxent River Complex

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Electrical Supply (KWH)	52,575	N/A	18,592	26,644
Natural Gas (CFH)	400,000	N/A	80,000	175,000
Sewage (GPD)	45,000	1,200,000	677,033	856,600
Potable Water (GPD)	6,212,000	N/A	954,878	1,218,000
Steam (PSI & lbm/Hr)	N/A	N/A	N/A	N/A
Long Term Parking	318,060	0	263,989	317,895
Short Term Parking	13,207	0	10,962	13,207

NAWCHQ Change
VBC 9/20/94
NAWC-2ID

HTHW (400 PSI & MBH)	195,000	N/A	65,000	125,000

According to Southern Maryland Electrical Co-op (SMECO) Patuxent River has the capacity to grow 230 percent from its current peak load demand identified in the table above. This additional capability is for the base only and is not affected by growth into other portions of the region.

NOTES:

The following projects will affect utility capacity and loads.

1. BRAC 91 projects are awarded and will add:
   a. 20,000 Kilovolt Amperes (KVA) of electrical capacity and 12,000 KVA of electrical peak load.
   b. 2 new water wells with a capacity of 864,000 Gallons Per Day (GPD) and additional potable water usage of 170,000 GPD.
   c. 31,000 Cubic Feet per Hour (CFH) of natural gas peak load.
   d. 123,000 gallons of sewage peak load.
   e. Add 61,470 Sq. Yds. of long term and 6,000 Sq. Yds. of short term parking

2. BRAC 93 projects will be awarded in FY95 and will add:
   a. 40,000 KVA of electrical capacity and 16,000 KVA of electrical peak load.
   b. Additional potable water peak usage of 127,000 GPD.
   c. 9,071 CFH of natural gas peak load.
   d. 92,000 gallons of sewage peak load.
   e. Add 69,389 Sq. Yds. long term and 8,090 Sq. Yds. of short term parking.

3. Project R29-93, Repair Water Well 5-B and various minor repair projects will provide increases in water well capacity and reliability will improve by repairing/replacing 1943 vintage water wells.

4. Project P-505, Sewage Flow Equalization Basin will provide METCOMM (our sewage municipality) with a means to equalize Patuxent River flowrates and reduce the affects of peak flows.

5. The State of Maryland will allow increased sewage capacity to 60,000 GPD when the National Pollutant Discharge Elimination System permit is re-issued for Webster Field.

3.1.5. **Proximity to Mission-Related organizations:** List and describe the importance and impact of not having nearby organizations which facilitate accomplishing or performing your mission -- e.g. operational units, FFRDCs, universities/colleges, other government organizations, and commercial activities. Restrict your response to the top five. Complete the following: (BRAC

Criteria I)

The Patuxent River base is located in an area that is rich in the mission related organizations necessary to carry out a comprehensive program of Aviation RDT&E. The Baltimore-Washington corridor is becoming a high technology corridor with many universities and contractors that enhance the efforts of this activity in performing its assigned mission. The local area in St. Mary's county has a wealth of contract support services that are well suited to carrying out full spectrum R&D and the on-site educational activities promote the furtherance of advanced degrees. Recently the state of Maryland has funded the establishment of a St. Mary's County Higher Education Facility, operated by the state, with major participation by Johns Hopkins University and the University of Maryland. In addition, the base contains operational units that are directly capable of supporting RDT&E. With all these assets available we believe that there are no lack of local facilities that would hinder performance of our mission.

Common Support Functions	Name	Type of Organization	Distance	Workyears Performed by Your Activity	Workyears Funded by Your Activity
NONE					

3.2 Personnel:

3.2.1 **Total Personnel:** What is the total number of government (military and civilian), on-site federally funded research and development center (FFRDC), and on-site system engineering technical assistance (SETA) personnel engaged in science and technology (S&T), engineering development and in-service engineering activities as of end FY93? For individuals that predominantly work in CSFs, involved in more than one CSF, account for those individuals in the CSF that represents the preponderance of their effort. (BRAC Criteria I).

NOTE: PERSONNEL IDENTIFIED IN THE "OTHER" CATEGORY FOR TRENTON INFLUX IS ACCURATE. DUE TO BRAC 91 & 93 DECISIONS, THE "OTHER" THAT WOULD NORMALLY HAVE BEEN LISTED WERE ELIMINATED AND THE ENGINE TEST WORKLOAD WILL BE DONE UNDER CONTRACT TO AEDC. REMAINDER OF THE "OTHER" REFLECTS WAGE GRADE EMPLOYEES IN DIRECT SUPPORT OF THE CSFS. THE FOLLOWING #'S ACCURATELY REFLECT THE # OF SCIENTIST AND TECHNICAL EMPLOYEES IN DIRECT SUPPORT OF THE CSF'S.

ADVANCED MATERIALS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	12			
Management (Supv)	1			
Other				

AIR VEHICLES,FIXED, AVIONICS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	696	5		
Management (Supv)	67	35		
Other				

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

R

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	67	0		0
Management (Supv)	5	1		0
Other	3			0

NAWC HQ Change
VBC 9/20/94
NAWC-21D

3.2 Personnel:

3.2.1 **Total Personnel:** What is the total number of government (military and civilian), on-site federally funded research and development center (FFRDC), and on-site system engineering technical assistance (SETA) personnel engaged in science and technology (S&T), engineering development and in-service engineering activities as of end FY93? For individuals that predominantly work in CSFs, involved in more than one CSF, account for those individuals in the CSF that represents the preponderance of their effort. (BRAC Criteria I).

ADVANCED MATERIALS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	12			
Management (Supv)	1			
Other				

AIR VEHICLES,FIXED, AVIONICS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	696	5		
Management (Supv)	67	35		
Other				

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	111	2		61
Management (Supv)	13	1		4
Other	3			10

AIR VEHICLES, FIXED, STRUCTURES

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	273			
Management (Supv)	33			
Other	40			

AIR VEHICLES, ROTARY, AVIONICS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	69			
Management (Supv)	8	4		
Other				

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEM

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	*INFO NOT AVAIL-ABLE			
Management (Supv)				
Other				

***THIS INFORMATION IS NOT AVAILABLE. THE WORKLOAD ASSOCIATED WITH AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS FALLS ORGANIZATIONALLY UNDER THE GROUP ASSOCIATED WITH COMMON SUPPORT FUNCTION, AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS . AS SUCH, THERE IS NO MEANS TO IDENTIFY INDIVIDUALS SPECIFICALLY UNDER THIS CSF. ACTUAL WORKYEARS AS SHOWN ON PAGE 99 AND 122 REPRESENT .4 OF A WORKYEAR.**

R

HUMAN SYSTEMS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	**12**	**16**		
Management (Supv)	**2**	**2**		
Other				

R

NAWCHQ Change
VBC 21D
9/20/94

AIR VEHICLES, FIXED, PROPULSION

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	216	4		
Management (Supv)				
Other				

AIR VEHICLES, ROTARY, PROPULSION

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	31			
Management (Supv)	1			
Other				

WEAPONS, CRUISE MISSILE

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	34			
Management (Supv)	2			
Other				

WEAPONS, GUIDED PROJECTILES

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	*			
Management (Supv)				
Other				

***NO FULL-TIME PERSONNEL ARE DEDICATED 100% TO WEAPONS, GUIDED PROJECTILES.**

ADDED PAGE

C4I, SYSTEMS, AIRBORNE C4I

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	4	4		
Management (Supv)				
Other				

C4I, SYSTEM, FIXED GROUND-BASED C4I

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	44	2		61
Management (Supv)	8	0		4
Other	3	0		10

3.2.2 **Education:** What is the number of government personnel actively engaged in S&T, engineering development and in-service engineering activities by highest degree and type of position? Provide the data in the following table: (BRAC Criteria I)

AIR VEHICLES, FIXED, AVIONICS

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	41	1	0
Associates	15	1	0
Bachelor	377	43	0
Masters	237	56	0
Doctorate (include Med/Vet/etc.)	31	1	0
TOTAL	701	102	0

HUMAN SYSTEMS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	12	16		
Management (Supv)	2	2		
Other				

3.2.2 **Education:** What is the number of government personnel actively engaged in S&T, engineering development and in-service engineering activities by highest degree and type of position? Provide the data in the following table: (BRAC Criteria I)

AIR VEHICLES, FIXED, AVIONICS

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	41	1	0
Associates	15	1	0
Bachelor	377	43	0
Masters	237	56	0
Doctorate (include Med/Vet/etc.)	31	1	0
TOTAL	701	102	0

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AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	0	0	2
Associates	0	0	1
Bachelor	35	2	0
Masters	31	3	0
Doctorate (include Med/Vet/etc.)	1	1	0
TOTAL	68	6	3

AIR VEHICLES, FIXED, STRUCTURES

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	0	0	40
Associates	0	0	0
Bachelor	157	19	0
Masters	86	12	0
Doctorate (include Med/Vet/etc.)	30	2	0
TOTAL	273	33	40

NAWCHQ Change
VBC 9/20/94
NAWC-21D

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	5	0	2
Associates	0	0	1
Bachelor	74	10	0
Masters	33	3	0
Doctorate (include Med/Vet/etc.)	1	1	0
TOTAL	113	14	3

AIR VEHICLES, FIXED, STRUCTURES

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	0	0	40
Associates	0	0	0
Bachelor	157	19	0
Masters	86	12	0
Doctorate (include Med/Vet/etc.)	30	2	0
TOTAL	273	33	40

AIR VEHICLES, ROTARY, AVIONICS

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	0	0	0
Associates	0	0	0
Bachelor	41	6	0
Masters	26	5	0
Doctorate (include Med/Vet/etc.)	2	1	0
TOTAL	69	12	0

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	*(INFORMATION NOT AVAILABLE)		
Associates			
Bachelor			
Masters			
Doctorate (include Med/Vet/etc.)			
TOTAL			

***THIS INFORMATION IS NOT AVAILABLE. THE WORKLOAD ASSOCIATED WITH AIR VEHICLES,ROTARY, FLIGHT SUBSYSTEMS FALLS ORGANIZATIONALLY UNDER THE GROUP ASSOCIATED WITH COMMON SUPPORT FUNCTION, AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS . AS SUCH, THERE IS NO MEANS TO IDENTIFY INDIVIDUALS SPECIFICALLY UNDER THIS CSF. ACTUAL WORKYERS AS SHOWN ON PAGE 99 AND 122 REPRESENT .4 OF A WORKYEAR.**

ADVANCED MATERIALS

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less			
Associates			
Bachelor	7		
Masters	4	1	
Doctorate (include Med/Vet/etc.)	1		
TOTAL	12	1	

HUMAN SYSTEMS

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	17	0	0
Associates	0	0	0
Bachelor	6	0	0
Masters	3	2	0
Doctorate (include Med/Vet/etc.)	2	2	0
TOTAL	28	4	

R

AIR VEHICLES, FIXED, PROPULSION

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	2		
Associates	86		
Bachelor	110		
Masters	20		
Doctorate (include Med/Vet/etc.)	2		
TOTAL			

AIR VEHICLES, ROTARY, PROPULSION

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	0		
Associates			
Bachelor	29	1	
Masters	2		
Doctorate (include Med/Vet/etc.)			
TOTAL			

WEAPONS, CRUISE MISSILE

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	0		.5
Associates	2		
Bachelor	29	2	
Masters	3		
Doctorate (include Med/Vet/etc.)			
TOTAL			

ADDED PAGE

R

WEAPONS, GUIDED PROJECTILES

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	*		
Associates			
Bachelor			
Masters			
Doctorate (include Med/Vet/etc.)			
TOTAL			

*** NO FULL-TIME PERSONNEL DEDICATED 100% TO WEAPONS, GUIDED PROJECTILES.**

C4I SYSTEMS, AIRBORNE C4I

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less			
Associates			
Bachelor	**8**		
Masters			
Doctorate (include Med/Vet/etc.)			
TOTAL			

C4I SYSTEMS, FIXED GROUND-BASED C4I

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	**5**	**0**	**2**
Associates	**0**	**0**	**1**
Bachelor	**39**	**8**	**0**
Masters	**2**	**0**	**0**
Doctorate (include Med/Vet/etc.)	**0**	**0**	**0**
TOTAL	**46**	**8**	**3**

R

3.2.3 Experience: What is the experience level of government personnel? Fill in the number of government personnel in the appropriate boxes of the following table. (BRAC Criteria I)

AIR VEHICLES, FIXED, AVIONICS

R

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	5	315	110	80	187
Managment (Supv)	0	2	8	8	78
Total	5	317	118	88	265

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

R

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	0	0	6	5	13
Management (Supv)	0	0	0	1	0
Total	0	0	6	6	13

AIR VEHICLES, FIXED, STRUCTURES

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	2	136	42	16	77
Management (Supv)	0	3	4	4	22
Other	0	0	6	18	16
Total	2	139	52	38	115

NAWCHQ Change
VBC 9/20/94
NAWC-21D

3.2.3 **Experience:** What is the experience level of government personnel? Fill in the number of government personnel in the appropriate boxes of the following table. (BRAC Criteria I)

AIR VEHICLES, FIXED, AVIONICS

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	**5**	**319**	**110**	**80**	**187**
Managment (Supv)	**0**	**6**	**10**	**8**	**78**
Total	**5**	**325**	**120**	**88**	**265**

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	**0**	**30**	**10**	**7**	**20**
Management (Supv)	**0**	**0**	**1**	**1**	**4**
Total	**0**	**30**	**11**	**8**	**24**

AIR VEHICLES, FIXED, STRUCTURES

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	**2**	**136**	**42**	**16**	**77**
Management (Supv)	**0**	**3**	**4**	**4**	**22**
Other	**0**	**0**	**6**	**18**	**16**
Total	**2**	**139**	**52**	**38**	**115**

AIR VEHICLES, ROTARY, AVIONICS

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	0	33	9	7	20
Management (Supv)	0	0	3	2	7
Total	0	33	12	9	27

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	* INFO NOT AVAILABLE				
Management (Supv)					
Total					

***THIS INFORMATION IS NOT AVAILABLE. THE WORKLOAD ASSOCIATED WITH AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS FALLS ORGANIZATIONALLY UNDER THE GROUP ASSOCIATED WITH COMMON SUPPORT FUNCTION, AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS . AS SUCH, THERE IS NO MEANS TO IDENTIFY INDIVIDUALS SPECIFICALLY UNDER THIS CSF. AS SUCH, THERE IS NO MEANS TO IDENTIFY INDIVIDUALS SPECIFICALLY UNDER THIS CSF.**

ADVANCED MATERIALS

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	0	6	2	1	3
Management (Supv)					1
Total	0	6	2	1	4

HUMAN SYSTEMS

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	**0**	**13**	**4**	**2**	**9**
Management (Supv)	**0**	**0**	**1**	**1**	**2**
Total	**0**	**13**	**5**	**3**	**11**

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AIR VEHICLES, FIXED, PROPULSION

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	2	88	34	19	77
Management (Supv)					
Total	2	88	34	19	77

AIR VEHICLES, ROTARY, PROPULSION

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical		13	14	3	1
Management (Supv)				1	
Total		13	14	4	1

WEAPONS, CRUISE MISSILE

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical		17	9	6	2
Management (Supv)			1	1	
Total		17	10	7	2

WEAPONS, GUIDED PROJECTILES

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	*				
Management (Supv)					
Total					

***NO FULL-TIME PERSONNEL ARE DEDICATED 100% TO WEAPONS, GUIDED PROJECTILES.**

C4I SYSTEMS, AIRBORNE C4I

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical					**8**
Management (Supv)					
Total					

C4I SYSTEMS, FIXED GROUND-BASED C4I

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical		**34**	**4**	**2**	**7**
Management (Supv)		**4**	**3**		**4**
Total		**38**	**7**	**2**	**11**

3.2.4 **Accomplishments During FY91-93:** For government personnel answer the following questions.

3.2.4.1 How many patents were awarded and patent disclosures (only count disclosures with issued disclosure numbers) were made? (BRAC Criteria I)

CSF	Disclosures	Awarded	Patent Titles (List)
Patents Awarded		**90**	
Patents Applied For		**35**	
Total			

AIR VEHICLES, FIXED, STRUCTURES

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Control Surfaces	**Maurice M. Sevik**	**4,979,455**	**12/25/90**
Method and Apparatus for Measuring Corrosion Beneath Thin Films	**Vinod S. Agarwala; Paul J. Kennedy**	**4,994,159**	**02/19/91**
Interferometric Surface Distortion Detector	**Arthur E. Scotese; Shih L. Huang; Armando J. Gaetano**	**5,000,574**	**03/19/91**
Wing-Extendible Gliding Store	**Samuel Greenhalgh**	**5,074,493**	**12/24/91**
Vibration-Dampling Structural Member	**David J. Barrett**	**5,087,491**	**02/11/92**
Lift Enhancement Device	**Samuel Greenhalgh**	**5,226,618**	**07/13/93**
Dielectric Viscometer Including Fixed and Variable Cells	**John G. Williams; Thomas M. Donnellan; Ronald E. Trabocco**	**5,279,149**	**01/18/94**
Active Vortex Control for a High Performance Wing	**Marvin M. Walters; Steven B. Kern**	**5,282,591**	**02/01/94**

AIR VEHICLES, FIXED, AVIONICS

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Multi-Channel Acoustic Simulator	Marc C. DiLemmo	4,908,800	03/13/90
Fiber Optic Magnetometers for Multiple Order Gradiometers	Lloyd C. Bobb	4,918,371	04/17/90
Optical Fiber Refractometer	Lloyd C. Bobb; Howard D. Krumboltz	4,981,338	01/01/91
Optical Fiber Refractometer Launching Light at a Non-Zero Launch Angle	Lloyd C. Bobb; Howard D. Krumboltz	4,988,863	01/29/91
Hydrophone Deployment System for a Sonobuoy	John R. Dale; Roger A. Holler	4,999,816	03/12/91
Deep Ocean Recoverable Acoustic Sensor Vehicle	Edward J. Cotilla; Joseph M. McCandless; Paul Savitz; Edwin H. Kribbs, Jr.	5,003,514	03/26/91
Air-Surface-Missile Data Link System	John C. Lockhart; Standish C. Hartman; Bruce R. Meuron; Joseph B. Lyons, Jr.	5,004,185	04/02/91
Stationary, Probability Integrator System	Paul F. Reimel	5,008,630	04/16/91
Vehicle Steering Device	Bruce W. Travor; Roger A. Holler	5,011,097	04/30/91
Air-to-Subsurface Missile System	Morton L. Metersky; James R. Howard	5,012,717	05/07/91
Data Link and Return Link	Bruce R. Meuron; Joseph B. Lyons	5,018,685	05/28/91
Sonobuoy Suspension System	John R. Dale; Lawrence F. Coar	5,020,032	05/28/91
Lock Means and TV Sync for Air-to-Surface Missile	John C. Lockhart, Jr.	5,022,079	06/04/91

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Sonic Detection and Tracking System	Henry Suter	5,025,425	06/18/91
Video Processor for a Counter-Countermeasure System	Burton L. Hulland	5,027,121	06/25/91
Electro-Optic Line Narrowing of Optical Parametric Oscillators	Bruce O. Boczar	5,028,816	07/02/91
Guideable Stores	Bruce W. Travor; James F. McEachern; Frank P. Marshall	5,042,744	08/27/91
Optical Fiber Sensor for Measuring Physical Properties of Liquids	Lloyd C. Bobb; Barbara J. White; Jon P. Davis	5,047,626	09/10/91
Multi-Sonobuoy Launch Container with Constant Force Spring	Bruce W. Travor; Richard M. Coughlan; Edward J. Cotilla; Frank P. Marshall	5,052,270	10/01/91
Seismic-Acoustic Detection Device	George A. Gimber; Edward J. Cotilla; Salvatore R. Picard; Robert F. Starry	5,054,006	10/01/91
Multi-Sonobuoy Launch Container with Mechanical Actuator	Leo Dragonuk	5,054,364	10/08/91
Superconducting Josephson Junction Gyroscope Apparatus	Francis A. Karwacki	5,058,431	10/22/91
Launch Container for Multiple Stores Using Electrically-Actuated Paddle Assemblies	Frank P. Marshall; Bruce W. Travor; Timothy L. Kraynak	5,063,823	11/12/91
Programmable Pulse Shaper for Sonobuoy Apparatus	Keith S. Rizkowski; David E. Zeidler	5,065,370	11/12/91
Optical Interconnects In The Computer Environment	Todd A. Kline; Warren A. Rosen; William J. Bermingham; Eric A. Alfonsi	5,068,880	11/26/91

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Pneumatically Actuated Multiple Store Launcher	Frank P. Marshall; Bruce W. Travor	5,070,760	12/10/91
Electrically Actuated Multiple Store Launcher	Frank P. Marshall; Bruce W. Travor	5,074,186	12/24/91
Launch Container for Multiple Stores Using Piezo Electrically-Actuated Paddle Assemblies	Frank P. Marshall; Bruce W. Travor; Timothy L. Kraynak	5,076,134	12/31/91
Digital Bottom Mapping	Anthony P. Passamante; Paul A. Labonski; Nancy J. Harned; Timothy B. Hediger; John Ambrose	5,077,699	12/31/91
Doppler Velocity Profiler	Peter T. Shaw; Arthur P. Stevens; Anthony Marino	5,077,700	12/31/91
Nonlinear Optical Acrylic Polymers and Use Thereof in Optical and Electro-Optic Devices	Leslie H. Sperling; Clarence J. Murphy; Warren A. Rosen; Himanshu Jain; Warren N. Herman	5,079,321	01/07/92
Launch Container for Multiple Stores	Bruce W. Travor; James F. McEachern	5,092,221	03/03/92
Tapered Optical Fiber Sensor	Howard D. Krumboltz; Lloyd C. Bobb	5,093,569	03/03/92
Adaptive Filter Technique for Suppression of Wideband or Offset Narrowband Radio Frequency Interference	Jeffry J. Miller	5,097,221	03/17/92
Radial Damper Disk	Martha E. Snyderwine; Saroja Mahadevan	5,097,451	03/17/92
Optoelectronic Devices	Leslie H. Sperling; Clarence J. Murphy; Warren A. Rosen; Himanshu Jain; Warren N. Herman	5,112,531	05/12/92

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Optical Fiber Sensor for Measuring Physical Properties of Fluids	Lloyd C. Bobb; Barbara J. White; Jon P. Davis; Arthur Samouris	5,115,127	05/19/92
Aircraft Controlled Launch Container for Multiple Stores	Frank P. Marshall; Bruce W. Travor; James F. McEachern	5,155,288	10/13/92
Obturator Retaining Means	Bruce W. Travor; Frank P. Marshall; Timothy L. Kraynak	5,160,800	11/03/92
Temperature Compensated Lithium Battery Energy Monitor	Albert M. Bates	5,162,741	11/10/92
Optical Antenna Beam Steering Using Digital Phase Shifter Control	William D. Jemison; Peter R. Herczfeld; Arthur Paolella	5,164,736	11/17/92
Thermal Phase Modulator and Method of Modulation of Light Beams by Optical Means	Lloyd C. Bobb; Howard D. Krumboltz	5,166,988	11/24/92
Cable Pack Winding and Payout System	Roger A. Holler; Peter A. Ulrich	5,183,217	02/02/93
Optically Controlled Active Impedance Element Particularly Suited for a Microwave Oscillator	William D. Jemison; Peter R. Herczfeld	5,198,783	03/30/93
Extending Bandwidth of Optical Emitters Using Active Matching Technique	Vladimir Gershman; Afshin S. Daryoush; Warren A. Rosen	5,214,525	05/25/93
Underwater Transducer	Robert A. DeChico	5,218,576	06/08/93
Buoy Launch Container Extender	Frank P. Marshall; Bruce W. Travor; Saroja Mahadevan	5,222,996	06/29/93

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Optically Controlled Active Impedance Element and Filters Employing the Same	William D. Jemison; Peter R. Herczfeld	5,229,665	07/20/93
Multiplatform Sonar System and Method for Underwater Surveillance	Marvin C. Gaer	5,231,609	07/27/93
Flexible Acoustic Array with Polymer Hydrophones	Robert A. DeChico; James F. McEachern; Timothy L. Kraynak	5,257,243	10/26/93
Corrosion-Inhibiting Coating Composition	Walter E. Knight; Kenneth G. Clark; David L. Gauntt	5,021,489	06/04/91

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Helmet-Mounted Head Restraint	Michael H. Patterson	4,909,459	03/20/90
Apparatus for Cooling Electronic Components in Aircraft	Frank E. Altoz; John D. McClure	4,934,154	06/19/90
Engine Block Cylinder Head Bolt Hole Repair	James C. Stafford	5,025,556	06/25/91
Stabilized Square Parachute	Carl T. Calianno	5,037,042	08/06/91
Pivoting Seat for Fighter Aircraft	Chi Tung	5,064,146	11/12/91
Goggles Emergency Release Apparatus	Daniel J. Schmidt; Thomas J. Dillon; Ricky L. Greth	5,176,342	01/05/93
Helmet Visor Support Apparatus	Daniel J. Schmidt; John D. Jacks	5,177,816	01/12/93

HUMAN SYSTEMS

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Production of Monoclonal Antibodies to Treponema Denticola by Hybridoma TDIII, IIIBB2	Lloyd G. Simonson	4,959,304	09/25/90

ADVANCED MATERIALS

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
High Temperature, Corrosion-Preventive Coating	Stephen J. Spadafora	4,960,817	10/02/90
Polymer Composite Preform and Process for Producing Same	John J. Reilly; Ihab L. Kamel	4,960,818	10/02/90
High Gloss Corrosion-Resistant Coatings	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng; William J. Green	5,043,373	08/27/91
Naval Electrochemical Corrosion Reducer	Howard L. Clark	5,052,962	10/01/91
Epoxy Corrosion-Resistant Coating	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng; William J. Green	5,059,640	10/22/91
Composition and Method for Producing an Aluminum Alloy Resistant to Environmentally-Assisted Cracking	John J. DeLuccia	5,061,323	10/29/91
Corrosion-Resistant Alkyd Coatings	Charles R. Hegedus; Donald J. Hirst; William J. Green; Anthony T. Eng	5,089,551	02/18/92

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Polymer-Reinforced Metal Matrix Composite	Gilbert J. London; William E. Frazier; John G. Williams	5,100,736	03/31/92
Corrosion-Resistant Acrylic Coatings	Charles R. Hegedus; Donald J. Hirst; William J. Green; Anthony T. Eng	5,100,942	03/31/92
Apparatus for Preparing Thermoplastic Composites	Roland C. Cochran; Edwin L. Rosenweig	5,116,216	05/26/92
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,124,385	06/23/92
Epoxy Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,130,361	07/14/92
Synthetic Lubricating Oil Greases Containing Metal Chelates of Schiff Bases	Vinod S. Agarwala; Alfeo A. Conte, Jr.; Krishnaswamy S.; Prabir K. Sen	5,147,567	09/15/92
Epoxy Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,202,367	04/13/93
Process for Preparing Thermoplastic Composites	Roland C. Cochran; Edwin L. Rosenzweig	5,236,646	08/17/93
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,236,983	08/17/93
Strain Sensing Composites	Leonard J. Buckley; Gary C. Neumeister	5,240,643	08/31/93
Stainless Steel Surface Treatment	Georgette B. Gaskin; Gabriel J. Pills; Stanley R. Brown; Robert B. Boak	5,275,696	01/04/94
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,290,599	03/01/94

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,290,839	03/01/94
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,290,840	03/01/94
Trivalent Chromium Conversion Coatings for Aluminum	Fred Pearlstein; Vinod S. Agarwala	5,304,257	04/19/94
Corrosion-Inhibiting Coating Composition	Walter E. Knight; Kenneth G. Clark; David L. Gauntt	5,021,489	06/04/91

AIR VEHICLES, ROTARY, AVIONICS

NONE			

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

NONE			

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AIR VEHICLES, FIXED, PROPULSION

Apparatus and method utilizing interference fringes to determine the thermal stability of a licquid	Darrah, S.D., DiGiusseppe, T.D., Marram, E.P., Kamin, R.A., Nowack, C.J., and Steendal, R.	4,842,410	1990

AIR VEHICLES, ROTARY, PROPULSION

NONE			

WEAPONS, CRUISE MISSILE

NONE			

WEAPONS, GUIDED PROJECTILES

NONE			

C4I SYSTEMS, AIRBORNE C4I

NONE			

R

C4I SYSTEMS, FIXED GROUND-BASED C4I

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CSF	Disclosures	Awarded	Patent Titles (List)
C4I SYS, FIXED GRD-BASED C4I	1		NCCS 1801 TRANS.MODULE

NAWCHQ Change
VBC 9/20/94
NAWC-21D

PATENTS APPLIED FOR
AIR VEHICLES, FIXED, STRUCTURES

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Image Scanning Heterodyne Microinterferometer	William R. Scott	74227	07/827,233	1/29/92
Offset Corrugated Sandwich	Hemen Ray	74298	08/082,069	6/23/93
Corrosivity Sensor	Vinod S. Agarwala, Fred Pearlstein	74845	07/942,914	9/10/92
Josephson Break Junction and Method of Making Same	Ignacio M. Perez, William R. Scott	74889	07/947,022	9/17/92
Lift Enhancement Device	Samuel Greenhalgh	74935	08/067,763	5/26/93
Vibration-Damping Structure Component	David John Barrett	73018	07/800,902	11/26/91
Method of Making an Offset Corrugated Sandwich Construction	Hemen Ray, Lee W. Gause	73384	08/082,068	6/23/93
Lattice Core Sandwich Construction	Hemen Ray, Lee W. Gause	73428	08/082,067	6/23/93
Improved Vibration-Damping Structural Component	David John Barrett	73728	08/025,535	3/3/93
System and Method for Automatic Ship Steering	Jules Kriegsman, Martin E. Leblang	73748	07/758,976	9/6/91
Meniscus Regulator System	Marshall K. Thomas	74028	08/123,944	9/20/93
Corrosivity Sensor	Vinod S. Agarwala, Fred Pearlstein	75524	08/087,237	6/30/93
A Jack Mechanism Having Positive Stop Means for Crank Handle	Watkins Crockett IV, Bernard W. Baird	75876	08/183,707	1/18/94

AIR VEHICLES, FIXED, AVIONICS

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Nonlinear Frequency Conversion Optical Filter	Bruce P. Boczar	74269	08/123,959	9/20/93
A System for Conveniently Producing Load Testing Termination of an AC Power Source Having at Least One Battery	Wilbert J. Morell, III	74934	07/972,701	11/5/92
Ship's Attitude Rate Converter (SADC)	Peter J. Konopelski	75037	08/096,088	7/21/93
Wavefront Simulator for Evaluating RF Communication Array Signal Processors	Steven B. Minarik	75055	08/145,352	10/27/93
An Automatic Repeater System for Signal Transmissions	Elliott L. Ressler, Yoram Levy, Douglas Bancroft	72839	08/106,746	8/16/93
Simplified Reuseable Sonobuoy Launcher	Bruce W. Travor, Richard M. Coughlan	73043	08/102,023	7/28/93
Liquid Metal Confinement Cylinder for Optical Discharge Devices	Marie E. Taylor, Edward J. Seibert	73195	08/172,795	12/27/93
Passive Range Measurement System	Walter L. Harriman	73330	07/921,863	7/27/92
Aircraft Control Lever Simulator	G. Terry Thomas	73610	08/130,950	10/4/93
An Elastomeric Electrical Connector	Joseph E. Laska, John T. Oakley, Francis R. Reinert	73688	08/107,431	8/16/93
Apparent Size Passive Range Method	Walter L. Harriman	73890	08/094,663	7/15/93

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Cable Multi-Pack	Roger A. Holler, Peter R. Ulrick	75487	08/093,961	6/23/93
Thoriated Tungsten Split Ring Hollow Cathode Electrode for Longitudinal Discharge of Gases and Metal Vapors	Edward J. Seibert, Gerald D. Ferguson, Marie E. Taylor	75523	08/209,345	3/14/94
Ice Penetrating Buoy	Bruce W. Travor; Ronald D. DiGirolamo	73230	08/053,763	05/03/94
Underwater Acoustic Intensity Probe	Thomas B. Gabrielson, James F. McEachern, Gerald C. Launchle	75162	08/136,637	10/12/93

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Oil/Coolant Separator	Jack H. Fentz	75693	08/221,126	3/31/94
Reconfigurable Aircraft Stick Control	Thomas M. Kelso, John K. Kotch, Damon Boyle, David H. Meiser, William Flaherty, Benard Baird	75350	08/129,729	9/29/93

ADVANCED MATERIALS

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Johnson Break Junction and Method of Making Same	**Ignacio M. Perez, William R. Scott**	**73325**	**07/777,773**	**10/10/91**
Polyurethane Self-Priming Topcoats	**Charles R. Hegedus, Donald J. Hirst, Anthony T. Eng**	**75351**	**08/207,445**	**3/7/94**
Epoxy Self-Priming Topcoats	**Charles R. Hegedus, Donald J. Hirst, Anthony T. Eng**	**75558**	**08/207,448**	**3/7/94**
Trivalent Chromium Solutions for Sealing Anodized Aluminum	**Fred Pearlstein, Vinod S. Agarwala**	**75647**	**08/134,762**	**10/1/93**
Polyurethane Self-Priming Topcoats	**Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng**	**75419**	**08/062,864**	**05/03/94**

AIR VEHICLES,. ROTARY, AVIONICS

NONE				

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

NONE				

HUMAN SYSTEMS

NONE				

3.2.4.2 How many papers were published in peer reviewed journals? (BRAC Criteria I)

CSF	Number Published	Paper Titles (List)
		See following pages
TOTAL	**401**	

R R

AIR VEHICLES, FIXED, PROPULSION

NONE			

AIR VEHICLES, ROTARY, PROPULSION

NONE			

WEAPONS, CRUISE MISSILE

NONE			

WEAPONS, GUIDED PROJECTILES

NONE			

C4I SYSTEMS, AIRBORNE C4I

NONE			

C4I SYSTEMS, FIXED GROUND-BASED C4I

NONE			

NAWCHQ Change
VBC 9/20/94
NAWC-21D

AIR VEHICLES, FIXED, AVIONICS

* Albano, A. M., A Passamante, and Mary Eileen Farrell, "Using higher-order correlations to define an embedding window," *Physical D* **54**, 85 (1991).

* Passamante, A. and M. E. Farrell, "Characterizing Attractors Using Local Intrinsic Dimension via Higher Order Statistics," Physical Review,Vol. A 43, 5268, 1991.

* Billmers, R. I. and A. L. Smith, "Ultraviolet-visible absorption spectra of equilibrium sulfar vapor: Molar absorptivity spectra of S3 and S4", Journal of Physical Chemistry, **95** (1991) p. 4242.

* Bobb, L., "Pressure Sensor That Uses Bent Bioconically Tapered Single Mode Fibers," Optics Lett 16, #2, 112 (1991).

* Bobb, L., "Coupling of Modes in Bent Biconically Tapered Single Mode Fibers," Journal of Light Wave Technology, Vol 9, p. 832, July 1991.

* Davis, J. P., A.Smith, C. Giranda and M. Squicciarini, "Laser induced Plasma Formation in Xe, Ar, N, and O at the first four Nd-YAG harmonics", Applied Optics 30m 4358 (1991).

* Ochadlick, A. R., Jr. and N. Engheta, "Magnetic Fields Resulting from Ocean Current Structures Seen in SAR Imagery," Extended abstract in Progress in Electromagnetics Research Symposium (PIERS) Proceedings, Ocean Surface as a Turbulent Scattering Medium II, p. 124, July 1991.

* Passamante, A. and Mary Eileen Farrell, "Characterizing attractors using local intrinsic dimension via higher order statistics," *Physical Review A* **43**, 5268 (1991).

* Albano, A. M., A. Passamante, T. Hediger, and Mary Eileen Farrell, "Using Neural Nets to Look for Chaos," *Physical D* **58**, 1 (1992).

* Bobb, L. C. and P. M. Shankar, "Tapered Optical Feber Components and Sensors: Microwave Journal 35, #5 218(1992)

NAWCHQ Change
VBC 9/20/94
NAWC-21D

AIR VEHICLES, FIXED, AVIONICS

* Bobb, L., "A Novel Pressure Sensor Using Bent Biconically Tapered Single Mode Fibers," accepted by Optics Letters.

* Bobb, L., "Coupling of Modes in Bent Biconically Tapered Single Mode Fibers," submitted to JLT.

* Herman, W. N., W. A. Rosen, L. H. Sperling, C. J. Murphy and H. Jain, "A Novel High Glass Transition Temperature Acrylic Polymer with Nonlinear Optical Properties," submitted to Journal of Polymer Science Polymer Physics.

* Herman, W. N., W. A. Rosen, L. H. Sperling, C. J. Murphy, and H. Jain, "A Novel High Glass Transition Temperature Acrylic Polmer with Nonlinear Optical Properties," in preparation for submission to Journal of Polymer Science Part C: Polymer Letters.

* Scharpf, W. J. and B. P. Boczar, "Performance of the $LINbO_3$ Optical Parametric Oscillator," submitted to Optics Communications or Journal of the Optical Society of America.

* Scharpf, W. J. and B. P. Boczar, "Theoretical Study of the Rotational-Twinned Cadmium-Manganese-Telluride Optical Parametric Oscillator," submitted to Optics Communications or Journal of the Optical Society of America.

* Schmidt, W. A. and J. P. Davis, "Pattern Recognition Properties of Various Feature Spaces for Higher Order Neural Nets," Accepted for Publication in IEEE Pattern Recognition and Machine Analysis.

* SDHP-1-72 - "Original Specification for ASP ALL PPS, etc. for UYS-1 Development" (U)

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NONE

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NONE

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NONE

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AIR VEHICLES, ROTARY, PROPULSION

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AIR VEHICLES, FIXED, PROPULSION

NONE

WEAPONS, CRUISE MISSILE

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WEAPONS, GUIDED PROJECTILES

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C41 SYSTEM, AIRBORNE C4I

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C4I SYSTEMS, FIXED GROUND-BASED C4I

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AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

NONE

AIR VEHICLES, FIXED, STRUCTURES

NONE

AIR VEHICLES, ROTARY, AVIONICS

NONE

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

NONE

R

3.3 Workload

3.3.1 FY93 Workload

3.3.1.1 **Work Year and Lifecycle:** Identify the number of actual workyears executed for each applicable CSF in FY93 for each of the following: government civilian; military; on-site FFRDCs; and on-site SETAs. (BRAC Criteria I)

AIR VEHICLES, FIXED, AVIONICS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**209**	**2.3**		
Engineering Development	**548.6**	**2.4**		
In-Service Engineering	**164.4**	**1.0**		

R

AIR VEHICLES, FIXED, STRUCTURES

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**71.7**	**0.0**		
Engineering Development	**43.7**	**0.0**		
In-Service Engineering	**8.2**	**0.0**		

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**5.6**	**0.0**		
Engineering Development	**51.6**	**0.0**		
In-Service Engineering	**29.6**	**0.0**		

NAVCHTQ Change
NAVC-21D VBC
9/20/94

3.3 Workload

3.3.1 FY93 Workload

3.3.1.1 **Work Year and Lifecycle:** Identify the number of actual workyears executed for each applicable CSF in FY93 for each of the following: government civilian; military; on-site FFRDCs; and on-site SETAs. (BRAC Criteria I)

AIR VEHICLES, FIXED, AVIONICS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**209**	**2.3**		
Engineering Development	**553.6**	**3.4**		**10**
In-Service Engineering	**214.4**	**2.0**		**65**

AIR VEHICLES, FIXED, STRUCTURES

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**71.7**	**0.0**		
Engineering Development	**43.7**	**0.0**		
In-Service Engineering	**8.2**	**0.0**		

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**5.6**	**0.0**		
Engineering Development	**51.6**	**0.0**		
In-Service Engineering	**29.6**	**0.0**		

AIR VEHICLES, ROTARY, AVIONICS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	9.2	0.0		
Engineering Development	33.6	1.3		
In-Service Engineering	37.4	0.0		

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	0.0	0.0		
Engineering Development	0.0	0.0		
In-Service Engineering	.4	0.0		

ADVANCED MATERIALS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	13.2	0.0		
Engineering Development	0.0	0.0		
In-Service Engineering	0.0	0.0		

HUMAN SYSTEMS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**27.8**	**0.0**		
Engineering Development	**0.0**	**0.0**		
In-Service Engineering	**0.0**	**0.0**		

R

AIR VEHICLES, FIXED, PROPULSION

R

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**81.1**	**0.0**		
Engineering Development	**170.7**	**0.0**		
In-Service Engineering	**46.2**	**0.0**		

AIR VEHICLES, ROTARY, PROPULSION

R

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**3**			
Engineering Development	**16.5**			
In-Service Engineering	**12.5**			

WEAPONS, CRUISE MISSILES

R

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**1.5**			
Engineering Development	**10**			
In-Service Engineering	**22.5**			

ADDED PAGE

NAWCHQ Change
VBC 9/20/94
NAWC-21D

R

WEAPONS, GUIDED PROJECTILES

R

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	*			
Engineering Development				
In-Service Engineering				

*** NO FULL-TIME PERSONNEL DEDICATED 100% TO WEAPONS, GUIDED PROJECTILES.**

C41 SYSTEMS, C41 AIRBORNE C41

R

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology				
Engineering Development				
In-Service Engineering	**8**			

C41 SYSTEMS, FIXED, GROUND-BASED C41

R

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology				
Engineering Development	**5**	**1**		**10**
In-Service Engineering	**50**			**65**

NAWCHQ change
VBC 9/20/94
NAWC-21D

R

3.3.1.2 **Engineering Development By ACAT:** For each Common Support Function (e.g. airborne C4I) at each activity engaged in engineering development, provide:

- For each ACAT IC, ID, and II program (as defined in DODI 5000.2):
  - The name of the program
  - A brief program description
- For each ACAT III and IV programs:
  - The number of such programs
  - A list of program names
- For each program not an ACAT I, II, III, IV:
  - The number of such programs
  - A list of program names
- For the purpose of this question, any program between Milestone I and IV and containing demonstration and validation (Dem/Val 6.4)/Engineering and Manufacturing Development (EMD 6.5) funds in the FY95 PBS is considered to be engaged in engineering development (BRAC Criteria I).

AIR VEHICLES, FIXED, AVIONICS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	
ACAT IC	NAVSTAR GPS EQUIP	17.2	3089.6	EVALUATION OF GPS ANTENNAS AND DETERMINING THE OPTIMUM INSTALLATION ON NAVAL PLATFORMS FOR ACCEPTABLE GPS ANTENNA PERFORMANCE.
ACAT IC	FIXED DISTRIBUTED SYSTEM	5.9	892.3	PROVIDE TECHNICAL SUPPORT FOR THE DEVELOPMENT OF THE AIR DEPLOYABLE MEMBERS OF THE ADVANCED DEPLOYABLE SYSTEM FAMILY. ON-SITE TECHNICAL SUPPORT AND EVALUATIONS WILL BE PROVIDED TO THE PROGRAM DEVELOPMENT OFFICE (PD80D).

R

R

NAWCHQ Change
VBC 9/20/94
NAWC-21D

3.3.1.2 **Engineering Development By ACAT:** For each Common Support Function (e.g. airborne C4I) at each activity engaged in engineering development, provide:

- For each ACAT IC, ID, and II program (as defined in DODI 5000.2):
  - The name of the program
  - A brief program description
- For each ACAT III and IV programs:
  - The number of such programs
  - A list of program names
- For each program not an ACAT I, II, III, IV:
  - The number of such programs
  - A list of program names
- For the purpose of this question, any program between Milestone I and IV and containing demonstration and validation (Dem/Val 6.4)/Engineering and Manufacturing Development (EMD 6.5) funds in the FY95 PBS is considered to be engaged in engineering development (BRAC Criteria I).

AIR VEHICLES, FIXED, AVIONICS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	
ACAT IC	FLTSATCOM	0.1	11.5	PROVIDE SUPPORT FOR THE ACQUISITION AND TESTING OF COMMUNICATION EQUIPMENT.
ACAT IC	NAVSTAR GPS EQUIP	6.6	1107.8	EVALUATION OF GPS ANTENNAS AND DETERMINING THE OPTIMUM INSTALLATION ON NAVAL PLATFORMS FOR ACCEPTABLE GPS ANTENNA PERFORMANCE.
ACAT IC	FIXED DISTRIBUTED SYSTEM	5.9	892.3	PROVIDE TECHNICAL SUPPORT FOR THE DEVELOPMENT OF THE AIR DEPLOYABLE MEMBERS OF THE ADVANCED DEPLOYABLE SYSTEM FAMILY. ON-SITE TECHNICAL SUPPORT AND EVALUATIONS WILL BE PROVIDED TO THE PROGRAM DEVELOPMENT OFFICE (PD80D).
ACAT IC	NAS MODERNIZATION	0.0	9.1	PROVIDE CONTINUING DEVELOPMENT OF THE ADVANCED TACTICAL AIR RECONNAISSANCE SYSTEM (ATARS) INFRARED/ELECTRO OPTICS, LONG RANGE OBLIQUE PHOTOGRAPHIC SYSTEM (IR/EO-LOROPS) INTEGRATION OF THESE SYSTEMS ONTO THE F/A-18D(RC) AIRCRAFT

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

ACAT IC	TACTICAL RECON SYSTEM (TACRECCE)	9.2	1932.8	PROVIDE PROJECT MANAGEMENT AND SYSTEM ENGINEERING IN THE DEVELOPMENT AND INTEGRATION OF A RECONNAISSANCE CAPABILITY FOR THE F/A-18(RC) AIRCRAFT.	R
ACAT IC	FLTSATCOM X0731	1.5	1050	DEVELOP, TEST, & EVALUATE NAVY SATELLITE CONTROL STATION INTERFACE UNIT (NIU)	
ACAT ID	F/A-18 VARIANT	.3	40.4	PROVIDE RESPONSIVE MANAGEMENT ENGINEERING SUPPORT, AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES.	
ACAT ID	A/F-X DEVELOPMENT	22.1	3788.8	PRIMARY FOCUS WILL BE SOURCE SELECTION ACTIVITIES IN PREPARATION FOR THE MILESTONE I DAB, THE ASSESSMENT OF CONTRACTOR CE&D RISK REDUCTION ACTIVITIES AND THE PERFORMANCE OF INDEPENDENT IN-HOUSE RISK REDUCTION	
ACAT ID	ASPJ COMMON DEV	1.1	182.1	PROVIDE TECHNICAL SUPPORT TO NAVAIR IN THE HARDWARE DEVELOPMENT OF AIRBORNE SELF PROTECTION JAMMER ASPJ TO INSURE AIRCRAFT GROUP "A" COMPATIBILITY TO DETERMINE GROUP "A" REQUIREMENTS AND TO DEVELOP HARDWARE AND INSTALLATION SPECIFICATIONS REQUIRED FOR AIRCRAFT INSTALLATION.	
ACAT ID	F/A-18E/F UPGRADES	0.9	121.6	PROVIDE RESPONSIVE MANAGEMENT, ENGINEERING SUPPORT, AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES AND TACTICAL MISSION.	R
ACAT II	EW COUNTER RESPONSE	1.5	208.0	ENHANCE THE NAVY'S CAPABILITY IN ELECTRONIC WARFARE THROUGH THE AN/ALQ 149 AND ALQ-99 PROGRAM	R
ACAT II	F/A-18 RADAR UPGRADE	.3	40.4	PROVIDE RESPONSIVE MANAGEMENT, ENGINEERING SUPPORT AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES AND TACTICAL MISSIONS.	
ACAT II	F-14 UPGRADE	20.0	3665.0	IDENTIFY NEEDS AND VALIDATE RQTS FOR THE F-14 AIR VEHICLE, AVIONICS, AND WEAPON CONTROL/MISSILE ARMAMENT SYSTEM.	R
ACAT II	ASN DEF ECM	4.1	786.1	IMPROVE FLEET TACTICAL SURVIVABILITY IN HOSTILE ENVIRONMENTS. DEVELOP SOFTWARE ALGORITHMS TO CONTROL AND COORDINATE ON-BOARD AND OFF-BOARD COUNTERMEASURES IN RESPONSE TO THREAT SITUATIONS.	R
ACAT IC	V-22	35.4	8177.0	PROVIDE TECHNICAL SUPPORT TO NAVAIR FOR THE FULL SCALE DEVELOPMENT OF THE V-22 ADVANCED VERTICAL LIFT AIRCRAFT.	

NAWCH Q Change
VSC 9/20/94
NAWC-21D

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

ACAT IC	TACRECCE	9.2	1932.8	PROVIDE PROJECT MANAGEMENT AND SYSTEM ENGINEERING IN THE DEVELOPMENT AND INTEGRATION OF A RECONNAISSANCE CAPABILITY FOR THE F/A-18(RC) AIRCRAFT.
ACAT IC	FLTSATCOM X0731	1.5	1050	DEVELOP, TEST, & EVALUATE NAVY SATELLITE CONTROL STATION INTERFACE UNIT (NIU)
ACAT ID	F/A-18 VARIANT	.3	40.4	PROVIDE RESPONSIVE MANAGEMENT ENGINEERING SUPPORT, AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES.
ACAT ID	A/F-X DEVELOPMENT	22.1	3788.8	PRIMARY FOCUS WILL BE SOURCE SELECTION ACTIVITIES IN PREPARATION FOR THE MILESTONE I DAB, THE ASSESSMENT OF CONTRACTOR CE&D RISK REDUCTION ACTIVITIES AND THE PERFORMANCE OF INDEPENDENT IN-HOUSE RISK REDUCTION
ACAT ID	ASPJ COMMON DEV	1.1	182.1	PROVIDE TECHNICAL SUPPORT TO NAVAIR IN THE HARDWARE DEVELOPMENT OF AIRBORNE SELF PROTECTION JAMMER ASPJ TO INSURE AIRCRAFT GROUP "A" COMPATIBILITY TO DETERMINE GROUP "A" REQUIREMENTS AND TO DEVELOP HARDWARE AND INSTALLATION SPECIFICATIONS REQUIRED FOR AIRCRAFT INSTALLATION.
ACAT ID	F/A-18E/F UPGRADES	0.9	121.6	PROVIDE RESPONSIVE MANAGEMENT, ENGINEERING SUPPORT, AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES AND TACTICAL MISSION.
ACAT II	NCCS X0709	1.5	346	DEVELOP, TEST, EVALUATE, & LIFE CYCLE SUPPORT FOR OSS/WWMCCS
ACAT IC	V-22	35.4	8177.0	PROVIDE TECHNICAL SUPPORT TO NAVAIR FOR THE FULL SCALE DEVELOPMENT OF THE V-22 ADVANCED VERTICAL LIFT AIRCRAFT.
ACAT III/IV	TSC/MOCC X0486	25	9590	DEVELOP, TEST, EVALUATE, LIFE CYCLE SUPPORT & ACQUISITION FOR MODULAR OPERATIONAL COMMAND CENTER
ACAT III/IV	TACTICAL COMBAT OPERATION C2122	1.5	630	DEVELOP, TEST, & EVALUATE MARINE CORPS TACTICAL COMMAND SYSTEM
III	17	8.8	1994.4	FULL SPECTRUM C4.8

ACAT III	8	8.8	1994.4	FULL SPECTRUM C4.8
"		46.2	15988.4	ADV ASW SENSORS PROC
"		1.2	372.6	ASWOC GENERIC MISN REPLAY
"		0.7	207.4	COMBO RADIO
"		8.2	2024.0	ASW SENSORS & PROC
"		5.8	1508.1	TACAMO SUPPORT(BLK UPGRD)
"		48.2	15465.8	AIR DEPLOYED ACTIVE RECEIVER
"		35.0	6872.6	P-3 SENSOR INTEGRATION
IV	3	1.2	361.4	TACT COMBAT TRAINING SYSTEM
"		3.5	531.0	TACT AIR COMB TRNG SYS
"		1.4	267.8	SAHRS
OTHER	119	4.6	1417.0	SPECIAL OPERATIONS A/C
"		1.0	182.0	NASP A540540TG/001C/06326
"		0.6	98.4	TACTS LATR
"		0.2	114.6	TA/AS ICD

NAWCHQ Change
VBC 9/20/94
NAWC-21D

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

[illegible]		24.4	9003.8	LFP 63254N (FY-93 TO 96)
III		0.4	54.8	AV8B RADAR ECS THERMAL
III		1.4	219.0	HDP
III		1.2	372.6	ASWOC GENERIC MISN REPLAY
III		0.7	207.4	AN/ARC 210 ECCM
III		1.0	267.2	AV8B FLIGHT CLEARANCE
III		0.0	39.6	ACAP R&D 63254N
III		2.4	961.0	ACAP R&D 64261N
III		19.4	6023.6	SWALAS 63254N
III		5.8	1508.1	TACAMO SUPPORT(BLK UPGRD)
III		0.0	6.8	AIS DEVELOPMENT 64261N
III		11.6	2902.4	212 FULL SPECTRUM
III		10.6	1981.8	CDNU
[illegible]		48.2	15465.8	IEER
[illegible]		5.8	1063.0	GENERIC ACOUS STIMUL SYS(
III		23.4	3970.2	VP PROGRAM
IV	3	1.2	361.4	TACTS TCTS
IV		3.5	531.0	TACTS FALLON
IV		1.4	267.8	ENGRG SUPPT FOR LPI
N/A	148	4.6	1417.0	SPECIAL OPERATIONS A/C
N/A		1.0	182.0	NASP A540540TG/001C/06326
N/A		0.6	98.4	TACTS LATR
N/A		0.2	114.6	TA/AS ICD
N/A		0.3	46.9	F/A-18 E/F MATL & PROCESS

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

OTHER	0.1	16.2	F/A-18 E/F ARFRM BEARINGS
"	6.2	1407.2	TBMD SYSTEM ENGRG
"	0.5	117.1	F/A-18 E/F FUEL SYS
"	46.2	10056.2	EMSP PROJECT
"	13.2	3474.2	NGCR
"	0.5	95.5	F/A-18 E/F ADVANCED SMS
"	0.3	48.4	F/A-18 E/F NONDESTR TEST
"	0.7	202.4	F/A-18 E/F COMP TEST
"	0.3	47.3	F/A-18 E/F AERMET 100 FAT
"	0.6	84.0	F-14 TAMPS MPM
"	0.2	30.9	F/A-18 E/F NMET HNCB
"	0.3	50.0	F/A-18 E/F LOW COST FAB
"	0.2	58.8	F/A-18 E/F STRUCTURE LOAD
"	0.3	57.7	F/A-18 E/F ARMAMENT
"	0.3	51.5	F/A-18 E/F COMP REP DEVEL
"	0.0	15720.2	P-3 SAR TEST AND OPERATIONS
"	0.4	33.9	F/A-18 E/F FIRE PROT ENG
"	1.9	381.0	UAV SYS ENGR T/S
"	0.2	49.0	TA/AS TRI-SERVICE
"	0.4	71.5	F/A-18 E/F ADV COMP DEVEL
"	0.7	3952.4	UAV(NAWC)MR TECH SUPPT

NAWCHQ Change
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AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	0.4	80.3	F/A-18 E/F MATLS IMPROVEM
N/A	0.1	16.2	F/A-18 E/F ARFRM BEARINGS
N/A	0.5	115.4	F/A-18 E/F DES FOR MAINT
N/A	6.2	1407.2	TBMD SYSTEM ENGRG
N/A	1.0	176.4	TAC D E PROGRAM COORDINAT
N/A	0.5	117.1	F/A-18 E/F FUEL SYS
N/A	46.2	10056.2	EMSP PROJECT
N/A	13.2	3474.2	NGCR
N/A	0.5	95.5	F/A-18 E/F ADVANCED SMS
N/A	0.3	48.4	F/A-18 E/F NONDESTR TEST
N/A	0.7	202.4	F/A-18 E/F COMP TEST
N/A	0.3	47.3	F/A-18 E/F AERMET 100 FAT
N/A	0.6	84.0	F-14 TAMPS MPM
N/A	0.2	30.9	F/A-18 E/F NMET HNCB
N/A	0.3	50.0	F/A-18 E/F LOW COST FAB
N/A	0.2	58.8	F/A-18 E/F STRUCTURE LOAD
N/A	0.3	57.7	F/A-18 E/F ARMAMENT
N/A	0.3	51.5	F/A-18 E/F COMP REP DEVEL
N/A	0.0	15720.2	P-3 SAR TEST AND OPERATIONS
N/A	0.4	33.9	F/A-18 E/F FIRE PROT ENG
N/A	1.9	381.0	UAV SYS ENGR T/S
N/A	0.2	49.0	TA/AS TRI-SERVICE
N/A	0.4	71.5	F/A-18 E/F ADV COMP DEVEL
N/A	0.7	3952.4	UAV(NAWC)MR TECH SUPPT

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

OTHER	0.2	27.9	F/A-18 E/F ADV MATLS PROC
"	0.4	65.7	F/A-18 E/F COMP MATL TECH
"	1.6	253.8	ASW TACT DECISION AIDS
"	2.4	875.6	AAED
"	1.6	317.4	UTSS
"	1.0	187.3	F/A-18 E/F STAB/CONTROL
"	0.5	120.3	F/A-18 E/F ECS
"	0.2	39.6	TDA-STRIKE
"	2.6	452.4	TA/AS ARMS
"	2.4	408.4	TACTS ACTS SIMS
"	4.2	1484.4	CV-ASWM
"	4.9	949.4	UAV MARITIME T/S
"	0.2	43.7	F/A-18 E/F LANDING GEAR
"	2.3	346.5	UAV TRUS T/S
"	22.6	4545.4	BEARTRAP CORE

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NAWC-HQ Change
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AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	0.2	27.9	F/A-18 E/F ADV MATLS PROC
N/A	0.4	65.7	F/A-18 E/F COMP MATL TECH
N/A	1.6	253.8	ASW TACT DECISION AIDS
N/A	2.4	875.6	AAED
N/A	1.6	317.4	UTSS
N/A	1.0	187.3	F/A-18 E/F STAB/CONTROL
N/A	0.5	120.3	F/A-18 E/F ECS
N/A	0.0	49.6	AIRCRAFT DAMAGE REPAIR (A
N/A	4.4	1193.2	REQUIREMENTS
N/A	0.2	39.6	TDA-STRIKE
N/A	2.7	552.6	NSAP
N/A	1.8	346.8	WSA&E
N/A	0.4	27.8	FOSAD
N/A	5.0	975.0	A/C SURV/VULN
N/A	2.6	452.4	TA/AS ARMS
N/A	2.4	408.4	TACTS ACTS SIMS
N/A	4.2	1484.4	CV-ASWM
N/A	0.0	202.6	FLEET SUPPORT ADR
N/A	4.9	949.4	UAV MARITIME T/S
N/A	4.4	431.6	SEWS
N/A	209.2	21032.6	R&D
N/A	0.2	43.7	F/A-18 E/F LANDING GEAR
N/A	2.3	346.5	UAV TRUS T/S
N/A	22.6	4545.4	BEARTRAP CORE

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

OTHER	0.6	121.2	UAV VLAR T/S
"	2.0	569.0	SAT
"	0.4	92.8	TA/AS FEI
"	1.4	248.6	NSTTS
"	0.2	449.8	RADIANT OUTLAW
"	2.0	1081.6	ERAPS
"	0.3	47.4	F/A-18 E/F PROPULSION
"	0.3	38.8	F/A-18 E/F INT FUEL
"	0.1	7.5	RDTE UAV VLAR SYSTEM ENGR
"	0.4	105.0	UAV VTOL MAVUS II T/S
"	5.8	1164.4	NAVS
"	0.1	19.7	F/A-18 E/F MATL CORR CHAR
"	0.3	58.9	F/A-18 E/F MET MATLS TECH
"	13.9	3368.3	UAV BQM-145 T/S
"	0.0	495.4	P-3 SAR TEST AND OPERATION
"	0.4	63.6	ICNEWS
"	35.0	11074.4	UPDATE IV
"	0.2	19.8	TEST PROC ASW SONAR SYSTEM
"	0.4	67.4	F/A-18 E/F HONEYCOMB ELIM
"	0.8	148.6	E-2C MISSION COMPUTER STU
"	0.6	99.0	SH-2G/SH-3H/SH-60 MISSION
"	16.0	15.8	SDIO/SBIR PHASE 1 PROJECT

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AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	0.6	121.2	UAV VLAR T/S
N/A	2.0	569.0	SAT
N/A	0.4	92.8	TA/AS FEI
N/A	1.4	248.6	NSTTS
N/A	0.2	449.8	RADIANT OUTLAW
N/A	2.0	1081.6	ERAPS
N/A	0.3	47.4	F/A-18 E/F PROPULSION
N/A	0.3	38.8	F/A-18 E/F INT FUEL
N/A	0.1	7.5	RDTE UAV VLAR SYSTEM ENGR
N/A	0.4	105.0	UAV VTOL MAVUS II T/S
N/A	5.8	1164.4	NAVS
N/A	0.1	19.7	F/A-18 E/F MATL CORR CHAR
N/A	0.3	58.9	F/A-18 E/F MET MATLS TECH
N/A	13.9	3368.3	UAV BQM-145 T/S
N/A	0.0	495.4	P-3 SAR TEST AND OPERATION
N/A	0.4	63.6	ICNEWS
N/A	35.0	11074.4	UPDATE IV
N/A	0.2	19.8	TEST PROC ASW SONAR SYSTEM
N/A	1.6	289.0	S-3 TECHNICAL SUPPORT
N/A	0.4	67.4	F/A-18 E/F HONEYCOMB ELIM
N/A	0.8	148.6	E-2C MISSION COMPUTER STU
N/A	0.6	99.0	SH-2G/SH-3H/SH-60 MISSION
N/A	0.4	39.6	CCS PROGRAM
N/A	16.0	15.8	SDIO/SBIR PHASE 1 PROJECT

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

OTHER	1.4	222.0	MIMIC
"	0.6	112.8	F/A-18 E/F ADH BOND TECH
"	3.0	522.2	INEWS SAAS ENGINEERING SU
"	0.6	84.2	PDC BOARD FAB(EMSP FACIL)
"	2.7	534.2	ASWOC FAST-TIME ANALYZER
"	0.9	202.9	F/A-18 E/F LAND GEAR MATL
"	0.8	137.8	BAM UPGRADE
"	0.3	69.4	F/A-18 MIDS ANTENNA SYSTE
"	0.7	181.0	F/A-18 E/F HYD SYS REDSGN
"	17.8	3369.2	ADI AIRSHIP PROGRAM
"	0.2	99.1	LITE
"	1.6	259.2	LASER RECV E-O SENSOR PRG
"	0.2	21.8	TESTING BETA-BARIUM BARAT
"	0.7	157.9	TACAMO SUPPORT
"	8.9	2649.6	P-3 SAR TEST AND EVAL
"	1.2	198.2	AIR ACOUSTIC CLASSIFICATION
"	1.2	247.8	NA-20 PROJ 111 SUPPORT
"	2.2	320.4	AIR DEFENSE INITIATIVE
"	19.8	3432.6	JTIDS SOFTWARE DEVELOPMEN
"	0.2	14.6	EER(63013N) NELO FY92C-O
"	2.4	399.0	INTEGRATED EW SYSTEM (INE

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AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	1.4	222.0	MIMIC
N/A	0.6	112.8	F/A-18 E/F ADH BOND TECH
N/A	3.0	522.2	INEWS SAAS ENGINEERING SU
N/A	0.6	84.2	PDC BOARD FAB(EMSP FACIL)
N/A	2.7	534.2	ASWOC FAST-TIME ANALYZER
N/A	0.9	202.9	F/A-18 E/F LAND GEAR MATL
N/A	0.8	137.8	BAM UPGRADE
N/A	0.3	69.4	F/A-18 MIDS ANTENNA SYSTE
N/A	0.7	181.0	F/A-18 E/F HYD SYS REDSGN
N/A	17.8	3369.2	ADI AIRSHIP PROGRAM
N/A	0.2	17.0	ADI-ASW ARCHITECTURE
N/A	0.2	16.0	ADI-ASW INPUT DATABASE
N/A	0.2	99.1	LITE
N/A	1.6	259.2	LASER RECV E-O SENSOR PRG
N/A	0.2	21.8	TESTING BETA-BARIUM BARAT
N/A	0.7	157.9	TACAMO SUPPORT
N/A	0.2	15.9	CFIUS CASE FILING PREDICT
N/A	8.9	2649.6	P-3 SAR TEST AND EVAL
N/A	1.2	198.2	AIR ACOUSTIC CLASSIFICATION
N/A	1.2	247.8	NA-20 PROJ 111 SUPPORT
N/A	2.2	320.4	AIR DEFENSE INITIATIVE
N/A	19.8	3432.6	JTIDS SOFTWARE DEVELOPMEN
N/A	0.2	14.6	EER(63013N) NELO FY92C-O
N/A	2.4	399.0	INTEGRATED EW SYSTEM (INE

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AIR VEHICLES, FIXED, AVIONICS (CONT'D)

OTHER	0.4	109.4	T/R MODULE MANTECH	R
"	0.8	147.8	F/A-18 E/F ADV STRUCTURES	
"	0.5	90.8	F/A-18 E/F ACFT SEAL TECH	
"	0.4	87.3	F/A-18 E/F ACFT PERF SUPT	
"	0.4	59.5	E-2C MISSION COMPUTER UPG	R
"	5.4	1377.0	S-3 ENGINEERING SUPPORT	
"	1.3	286.9	F/A-18 E/F SYSTEMS ENG	
"	1.6	293.8	ADI-ASW SIGNAL PROCESSING	
"	0.4	111.4	F/A-18 E/F FLT CLEARANCE	
"	0.5	112.3	F/A-18 E/F STRUCTURE ANLY	
"	0.3	51.5	TAMPS JTIDS	R
"	0.4	39.6	PROJ RAD CIRRUS II	
"	0.6	174.1	MILSTAR	
"	1.2	260.8	F/A-18 E/F FLT CNTRL SYS	
"	0.8	138.0	NIGHT TARGETING	R
"	1.1	244.8	F/A-18 E/F NT TECH SUPT	
"	0.1	14.3	RDTE UAV(MR)TECH ANALYSIS	
"	0.2	49.6	EA6B VHF-ILS	R

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AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	0.4	109.4	T/R MODULE MANTECH
N/A	0.0	79.2	NON-LINEAR SIGNAL PROCESS
N/A	0.8	147.8	F/A-18 E/F ADV STRUCTURES
N/A	0.5	90.8	F/A-18 E/F ACFT SEAL TECH
N/A	0.4	87.3	F/A-18 E/F ACFT PERF SUPT
N/A	0.4	59.5	E-2C MISSION COMPUTER UPG
N/A	0.8	281.4	FOREIGN COMPARATIVE TESTI
N/A	5.4	1377.0	S-3 ENGINEERING SUPPORT
N/A	1.3	286.9	F/A-18 E/F SYSTEMS ENG
N/A	1.6	293.8	ADI-ASW SIGNAL PROCESSING
N/A	0.4	111.4	F/A-18 E/F FLT CLEARANCE
N/A	0.5	112.3	F/A-18 E/F STRUCTURE ANLY
N/A	0.3	51.5	TAMPS JTIDS
N/A	0.0	81.8	SYS ENGRG SUPPT
N/A	0.4	39.6	PROJ RAD CIRRUS II
N/A	0.1	9.0	FLIGHT TESTS
N/A	0.6	174.1	MILSTAR
N/A	1.2	260.8	F/A-18 E/F FLT CNTRL SYS
N/A	0.8	138.0	NIGHT TARGETING
N/A	0.1	79.4	SYSTEM ENGRG SUPPT
N/A	1.1	244.8	F/A-18 E/F NT TECH SUPT
N/A	0.1	14.3	RDTE UAV(MR)TECH ANALYSIS
N/A	0.2	49.6	EA6B VHF-ILS
N/A	1.2	330.0	COST ANALYSIS

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

OTHER	0.1	9.9	FY92 S/E SUPPRT VTOL
"	5.4	1129.6	TAMPS GPS
"	0.2	34.4	PIONEER-PROD ENGR SUPPT
"	8.0	2000.0	OPTICAL ASW-O
"	1.4	284.4	SST
"	1.2	454.5	AIRBORNE COMMAND POST
"	0.4	49.6	SSST
"	0.8	119.0	INEWS
"	1.0	267.6	RADIANT CIRRUS III
"	0.0	25.4	LIGHTENING TECH SUPP FOR
"	1.6	293.7	SURTASS SUPPORT MARITIME
"	51.2	9581.8	EER(63999N)PMA264 FY93
"	0.2	39.6	RASSP PROPOSAL EVALUATION
"	7.0	1674.4	EMSP
"	0.1	14.9	WLY-1 TEST & EVALUATION
"	0.8	137.2	PROJECT TOSS
"	7.0	1506.2	ARPA AIRSHIP PROGRAM
"	5.4	1141.6	MAD BUOY
"	0.1	23.1	PASSIVE EXT RANGE SONOBUO

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AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A		0.1	9.9	FY92 S/E SUPPRT VTOL
N/A		5.4	1129.6	TAMPS GPS
N/A		0.2	34.4	PIONEER-PROD ENGR SUPPT
N/A		8.0	2000.0	OPTICAL ASW-O
N/A		1.4	284.4	SST
N/A		1.2	454.5	AIRBORNE COMMAND POST
N/A		0.4	49.6	SSST
N/A		0.8	119.0	INEWS
N/A		1.0	267.6	RADIANT CIRRUS III
N/A		1.9	333.5	S/E
N/A		0.0	25.4	LIGHTENING TECH SUPP FOR
N/A		0.0	15.8	TECHNICAL SYMPOSIUM
N/A		0.0	15.2	SOFTWARE SPT
N/A		1.6	293.7	SURTASS SUPPORT MARITIME
N/A		51.2	9581.8	EER(63999N)PMA264 FY93
N/A		0.2	39.6	RASSP PROPOSAL EVALUATION
N/A		7.0	1674.4	EMSP
N/A		0.1	14.9	WLY-1 TEST & EVALUATION
N/A		0.8	137.2	PROJECT TOSS
N/A		7.0	1506.2	ARPA AIRSHIP PROGRAM
N/A		5.4	1141.6	MAD BUOY
N/A		0.1	23.1	PASSIVE EXT RANGE SONOBUO
OTHER	FMS	5	10105	ACQUISITION, DEVELOPMENT, INTEGRATION, TEST & EVALUATION OF COMMAND & CONTROL SYSTEMS FOR SAUDIA ARABIA, REP OF KOREA, AND JAPAN

AIR VEHICLES, FIXED, STRUCTURES

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT ID	ADVANCED INTERDICTION WEAPON SYSTEM	5.2	2101.8	PROVIDE SYSTEM AND TECHNOLOGY ENGINEERING SUPPORT TO NAVAIR 5402H FOR THE JOINT STANDOFF WEAPON DURING THE DEMONSTRATION AND VALIDATION PHASE PROVIDING LEAD LAB SUPPORT IN THE AREAS OF STRUCTURES AND MATERIALS
ACAT ID	T-45 IMPROVEMENTS	3.9	571.8	PROVIDE SYSTEMS AND TECHNOLOGY SUPPORT TO NAVAIR-5114D. PROVIDE SYSTEMS AND TECHNOLOGY ENGINEERING SUPPORT FOR THE DEVELOPMENT OF THE NAVY'S JET FLIGHT T-45 TRAINING SYSTEM.

AIR VEHICLES, FIXED, STRUCTURES

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT ID	ADVANCED INTERDICTION WEAPON SYSTEM	5.2	1050.9	PROVIDE SYSTEM AND TECHNOLOGY ENGINEERING SUPPORT TO NAVAIR 5402H FOR THE JOINT STANDOFF WEAPON DURING THE DEMONSTRATION AND VALIDATION PHASE PROVIDING LEAD LAB SUPPORT IN THE AREAS OF STRUCTURES AND MATERIALS
ACAT ID	T-45TS PROGRAM SUPPORT	3.9	571.8	PROVIDE SYSTEMS AND TECHNOLOGY SUPPORT TO NAVAIR-5114D. PROVIDE SYSTEMS AND TECHNOLOGY ENGINEERING SUPPORT FOR THE DEVELOPMENT OF THE NAVY'S JET FLIGHT T-45 TRAINING SYSTEM.
ACAT II	EW RESPONSE	1.5	208.0	ENHANCE THE NAVY'S CAPABILITY IN ELECTRONIC WARFARE THROUGH THE AN/ALQ149 AND ALQ-99 PROGRAM.
ACAT II	F/A-18 RADAR UPGRADE	.3	40.4	PROVIDE RESPONSIVE MANAGEMENT, ENGINEERING SUPPORT AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES AND TACTICAL MISSIONS.
ACAT II	NCCS (TFCC)	0.1	13.2	DEVELOP AND PROGRAM TACTICAL DECISION AIDS (TDA'S) THAT ASSIST WARFARE COMMANDERS WITH MISSION PLANNING. SPECIAL FOCUS IS ON ANTI-AIR-WARFARE TDS'S.
ACAT II	F-14 UPGRADE	20.0	3665.0	IDENTIFY NEEDS AND VALIDATE RQTS FOR THE F-14 AIR VEHICLE, AVIONICS, AND WEAPON CONTROL/MISSILE ARMAMENT SYSTEM.
ACAT II	ASN DEF ECM	1.1	247.7	MEASURE ANTENNA PATTERNS OF THE ALR-67 ON THE F/A-18 AIRCRAFT AT VARIOUS FREQUENCIES AND EVALUATE ANGLES
ACAT II	ASN DEF ECM	1.0	226.8	IMPROVE FLEET TACTICAL SURVIVABILITY IN HOSTILE ENVIRONMENTS. DEVELOP SOFTWARE ALGORITHMS TO CONTROL AND COORDINATE ON-BOARD AND OFF-BOARD COUNTERMEASURES IN RESPONSE TO THREAT SITUATIONS.

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AIR VEHICLES, FIXED, STRUCTURES (CONT'D)

OTHER	4	0.4	71.8	MK48 VEHICLE AXLE FATIGUE
"		0.0	10.0	MULTICHIP MODULAR TECHNOL
"		1.0	168.4	ASTOVL ADV DEV PROJ OFFIC
"		1.2	198.2	ADV VEHICLE/NAVY

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AIR VEHICLES, FIXED, STRUCTURES (CONT'D)

ACAT II	ASN DEF ECM	2.0	247.9	PROVIDE TECHNICAL SUPPORT FOR THE INTEGRATION OF THE ALQ-126B, ALQ-162, ALR-67, ALR-45F AND APR-43 INTO THE A-7, A-4M, F-4S/N, AV-8C AIRCRAFT. INTEGRATION RQTS FOR THE INTERIM SUITES ON THE AV-8B, F/A-18A, F-14A, A-6E, AND EA-6B ARE TO BE ADDRESSED.
ACAT IC	ASN DEF ECM	0.0	63.7	INCREASE FLEET CAPABILITY IN ELECTRONIC WARFARE BY THE DEVELOPMENT OF EXPENDABLE DECOYS FOR TACTICAL APPLICATION IN NAVAL ATTACK AIRCRAFT.
ACAT II	EW COUNTER RESPONSE	1.5	208.0	ENHANCE THE NAVY'S CAPABILITY IN ELECTRONIC WARFARE THROUGH THE AN/ALQ149 AND ALQ-99 PROGRAM.
N/A	25	10.6	1937.2	ENG CIP PROGRAM SUPPT
N/A		0.4	71.8	MK48 VEHICLE AXLE FATIGUE
N/A		0.0	19.8	DEGRADATION OF POLYIMIDE
N/A		0.0	10.0	MULTICHIP MODULAR TECHNOL
N/A		0.8	109.0	T&E PROJECT SUPPORT
N/A		0.1	14.9	GENERAL SHOP SERVICES
N/A		3.0	631.6	MLR CONCEPT EXPLORATION
N/A		0.4	44.6	A/C CORROSION CONTROL
N/A		10.2	2681.8	HAZARDOUS WASTE PROGRAM
N/A		1.4	265.6	CHAR OF PIEZOCOMPOSITES
N/A		10.2	2231.6	NAVY ENERGY R&D
N/A		1.0	168.4	ASTOVL ADV DEV PROJ OFFIC
N/A		0.4	545.0	OZONE DEPLETING CHEMICALS
N/A		1.2	198.2	ADV VEHICLE/NAVY
N/A		0.7	111.6	MANTECH SUPPORT
N/A		0.8	99.0	CERAMIC COMPOSITES EVALUA
N/A		0.6	79.6	NASP GOVT WORK PKG 9
N/A		0.4	57.7	CRYOFIT FITTING TEST

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AIR VEHICLES, ROTARY, AVIONICS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT II	ALFS	3.8	741.4	ALFS IS REPLACEMENT FOR AN/AQS-13F. ALFS DEVELOPMENT IS BEING INTEGRATED ONTO THE H-60 TO MEET THREAT RQTS. LEAD TECHNICAL LAB FOR ALFS DEVELOPMENT TECHNICAL SUPPORT TO NAVAIR.

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AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
III	1	56.6	27748.8	AIRCREW SYSTEMS DEVELOPMENT
IV	1	20.6	14589.8	MEDIUM ENERGY LASER EYE PROTECTION
OTHER	3	0.4	8.9	TESON/ARLM INTERFACES
"		0.0	43.6	UWARS TESTING
"		7.0	792.8	ADVANCED EYE PROTECTION C

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AIR VEHICLES, FIXED, PROPULSION

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Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT ID	F-18	41.6	7.6	ENGINEERING SUPPORT
OTHER	F-14	17.3	1.3	ELIMINATION HALON 1301 FR

NAWCHQ Change
VSC 9/20/94
NAWC-21D

AIR VEHICLES, ROTARY, PROPULSION

ACAT III/IV	3	14.5	1.4M	DIAGNOSTICS DEVELOPMENT, DRIVE SYSTEM SUPPORT, TRANSMISSION SUPPORT
OTHER	1	1.5	.12M	A/V DIAGNOSTICS
ACAT IC	V-22	1.7	.15M	ENGINEERING SUPPORT FOR V-22, PROPULSION ENGINEERING DEVOPMENT PROGRAM
ACAT III/IV	10	4.8	.54M	CH-53, H60,E-2C,C-2, C-130,C-2,P-3,AH-1, SH-3,SH-2

C4I SYSTEMS, AIRBORNE C4I

ACAT 1C	E-6A	8	4.8M	Airborne/Strategic Communications (ASC)	R

WEAPONS, CRUISE MISSILE

AACAT III/IV	5	4.0	.58	ITALS, Targets, JUAV, CR/SRUAV, VTOL UAV, MRUAV

WEAPONS, GUIDED PROJECTILES

*

***No full-time personnel dedicated 100% to this CSF.**

C4I SYSTEMS, FIXED GROUND-BASED C4I

R

ACAT IC	FLTSATCOM	0.1	11.5	PROVIDE SUPPORT FOR THE ACQUISITION AND TESTING OF COMMUNICATION EQUIPMENT.
ACAT II	NCCS X0709	1.5	346	DEVELOP, TEST, EVALUATE, & LIFE CYCLE SUPPORT FOR OSS/WWMCCS
ACAT III/IV	TSC/MOCC X0486	25	9590	DEVELOP, TEST, EVALUATE, LIFE CYCLE SUPPORT & ACQUISITION FOR MODULAR OPERATIONAL COMMAND CENTER
ACAT III/IV	TACTICAL COMBAT OPERATION	1.5	630	DEVELOP, TEST, & EVALUATE MARINE CORPS TACTICAL COMMAND SYSTEM

NAWCHQ Change
VBC 9/20/94
NAWC-21D

AIR VEHICLES, FIXED, STRUCTURES (CONT'D)

N/A		1.8	276.8	BE-AL SHT/TUBE
N/A		2.4	396.4	OZONE DEPLETING REFRIGERA
N/A		1.8	23.2	INTELLIGENT PROCESSING
N/A		2.4	433.2	CUSP SUPPORT
N/A		0.0	1.8	THERMOGRAPHIC INSPECTIONS
N/A		0.2	19.8	AC FATIGUE LIFE PREDICTN

AIR VEHICLES, ROTARY, AVIONICS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT II	ALFS	3.8	741.4	ALFS IS REPLACEMENT FOR AN/AQS-13F. ALFS DEVELOPMENT IS BEING INTEGRATED ONTO THE H-60 TO MEET THREAT RQTS. LEAD TECHNICAL LAB FOR ALFS DEVELOPMENT TECHNICAL SUPPORT TO NAVAIR.
N/A	3	4.0	709.0	SH-60F (ALFS INTEG SUP)
N/A		2.2	683.8	SH-60B FLEET ISSUE
N/A		2.2	683.8	SH-60B FLEET ISSUE

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
III	1	56.6	27748.8	ENG DEV OF AIRCREW SYS
IV	1	20.6	14589.8	SYS TECH ADV DEV
N/A	16	0.4	8.9	TESON/ARLM INTERFACES
N/A		0.0	43.6	UWARS TESTING
N/A		7.0	792.8	ADVANCED EYE PROTECTION C

R R

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS (CONT'D)

OTHER	0.8	297.2	IBAHRS INERTIA REEL TEST
	0.8	99.0	ELIMINATION HALON 1301 FR
	0.0	56.0	AERPS
	0.8	297.2	LASER EYE PROTECTION
	0.8	135.8	ARMY AVIATORS ENSEMBLE
	0.0	98.4	USAF LIFE SUPPORT/HUMAN S
	0.2	39.6	ADVANCED DEVELOPMENT AIRC
	0.0	19.8	LIFE SUPT EQUIPMENT/2934
	0.0	297.2	BROAD BAND

3.3.1.3 **In-Service Engineering:** For each Common Support Function at each activity engaged in in-service engineering, list the in-service engineering efforts, the FY93 funds (from all sources) obligated for these efforts, the FY93 workyears for these efforts, and the weapon system(s) supported by these efforts. In-service engineering consists of all engineering support of fielded and/or out of production systems and includes efforts to improve cost, throughput, and schedule to support customer requirements as well as mods and upgrades for reliability, maintainability, and performance enhancements. (BRAC Criteria I)

NAVCHO Change
VBC 9/20/94
NAVC-21D

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS (CONT'D)

N/A	0.8	297.2	IBAHRS INERTIA REEL TEST
N/A	0	99.0	ELIMINATION HALON 1301 FR
N/A	0.0	56.0	AERPS
N/A	0.8	297.2	LASER EYE PROTECTION
N/A	0.8	135.8	ARMY AVIATORS ENSEMBLE
N/A	0.0	98.4	USAF LIFE SUPPORT/HUMAN S
N/A	0.2	39.6	ADVANCED DEVELOPMENT AIRC
N/A	0.0	8.0	BIOMEDICAL TECHNOLOGY BLO
N/A	0.0	19.8	LIFE SUPT EQUIPMENT/2934
N/A	0.0	297.2	BROAD BAND
N/A	0.2	198.2	AIRCREW SURVIVABILITY
N/A	2.2	437.8	ENGINE CIP
N/A	11.6	2317.0	ELIMINATION HALON 1301

3.3.1.3 **In-Service Engineering:** For each Common Support Function at each activity engaged in in-service engineering, list the in-service engineering efforts, the FY93 funds (from all sources) obligated for these efforts, the FY93 workyears for these efforts, and the weapon system(s) supported by these efforts. In-service engineering consists of all engineering support of fielded and/or out of production systems and includes efforts to improve cost, throughput, and schedule to support customer requirements as well as mods and upgrades for reliability, maintainability, and performance enhancements. (BRAC Criteria I)

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Avionics	A-6E NVIS LIGHTING	468.9	2.7	A-6
Air Vehicles, Fixed, Avionics	A-6E SWIP NVIS LIGHTING			A-6
Air Vehicles, Fixed, Avionics	A-6E ARMAMENT SYSTEM	10.0		A-6
Air Vehicles, Fixed, Avionics	A-6E MATERIALS	56.2	0.3	A-6
Air Vehicles, Fixed, Avionics	A-6E WING ANALYSIS	113.7	0.4	A-6
Air Vehicles, Fixed, Avionics	A-6E BLOCK II ILS	0.0		A-6
Air Vehicles, Fixed, Avionics	A-6E NVIS ILS	71.6	0.4	A-6
Air Vehicles, Fixed, Avionics	A-6E SWIP NVIS			A-6
Air Vehicles, Fixed, Avionics	A-6E NVIS SUPPORT EQUIP			A-6
Air Vehicles, Fixed, Avionics	A-6E E3 DESIGN AND INTEG	15.7	0.1	A-6
Air Vehicles, Fixed, Avionics	A-6E NVIS SUPT EQUIP	201.0	1.2	A-6
Air Vehicles, Fixed, Avionics	A-6E PROD MGNT	215.3	1.3	A-6
Air Vehicles, Fixed, Avionics	A-6E MOCKUP/NVIS INTEG	9.9		A-6
Air Vehicles, Fixed, Avionics	A-6E NVIS IMAGING SYSTEM			A-6
Air Vehicles, Fixed, Avionics	A-6E ILS SUPPORT	29.6	0.2	A-6
Air Vehicles, Fixed, Avionics	A-6E TACTICAL MANUAL	14.2	0.8	A-6
Air Vehicles, Fixed, Avionics	AQM-37C	215.1	1.4	AQM-37C
Air Vehicles, Fixed, Avionics	ASWOC FAST-TIME ANALYZER	633.3	3.4	ASW
Air Vehicles, Fixed, Avionics	MISSION TAPE RECORDER	52.6	0.4	AVIONICS
Air Vehicles, Fixed, Avionics	NASA TAPE DROP-OUT CIRCUI	503.4	1.4	AVIONICS
Air Vehicles, Fixed, Avionics	BQM-34S	107.2	0.5	BQM-34S
Air Vehicles, Fixed, Avionics	BQM-74C	591.4	3.3	BQM-74C
Air Vehicles, Fixed, Avionics	C-130	566.8	2.7	C-130
Air Vehicles, Fixed, Avionics	KC130 ENG NVIS SUPPORT	148.7	0.9	C-130
Air Vehicles, Fixed, Avionics	E-2C SYSTEM SUPPORT	258.2	2.3	E-2
Air Vehicles, Fixed, Avionics	E-6 SYST DEVEL (ILS)	998.9	3.4	E-6A
Air Vehicles, Fixed, Avionics	E-6 DEVEL SUPT (NTEST)	9.9	0.1	E-6A
Air Vehicles, Fixed, Avionics	E-6 SYSTEMS DEVELOPMENT	64.4	0.2	E-6A
Air Vehicles, Fixed, Avionics	EA6B FLIGHT CONTROL	385.7	1.7	EA-6
Air Vehicles, Fixed, Avionics	ANTENNA TUNING SUPPORT	7.9	0.1	EA-6B
Air Vehicles, Fixed, Avionics	GEN-X EXPEND DECOY PRODUC	1000.1	3.5	ECM GEN-X DECOY
Air Vehicles, Fixed, Avionics	EMI INST	155.9	0.7	EMI
Air Vehicles, Fixed, Avionics	F-14 NATOPS SUPPORT	26.5	0.2	F-14
Air Vehicles, Fixed, Avionics	F-14A/B UPGRADE PROGRAM	1946.7	6.6	F-14
Air Vehicles, Fixed, Avionics	F-14 ILS SUPPORT	193.7	0.5	F-14
Air Vehicles, Fixed, Avionics	F-14 HYDRAULIC	49.6	0.3	F-14
Air Vehicles, Fixed, Avionics	F-14 APG-71 SUPPORT	189.2	0.1	F-14
Air Vehicles, Fixed, Avionics	F-14 LFA SUPPORT	1155.8	2.7	F-14
Air Vehicles, Fixed, Avionics	F-14 NVIS SUPPORT	316.3	0.2	F-14
Air Vehicles, Fixed, Avionics	AIM-54C SUPPORT	99.0	0.6	F-14

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Avionics	F-14 BEARING MATERIALS	154.7	0.9	F-14
Air Vehicles, Fixed, Avionics	F-14 MATERIAL APPLICATION	76.9	0.4	F-14
Air Vehicles, Fixed, Avionics	ILS F-14A/B UPGRADE	84.1	0.4	F-14
Air Vehicles, Fixed, Avionics	F-14 TACTICAL MANUAL	48.7	0.3	F-14
Air Vehicles, Fixed, Avionics	F-14 FATIGUE LIFE MONITOR	242.3	1.3	F-14
Air Vehicles, Fixed, Avionics	TRAINER SUPT & MODEL DEV	1261.8	3.5	F-14
Air Vehicles, Fixed, Avionics	MDPS IV&V	190.3	0.7	F-14/F-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D RUG	63.0	0.4	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D TECHNICAL SUPT	281.0	1.2	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D ECP-87S1 INTEG	84.6	0.4	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D MATLS COR/ANLY	43.0	0.3	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D SMS TECH SUPT	103.4	0.4	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D SUBSYS FLT ACT	10.0	0.1	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D ARFRM FAT LIFE	222.1	1.3	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D ECS	57.6	0.4	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D MISSION PLAN	138.2	0.7	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D RECCE CONV KIT	169.9	0.3	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D TACT MAN CHART	27.8	0.2	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS SP-P-SBQ			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D HYD SYS TECH	137.6	0.8	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D E3 WOG	5.3		F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D EXT FUEL TANK	14.8	0.1	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D MECH FUEL SYS	23.2	0.2	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D ECCM RADAR UPG	64.0	0.5	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS SZ-P-SAI			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D OBOGS	38.3	0.3	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS KU-P-SAO	16.4	0.2	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D EW	240.9	1.1	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS FI-P-SAA			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D TRN REF NAVIG	26.4	0.6	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS AT-P-GPG			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS CN-P-GRF			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D CRS	932.2	4.4	F/A-18
Air Vehicles, Fixed, Avionics	EF-18 A/C/FLEET MOD PROGR	26.4	0.2	F/A-18E/F
Air Vehicles, Fixed, Avionics	ASW CAMPAIGN MODELLING	99.1	0.6	FLEET SUPPORT
Air Vehicles, Fixed, Avionics	APN	777.9	1.8	GUILDER
Air Vehicles, Fixed, Avionics	OPN	3448.5	15.9	GUILDER
Air Vehicles, Fixed, Avionics	WPN	198.2	1.4	GUILDER
Air Vehicles, Fixed, Avionics	LSAR	19.8		LOGISTICS
Air Vehicles, Fixed, Avionics	CAIN II LOG SUPP	742.2	0.4	MULTI-PLATFORM

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Avionics	NASEE (NAVAIR S/W ENGINEE	37.2	0.1	NASEE
Air Vehicles, Fixed, Avionics	NSTTS	540.0	2.9	NSTTS
Air Vehicles, Fixed, Avionics	BEARTRAP SH-60 DIG. MAG.			P3C
Air Vehicles, Fixed, Avionics	ROYAL NETHERLANDS NAVY	123.1	0.5	P3C
Air Vehicles, Fixed, Avionics	REPUBLIC OF KOREA NAVY	291.3	1.2	P3C
Air Vehicles, Fixed, Avionics	ROYAL NORWEGIAN AIR FORCE	137.7	0.4	P3C
Air Vehicles, Fixed, Avionics	JMSDF S/W SUPPORT	438.0	1.9	P3C
Air Vehicles, Fixed, Avionics	AN-ASQ 212 IV&V	1385.8	6.8	P3C
Air Vehicles, Fixed, Avionics	SPECIAL PROJECTS FLT SUPT	912.3	4.7	P3C
Air Vehicles, Fixed, Avionics	2ND P3I (COMMAND FUNC SEL	842.3	5.3	P3C
Air Vehicles, Fixed, Avionics	ROYAL AUSTRALIAN AF	222.0	0.6	P3C
Air Vehicles, Fixed, Avionics	BM/C3 HUMAN IN CONTROL	61.4	0.4	P3C
Air Vehicles, Fixed, Avionics	PAKISTAN NAVY (PN)	8.9		P3C
Air Vehicles, Fixed, Avionics	SONOBUOY SUPPORT	667.4	2.7	R&D
Air Vehicles, Fixed, Avionics	PRODUCTION SONOBUOY SUPPO	282.4	1.8	R&D
Air Vehicles, Fixed, Avionics	VLAD SONOBUOY	297.3	1.8	R&D
Air Vehicles, Fixed, Avionics	VLF-2 TEST	26.8	0.2	R&D
Air Vehicles, Fixed, Avionics	RNUS TEST PLANNING	77.2	0.4	RANGES
Air Vehicles, Fixed, Avionics	RQM-67A	74.1	0.4	RQM-67A
Air Vehicles, Fixed, Avionics	OPTICAL REMOTE FUNCTIONS	90.2	0.5	S-3
Air Vehicles, Fixed, Avionics	OPTICAL RFS ADM DEV FOR S	782.4	3.6	S-3B
Air Vehicles, Fixed, Avionics	IMAGE QUALITY PRINTERS	228.9	0.3	SE
Air Vehicles, Fixed, Avionics	HAND HELD CAMERA	926.3	1.3	SE
Air Vehicles, Fixed, Avionics	PALADIN/FARV CONTROL SYS.	12.9	0.1	SENSOR TEC
Air Vehicles, Fixed, Avionics	NIGHT VISION SUPT/ARMY	39.6	0.4	SENSOR TEC
Air Vehicles, Fixed, Avionics	HARPOON ENG TRNG AIDS	98.5	0.7	SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	PART TASK TRAINER	557.6	3.7	SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	SPAIN HARPOON TRNG AID	1.8		SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	PORTUGAL HARPOON TRNG AID	20.3	0.1	SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	KUWAIT HARPOON TRNG AID	36.4	0.3	SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	PENGUIN SIMUL TRNG DEV			SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	SOFTWARE SPT	17.5		SOFTWARE SPT
Air Vehicles, Fixed, Avionics	SWALAS OPN	40.7	0.3	SONOBUOY
Air Vehicles, Fixed, Avionics	ACAP R&D OPN VIA NAC	30.1		SONOBUOY
Air Vehicles, Fixed, Avionics	IP'S FOR ECP'S	76.5	0.4	SONOBUOY
Air Vehicles, Fixed, Avionics	EER(OPN)NELO FY92-93	1739.7	5.8	SONOBUOY
Air Vehicles, Fixed, Avionics	TA/AS USQ-104	809.7	4.4	TA/AS USQ-104
Air Vehicles, Fixed, Avionics	TACAMO SUPPORT E6A HPTSPR	3276.4	14.2	TACAMO
Air Vehicles, Fixed, Avionics	MILSTAR JTPO	3016.8	11.7	TACAMO
Air Vehicles, Fixed, Avionics	TACAMO SUPPORT(BLKUPILS)	56.6	14.4	TACAMO

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Avionics	SWG TACTICAL IMAGING SYS	525.7	2.2	TACT COMM SYS
Air Vehicles, Fixed, Avionics	TACRECCE FACTS 3200	38.3	0.3	TACTICAL RECON
Air Vehicles, Fixed, Avionics	TACTS PINE	53.6	0.4	TACTS
Air Vehicles, Fixed, Avionics	TACTS THAILAND	142.2	0.7	TACTS
Air Vehicles, Fixed, Avionics	TACTS GDOP	26.0	0.1	TACTS
Air Vehicles, Fixed, Avionics	TACTS JACTS NAVY	56.7	0.4	TACTS
Air Vehicles, Fixed, Avionics	TACTS TAIWAN	82.3	0.4	TACTS
Air Vehicles, Fixed, Avionics	TACTS TRES G	97.5	0.4	TACTS
Air Vehicles, Fixed, Avionics	TAMPS IV&V	444.0		TAMPS
Air Vehicles, Fixed, Avionics	TARPS	662.4	3.2	TARPS
Air Vehicles, Fixed, Avionics	ILSP CMS	349.1	1.1	TARPS
Air Vehicles, Fixed, Avionics	COUNTER NARCOTIC (CNIP)	224.0	0.9	TARPS
Air Vehicles, Fixed, Avionics	ACOUSTIC GENERATOR SYSTEM	788.6		TRAINERS
Air Vehicles, Fixed, Avionics	UAV ADM-141 T/S	54.0	0.4	UAV
Air Vehicles, Fixed, Avionics	UAV ITALD T/S	25.2	0.1	UAV
Air Vehicles, Fixed, Avionics	VANDAL	59.9	0.4	VANDAL
Air Vehicles, Fixed, Flight Subsystems	MILITARY SPECIFICATIONS	157.7	1.1	A/C ELEC POWER
Air Vehicles, Fixed, Flight Subsystems	E-2C RUDDER SERVO ACTUATO	69.4	0.4	ACTUATOR UPDATE
Air Vehicles, Fixed, Flight Subsystems	TECH SUP A/C ARM SYS	17.8	0.1	ARMAMENT SYSTEM
Air Vehicles, Fixed, Flight Subsystems	HELICOPTOR ROTOR HEAD	170.6	0.6	BEARING PERFORM
Air Vehicles, Fixed, Flight Subsystems	AIRCRAFT ELECTRICAL	110.4	0.6	BOMB RACKS
Air Vehicles, Fixed, Flight Subsystems	CSF HORZ ACC TEST INERTIA	46.1		CSF HORIZ ACCEL
Air Vehicles, Fixed, Flight Subsystems	E-2C AIR CREW EMER EGRESS	95.1	0.6	E-2C A/C EMERGN
Air Vehicles, Fixed, Flight Subsystems	TORPEDO BAND ENVIRONMENT			ENVIRONMENTTEST
Air Vehicles, Fixed, Flight Subsystems	AERIAL REFUELING STORE (A	223.3	0.8	FUEL TANKS
Air Vehicles, Fixed, Flight Subsystems	G-FAMILIARIZATION FOR ANG	19.8		G-FAM FOR ANG
Air Vehicles, Fixed, Flight Subsystems	LASER GUIDED TRAINING	26.7	0.1	GBU-24/BLU109
Air Vehicles, Fixed, Flight Subsystems	HYDRAULIC OIL PURIFIERS	17.0	0.1	HYDRAULIC OIL
Air Vehicles, Fixed, Flight Subsystems	SUPT OF ALSS/45BL	1824.3	9.1	INSERVICE ENG
Air Vehicles, Fixed, Flight Subsystems	CHEM/BIO UPGRADE/43SY	606.5	0.5	INSERVICE ENG
Air Vehicles, Fixed, Flight Subsystems	OZONE DEPLETING SUBSTANCE	126.1	0.9	OZONE ELIMINATE
Air Vehicles, Fixed, Flight Subsystems	PRACTICE BOMBS			RADAR TRACKING

Air Vehicles, Fixed, Flight Subsystems	TACTICAL REMOTE SENSOR	213.1	1.3	TRSS ADSID V

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Flight Subsystems	AERIAL REFUELING (ARS)	1122.2	5.3	WAR CONSUMABLES
Air Vehicles, Fixed, Flight Subsystems	WAR CONSUMABLES	356.4	2.0	WAR CONSUMABLES
Air Vehicles, Fixed.Structures	CORROSION SENSORS	4.0		CORROSION
Air Vehicles, Fixed.Structures	CRUISE MISSILES PROJECT	4.4		CRUISE MISSILES
Air Vehicles, Fixed.Structures	F-14 IRSTS CARRYING CASE	110.4	0.6	F-14 IRSTS
Air Vehicles, Fixed.Structures	FABRICATION SUPPORT	130.0	0.9	FABRICATION SUP
Air Vehicles, Fixed.Structures	GBU-24/BLU-109 STRU ENG	113.0	0.8	GBU-24/BLU-109
Air Vehicles, Fixed.Structures	INSENSITIVE MUNITIONS	59.5	0.4	INSENSITIVE MUN
Air Vehicles, Fixed.Structures	SAFE	2132.7	12.8	KUWAIT F/A-18
Air Vehicles, Fixed.Structures	NATOPS MANUALS	31.5	0.2	NATOPS MANUALS
Air Vehicles, Fixed.Structures	A/C CORROSION PREVENTION	5.6		P-3 AIRCRAFT
Air Vehicles, Fixed.Structures	PMB EFFECTS ON A/C	59.5	0.4	PLASTIC MEDIA
Air Vehicles, Fixed.Structures	ENGINEERING SUPPORT	727.0	6.6	PRODUCTION ENG
Air Vehicles, Fixed.Structures	T45TS PROGRAM SUPPORT	59.6	0.4	T45TS PROGRAM
Air Vehicles, Fixed.Structures	OSP FABRICATION SUPPORT	89.2	0.6	UK OSP PROCURE
Air Vehicles, Fixed.Structures	OFFBOARD COUNTERMEASURES	104.0	0.7	UNMANNED AIRVEH
Air Vehicles, Rotary, Avionics	AH-1W TECH MGMT SUP (FMS)	22.3	0.2	H-1
Air Vehicles, Rotary, Avionics	AH-1W SYS ENGRG SUP	350.3	3.5	H-1
Air Vehicles, Rotary, Avionics	AN/ARC-210 UHF/VHF ECCM	126.1	0.7	H-46
Air Vehicles, Rotary, Avionics	SH-60BOP S/W SUPT & ENHAN	1834.7	8.4	SH-60B
Air Vehicles, Rotary, Avionics	SH60F & DERIVATIVE HELOS	105.1	0.4	SH-60F
Air Vehicles, Rotary, Avionics	SH60F AND VARIANTS	998.3	4.5	SH-60F & DERIVA
Air Vehicles, Rotary, Avionics	UH-1N GFE SPARES			UH-1N
Air Vehicles, Rotary, Avionics	UH-1N GFE PH A&B NTIS	2383.9	10.6	UH-1N
Air Vehicles, Rotary, Avionics	UH-1N COEA	287.4	1.2	UH-1N
Air Vehicles, Rotary, Avionics	93 TEST BENCH PO	25.2	0.2	VH-3/60
Air Vehicles, Rotary, Avionics	93 AIRTASK (A5115J)	1122.5	5.3	VH-3/60
Air Vehicles, Rotary, Avionics	93 GFE (RF/SCUPROD/IRU)			VH-3/60
Air Vehicles, Rotary, Avionics	92 CDS/NIU/KY/FM PO	530.7	1.8	VH-3/60
Air Vehicles, Rotary, Avionics	92 V/FM PO	287.3	0.4	VH-3/60
Air Vehicles, Rotary, Avionics	VH-3A	10.5	0.5	VH-3A
Air Vehicles, Rotary Flight Subsystems	H-53 HELICOPTER PROGRAM	55.5	0.4	H-53

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Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Rotary, Propulsion	Engineering Support for: CH-46,H-60,CH-53, & SH-2 HELO'S	.3	4.5	CH-46, H-60, CH-53E, SH-2
Weapons, Cruise Missile	Product Improvement, Configuration Mgmt, Fleet Support	1.95M	22.5	Cruise Missile, UAV, BQM-34, Harpoon; BQM-74, SLAM; ALCM, Tomahawk; ACM, Pioneer
Weapons, Guided Projectiles	Electromagnetic Environment Effects (E3), Systems Integration, Modeling and Simulation, Electronic Warfare	*	*	ACETEF
C4I Systems, C4I Airborne	Airborne/Strategic Communications (ASC)	4.8M	8	E6A
C4I Systems, Fixed Ground-Based C4I	JOINT SPECOPs	89.8	40	
C4I Systems, Fixed Ground-Based C4I	FACSFAC	6.8	42	AN/FYK-17/23
C4I Systems, Fixed Ground-Based C4I	MATCALs	1.1	15	AN/TPN-22

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***No full-time personnel dedicated 100% to Weapons, Guided Projectiles function.**

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Air Vehicles, Fixed, Flight Subsystems	T45TS OBOGS ILS	37.9	0.3	T-45
Air Vehicles, Fixed, Flight Subsystems.	TACTICAL REMOTE SENSOR	213.1	1.3	TRSS ADSID V

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Flight Subsystems	AERIAL REFUELING (ARS)	1122.2	5.3	WAR CONSUMABLES
Air Vehicles, Fixed, Flight Subsystems	WAR CONSUMABLES	356.4	2.0	WAR CONSUMABLES
Air Vehicles, Fixed, Flight Subsystems	FACSFAC	6.8	42	AN/FYK-17/23
Air Vehicles, Fixed, Flight Subsystems	JOINT SPECOPs	89.8	40	
Air Vehicles, Fixed, Flight Subsystems	MATCALs	1.1	15	AN/TPN-22
Air Vehicles, Fixed,Structures	CORROSION SENSORS	4.0		CORROSION
Air Vehicles, Fixed,Structures	CRUISE MISSILES PROJECT	4.4		CRUISE MISSILES
Air Vehicles, Fixed,Structures	F-14 IRSTS CARRYING CASE	110.4	0.6	F-14 IRSTS
Air Vehicles, Fixed,Structures	FABRICATION SUPPORT	130.0	0.9	FABRICATION SUP
Air Vehicles, Fixed,Structures	GBU-24/BLU-109 STRU ENG	113.0	0.8	GBU-24/BLU-109
Air Vehicles, Fixed,Structures	INSENSITIVE MUNITIONS	59.5	0.4	INSENSITIVE MUN
Air Vehicles, Fixed,Structures	SAFE	2132.7	12.8	KUWAIT F/A-18
Air Vehicles, Fixed,Structures	NATOPS MANUALS	31.5	0.2	NATOPS MANUALS
Air Vehicles, Fixed,Structures	A/C CORROSION PREVENTION	5.6		P-3 AIRCRAFT
Air Vehicles, Fixed,Structures	PMB EFFECTS ON A/C	59.5	0.4	PLASTIC MEDIA
Air Vehicles, Fixed,Structures	ENGINEERING SUPPORT	727.0	6.6	PRODUCTION ENG
Air Vehicles, Fixed,Structures	T45TS PROGRAM SUPPORT	59.6	0.4	T45TS PROGRAM
Air Vehicles, Fixed,Structures	OSP FABRICATION SUPPORT	89.2	0.6	UK OSP PROCURE
Air Vehicles, Fixed,Structures	OFFBOARD COUNTERMEASURES	104.0	0.7	UNMANNED AIRVEH
Air Vehicles, Rotary, Avionics	AH-1W TECH MGMT SUP (FMS)	22.3	0.2	H-1
Air Vehicles, Rotary, Avionics	AH-1W SYS ENGRG SUP	350.3	3.5	H-1
Air Vehicles, Rotary, Avionics	AN/ARC-210 UHF/VHF ECCM	126.1	0.7	H-46
Air Vehicles, Rotary, Avionics	SH-60BOP S/W SUPT & ENHAN	1834.7	8.4	SH-60B
Air Vehicles, Rotary, Avionics	SH60F & DERIVATIVE HELOS	105.1	0.4	SH-60F
Air Vehicles, Rotary, Avionics	SH60F AND VARIANTS	998.3	4.5	SH-60F & DERIVA
Air Vehicles, Rotary, Avionics	UH-1N GFE SPARES			UH-1N
Air Vehicles, Rotary, Avionics	UH-1N GFE PH A&B NTIS	2383.9	10.6	UH-1N
Air Vehicles, Rotary, Avionics	UH-1N COEA	287.4	1.2	UH-1N
Air Vehicles, Rotary, Avionics	93 TEST BENCH PO	25.2	0.2	VH-3/60
Air Vehicles, Rotary, Avionics	93 AIRTASK (A5115J)	1122.5	5.3	VH-3/60
Air Vehicles, Rotary, Avionics	93 GFE (RF/SCUPROD/IRU)			VH-3/60
Air Vehicles, Rotary, Avionics	92 CDS/NIU/KY/FM PO	530.7	1.8	VH-3/60
Air Vehicles, Rotary, Avionics	92 V/FM PO	287.3	0.4	VH-3/60
Air Vehicles, Rotary, Avionics	VH-3A	10.5	0.5	VH-3A
Air Vehicles, Rotary Flight Subsystems	H-53 HELICOPTER PROGRAM	55.5	0.4	H-53

3.3.2 Projected Funding

3.3.2.1 **Direct Funding:** For each applicable CSF, identify direct mission funding by appropriation from FY94 to FY97. Use FY95 PBS for FY95-FY97. (BRAC Criteria I)

There is no MRTFB or BOS funding that supports the Research & Development.

CSF	FY94	FY95	FY96	FY97
Not Applicable				

3.3.2.2 **Other Obligation Authority:** For each applicable CSF, identify reimbursable and direct-cite funding (other obligation authority expected) from FY94 to FY97. Funding allocation must be traceable to FY95 PBS. (BRAC Criteria I)

CSF	FY94	FY95	FY96	FY97
Human Systems	**3609.8**	**8844.7**	**8921.3**	**9,904.4**
Advanced Materials	**1960.9**	**1411.4**	**1037.6**	**789.6**
Air Vehicles, Fixed, Avionics	**277,559.9**	**220.259.9**	**184,272.7**	**161,093.1**
Air Vehicles, Fixed Flight Subsystems	**180,737.6 (R)**	**149,592.1 (R)**	**140,235.7 (R)**	**136,461.6 (R)**
Air Vehicles, Fixed Structures	**26,702.9**	**23,826.9**	**22,032.7**	**28,070.2**
Air Vehicles, Rotary Avionics	**48,732.1**	**16315.8**	**11,539.5**	**8,078.9**
Air Vehicles, Rotary, Flight Subsystems	**54,100.0**	**66,099.0**	**0.0**	**0.0**
Air Vehicles, Rotary, Propulsion	**2,500.0**	**4,300.0**	**3,700.0**	**4,300.0**
Air Vehicles, Fixed, Propulsion	**16,000.0**	**16,800.0**	**17,000.0**	**17,600.0**
Weapons, Cruise Missile	**3,900.0**	**5,900.0**	**5,300.0**	**5,300.0**
Weapons, Guided Projectiles	*	*	*	*
C4I Systems, Airborne C4I	**8,700.0**	**5,000.0**	**5,000.0**	**5,000.0**
C4I, Systems, Fixed Ground-Based C4I	**141,435**	**122,746**	**113,359**	**104,051**

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***No full-time personnel dedicated 100% to Weapons, Guided Projectiles function.**

3.3.2.2 **Other Obligation Authority:** For each applicable CSF, identify reimbursable and direct-cite funding (other obligation authority expected) from FY94 to FY97. Funding allocation must be traceable to FY95 PBS. (BRAC Criteria I)

CSF	FY94	FY95	FY96	FY97
Human Systems	**3609.8**	**8844.7**	**8921.3**	**9,904.4**
Advanced Materials	**1960.9**	**1411.4**	**1037.6**	**789.6**
Air Vehicles, Fixed, Avionics	**277,559.9**	**220.259.9**	**184,272.7**	**161,093.1**
Air Vehicles, Fixed Flight Subsystems	**180,737.6 (R)**	**149,592.1 (R)**	**140,235.7 (R)**	**136,461.6 (R)**
Air Vehicles, Fixed Structures	**26,702.9**	**23,826.9**	**22,032.7**	**28,070.2**
Air Vehicles, Rotary Avionics	**48,732.1**	**16315.8**	**11,539.5**	**8,078.9**
Air Vehicles, Rotary, Flight Subsystems	**54.1**	**66.9**	**0.0**	**0.0**
Air Vehicles, Rotary, Structures	**18.0**	**0.0**	**0.0**	**0.0**

3.4 Facilities and Equipment

3.4.1 **Major Equipment and Facilities:** Describe major facilities and equipment necessary to support each Common Support Function (include SCIFs). If the facilities and equipment are shared with other functions, identify those functions and the percentage of total time used by each of the functions. Provide labeled photographs that picture the breadth and scope of the equipment and facilities described. If it is unique to DOD, to the Federal Government, or to the US, describe why it is unique. Insert the replacement cost. For this exercise, Replacement cost = (Initial cost + capital investment) multiplied by the inflation factor for the original year of construction. (BRAC Criteria II)

The Naval Air Warfare Center Aircraft Division (NAWCAD) is a full spectrum acquisition management center for naval aircraft, unique within the DoD. NAWCAD has the capability to provide: research and development capabilities and facilities; ground and flight test and evaluation (T&E) capabilities and facilities; and logistic and maintenance management to support maritime aircraft, aircraft systems, propulsion, materials, and components.

NAWCAD Patuxent River's support role for Naval Aviation has expanded to include the capability located at Warminster, Trenton, and NAVAIR Headquarters and will provide Full Spectrum Engineering Development and Acquisition Support for the fleet. This technical support is essential to Fleet readiness and will be found only at Patuxent River.

The RDT&E conducted at the Complex is truly synergistic with R&D and T&E efforts complementing each other in the overall delivery of Naval Aviation Products. Sometimes the efforts are inseparable since the same personnel perform both the R&D and T&E task in the same facilities. More often, the R&D and T&E efforts complement each other in the development process through the develop, test and fix process that is repetitive. Since the facility capabilities are intertwined all the appropriate R&D and T&E facility capabilities are described in Appendix D.

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Common Support Function	% CSF	Other Shared Functions	% Other	Major Facility or Equipment Description	Unique To			Replace-ment Cost ($K)
					DOD	Feder-al Gov't	U. S.	
Air Vehicles Fixed Avionics	100			Magnetic Media Laboratory			YES	3,800.0
Air Vehicles Fixed Avionics	85	Test & Evaluation Air Vehicle	15	VS Labs	YES			80,000.0
Air Vehicles Fixed Avionics	90	Test & Evaluation Air Vehicle	10	VP Facility - PHIC (Program Hardware Integration Center)	YES			125,000.0
Air Vehicles Fixed Avionics	80	Test & Evaluation Air Vehicle	20	VP Facility - SPF (Software Program Facility)	YES			10,000.0
Air Vehicles Fixed Avionics	100			Anechoic Chamber	YES			1,700.0
Air Vehicles Fixed Avionics	100			Anechoic Chamber			YES	4,700.0
Air Vehicles Fixed Avionics	90	Test & Evaluation Electronic Combat	10	Aircraft Test Tower	YES			1,500.0
Air Vehicles Fixed Avionics	90	Test & Evaluation Electronic Combat	10	Aircraft Test Tower				1,500.0
Air Vehicles Fixed Avionics	85	Test & Evaluation Electronic Combat	15	Antenna Test Tower				4,400.0
Air Vehicles Rotary, Avionics	85	Test & Evaluation Air Vehicle	15	Vertical Flight	YES			36,000.0
Air Vehicles Rotary, Avionics	100			VH Facility (HIS-2)			YES	5,500.0
Air Vehicles, Fixed Flight Subsystem	80	Test & Evaluation Air Vehicle	20	Ejection Tower			YES	5,800.0

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Common Support Function	% CSF	Other Shared Functions	% Other	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
					DOD	Federal Gov't	U. S.	
ALL CSF'S				Central Computer Facility				8,300.0
Air Vehicles Fixed Avionics	100			Magnetic Media Laboratory			YES	3,800.0
Air Vehicles Fixed Avionics	85	Test & Evaluation Air Vehicle	15	VS Labs	YES			80,000.0
Air Vehicles Fixed Avionics	90	Test & Evaluation Air Vehicle	10	VP Facility - PHIC (Program Hardware Integration Center)	YES			125,000.0
Air Vehicles Fixed Avionics	80	Test & Evaluation Air Vehicle	20	VP Facility - SPF (Software Program Facility)	YES			10,000.0
Air Vehicles Fixed Avionics	100			Anechoic Chamber	YES			1,700.0
Air Vehicles Fixed Avionics	100			Anechoic Chamber			YES	4,700.0
Air Vehicles Fixed Avionics	90	Test & Evaluation Electronic Combat	10	Aircraft Test Tower	YES			1,500.0
Air Vehicles Fixed Avionics	90	Test & Evaluation Electronic Combat	10	Aircraft Test Tower				1,500.0
Air Vehicles Fixed Avionics	85	Test & Evaluation Electronic Combat	15	Antenna Test Tower				4,400.0
Air Vehicles Rotary, Avionics	85	Test & Evaluation Air Vehicle	15	Vertical Flight	YES			36,000.0
Air Vehicles Rotary, Avionics	100			VH Facility (HIS-2)			YES	5,500.0
Air Vehicles, Fixed Flight Subsystem	80	Test & Evaluation Air Vehicle	20	Ejection Tower			YES	5,800.0

Air Vehicle, Fixed Flight Subsystem	80	Test & Evaluation Air Vehicle	20	Horizontal Accelerator				4,150.0
Air Vehicle, Fixed Flight Subsystem	85	Test & Evaluation Air Vehicle	15	Dynamic Flight Simulator			YES	50,000.0
N/A		No Details Available		Special Access Program Spaces				Unknown
Air Vehicle, Fixed Structure	80	Test & Evaluation Air Vehicle	20	Structural Test Facility	YES			5,000.0
Air Vehicle Fixed Flight Subsystem	95		5	Hydraulics Research Lab	YES			2,200.0
C4I Systems, Fixed Ground-Based C4I				B185	YES			6,000.0
				B 111A/P723 MILCON		YES		4,289.0
				B 2110, 2122,141,105	YES	YES		1,278.0
Air Vehicle, Fixed Structure	100			Code 60724 Machine Shop				856.0
Air Vehicle, Fixed Structure	100			Code 60725 Machine Shop				985.7
C4I Systems, Airborne C4I	70	Test & Evaluation Air Vehicle	30	Airborne Strategic Communication Eng & Test Fac (ASCET)			YES	3,000.0
Air Vehicles, Rotary, Avionics	20	Test & Evaluation Air Vehicle	80	Helicopter Mission Systems Supt Center (HMSSC)				11,000.0
Air Vehicles, Fixed, Avionics	30	Test & Evaluation Air Vehicle	70	Fixed Wing ASUW & ASW Lab				47,000.0
Air Vehicles, Fixed, Avionics	70	Test & Evaluation Air Vehicle	30	Project Beartrap				1,000.0
Air Vehicles, Rotary, Propulsion	5	Test & Evaluation Air Vehicle	80	Propulsion System Evaluation Facility	YES			50,800.0
Weapons, Cruise Missile	15							
Air Vehicles, Fixed, Avionics	10	Test & Evaluation Air Vehicle	90	Antenna Testing Laboratory Automated System (ATLAS)			YES	2,600.0

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Air Vehicle, Fixed Flight Subsystem	80	Test & Evaluation Air Vehicle	20	Horizontal Accelerator				4,150.0
Air Vehicle, Fixed Flight Subsystem	85	Test & Evaluation Air Vehicle	15	Dynamic Flight Simulator			YES	50,000.0
N/A		No Details Available		Special Access Program Spaces				Unknown
Air Vehicle, Fixed Structure	80	Test & Evaluation Air Vehicle	20	Structural Test Facility	YES			5,000.0
Air Vehicle Fixed Flight Subsystem	95		5	Hydraulics Research Lab	YES			2,200.0
				B185	YES			6,000.0
				B 111A/P723 MILCON		YES		4,289.0
				B 2110, 2122,141,105	YES	YES		1,278.0
Air Vehicle, Fixed Structure	100			Code 60724 Machine Shop				856.0
Air Vehicle, Fixed Structure	100			Code 60725 Machine Shop				985.7
C4I Systems, Airborne C4I	70	Test & Evaluation Air Vehicle	30	Airborne Strategic Communication Eng & Test Fac (ASCET)			YES	3,000.0
Air Vehicles, Rotary, Avionics	20	Test & Evaluation Air Vehicle	80	Helicopter Mission Systems Supt Center (HMSSC)				11,000.0
Air Vehicles, Fixed, Avionics	30	Test & Evaluation Air Vehicle	70	Fixed Wing ASUW & ASW Lab				47,000.0
Air Vehicles, Fixed, Avionics	70	Test & Evaluation Air Vehicle	30	Project Beartrap				1,000.0
Air Vehicles, Rotary, Propulsion	20	Test & Evaluation Air Vehicle	80	Propulsion System Evaluation Facility	YES			50,800.0
Air Vehicles, Fixed, Avionics	10	Test & Evaluation Air Vehicle	90	Antenna Testing Laboratory Automated System (ATLAS)			YES	2,600.0

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Common Support Function	% CSF	Other Shared Functions	% Other	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
					DOD	Federal Gov't	U. S.	
Air Vehicles, Fixed, Avionics	45	Test & Evaluation Air Vehicle	55	Combat Identification System				6,000.0
Air Vehicles, Fixed, Avionics	30	Test & Evaluation Air Vehicle	70	Ground Range Antenna Test Facility (GRATF)				2,000.0
Air Vehicles, Fixed, Avionics	10	Test & Evaluation Air Vehicle	40	Acoustic Test Facility (ATF)			YES	2,635.0
Air Vehicles, Rotary, Avionics	10	Test & Evaluation Air Vehicle	40	Acoustic Test Facility (ATF)				
Air Vehicles, Fixed, Avionics	10	Test & Evaluation Air Vehicle	55	Communications Test and Evaluation Lab (COMTEL)				3,400.0
Air Vehicles, Rotary, Avionics	5	Test & Evaluation Air Vehicle	30	Communications Test and Evaluation Lab (COMTEL)				
Air Vehicles, Fixed, Flight Subsystems	5	Test & Evaluation Air Vehicle	45	Aircraft Electrical Evaluation Facility (AEEF)			YES	35,000.0
Air Vehicles Rotary, Flight Subsystems	5	Test & Evaluation Air Vehicle	45	Aircraft Electrical Evaluation Facility (AEEF)				
Air Vehicles, Fixed, Flight Subsystems	20	Test & Evaluation Air Vehicle	30	Aircrew Systems Test Facility	YES			10,700.0
Air Vehicles Rotary, Flight Subsystems	20	Test & Evaluation Air Vehicle	30	Aircrew Systems Test Facility				

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Common Support Function	% CSF	Other Shared Functions	% Other	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
					DOD	Federal Gov't	U. S.	
Air Vehicles, Fixed, Avionics	45	Test & Evaluation Air Vehicle	55	Combat Identification System				6,000.0
Air Vehicles, Fixed, Avionics	30	Test & Evaluation Air Vehicle	70	Ground Range Antenna Test Facility (GRATF)				2,000.0
Air Vehicles, Fixed, Avionics	10	Test & Evaluation Air Vehicle	40	Acoustic Test Facility (ATF)			YES	2,635.0
Air Vehicles, Rotary, Avionics	10	Test & Evaluation Air Vehicle	40	Acoustic Test Facility (ATF)				
Air Vehicles, Fixed, Avionics	10	Test & Evaluation Air Vehicle	55	Communications Test and Evaluation Lab (COMTEL)				3,400.0
Air Vehicles, Rotary, Avionics	5	Test & Evaluation Air Vehicle	30	Communications Test and Evaluation Lab (COMTEL)				
Air Vehicles, Fixed, Flight Subsystems	5	Test & Evaluation Air Vehicle	45	Aircraft Electrical Evaluation Facility (AEEF)			YES	35,000.0
Air Vehicles Rotary, Flight Subsystems	5	Test & Evaluation Air Vehicle	45	Aircraft Electrical Evaluation Facility (AEEF)				
Air Vehicles, Fixed, Flight Subsystems	20	Test & Evaluation Air Vehicle	30	Aircrew Systems Test Facility	YES			10,700.0
Air Vehicles Rotary, Flight Subsystems	20	Test & Evaluation Air Vehicle	30	Aircrew Systems Test Facility				

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Common Support Function	% CSF	Other Shared Functions	% Other	Major Facility or Equipment Description	Unique To			Replace-ment Cost ($K)
					DOD	Feder-al Gov't	U. S.	
Air Vehicles, Fixed, Propulsion	5	Test & Evaluation Air Vehicle	45	Aircraft Support Systems Test Facility			YES	17,500.0
Air Vehicles, Fixed, Avionics	5	Test & Evaluation Air Vehicle	45	Aircraft Support Systems Test Facility				
Air Vehicles, Fixed, Avionics	8	Test & Evaluation Air Vehicle	41	Air Combat Environment Test and Evaluation Facility (ACETEF)			YES	276,065.0
Air Vehicles, Rotary Avionics	7	Test & Evaluaation Armament	8	Air Combat Environment Test and Evaluation Facility (ACETEF)				
Weapons, Guided Projectiles	8	Tst & Evaluation Electronic Combat	28	Air Combat Environment Test and Evaluation Facility (ACETEF)				
Air Vehicles, Fixed, Structure	5	Test and Evaluation Air Vehicle	95	Test & Evaluation Data Processing		YES		2,000.0

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NOTE: THE NAWCAD PATUXENT RIVER LABS WERE BUILT PRIMARILY FOR TEST AND EVALUATION FUNCTIONS. WHEN TIME WAS AVAILABLE, THESE LABS WERE USED FOR OTHER FUNTIONS TO MAXIMIZE THE USE. ON THAT BASIS, THE PERCENTAGES SHOWN ABOVE FOR THESE FUNCTIONS DO NOT REFLECT THE SPACE DIVISION WITHIN LABS BUT RATHER A MULTIPLEXING BY TIME.

Common Support Function	% CSF	Other Shared Functions	% Other	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
					DOD	Federal Gov't	U. S.	
Air Vehicles, Fixed, Propulsion	5	Test & Evaluation Air Vehicle	45	Aircraft Support Systems Test Facility			YES	17,500.0
Air Vehicles, Fixed, Avionics	5	Test & Evaluation Air Vehicle	45	Aircraft Support Systems Test Facility				
Air Vehicles, Fixed, Avionics	8	Test & Evaluation Air Vehicle	41	Air Combat Environment Test and Evaluation Facility (ACETEF)			YES	276,065.0
Air Vehicles, Rotary Avionics	7	Test & Evaluaation Armament	8	Air Combat Environment Test and Evaluation Facility (ACETEF)				
Weapons, Guided Projectiles	8	Tst & Evaluation Electronic Combat	28	Air Combat Environment Test and Evaluation Facility (ACETEF)				
Air Vehicles, Fixed, Structure	5	Test and Evaluation Air Vehicle	95	Test & Evaluation Data Processing		YES		2,000.0

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3.5 Expansion Potential

3.5.1 Laboratory Facilities: Use facilities records as of fourth-quarter FY93 in answering the following (in sq ft) for each CSF: (BRAC Criteria II)

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WEBSTER FIELD

Common Support Function	Facility or Equipment Description	Type of Space	Space Capacity (KSF)		
			Current	Used	Excess
C4I Systems, Fixed Ground-Based C4I	B111A/P723	Admin	8.9	8.9	0
	B2120/2122/141/105		21.2	21.1	0
C4I Systems, Fixed Ground-Based C4I	B111A/P723	Technical	15.9	15.9	0
	B2110/2122/141/105		24.8	24.8	0
C4I Systems, Fixed Ground-Based C4I	B111A/P723	Staging	4.9	4.9	0
Advanced Materials	None	None	None	None	None R
Air Vehicles, Fixed, Avionics	None	None	None	None	None R
Air Vehicles, Fixed Structures	None	None	None	None	None R
Air Vehicles, Rotary, Avionics	None	None	None	None	None R
Air Vehicles, Rotary, Flight Subsystems	None	None	None	None	None R
Human System	None	None	None	None	None R

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3.5 Expansion Potential

3.5.1 Laboratory Facilities: Use facilities records as of fourth-quarter FY93 in answering the following (in sq ft) for each CSF: (BRAC Criteria II)

R

WEBSTER FIELD

Common Support Function	Facility or Equipment Description	Type of Space	Space Capacity (KSF)		
			Current	Used	Excess
Air Vehicles, Fixed, Flight Subsystem	B111A/P723	Admin	8.9	8.9	0
	B2120/2122/141/105		21.2	21.1	0
Air Vehicles, Fixed, Flight Subsystem	B111A/P723	Technical	15.9	15.9	0
	B2110/2122/141/105		24.8	24.8	0
Air Vehicles, Fixed, Flight Subsystem	B111A/P723	Staging	4.9	4.9	0
Advanced Materials	None	None	None	None	None R
Air Vehicles, Fixed, Avionics	None	None	None	None	None R
Air Vehicles, Fixed Structures	None	None	None	None	None R
Air Vehicles, Rotary, Avionics	None	None	None	None	None R
Air Vehicles, Rotary, Flight Subsystems	None	None	None	None	None R
Human System	None	None	None	None	None R

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3.5.1 WARMINSTER

Common Support Function	Facility or Equipment Description	Type of Space	Space Capacity (KSF)		
			Current	Used	Excess
Air Vehicles Fixed Avionics	Magnetic Media Laboratory	Technical	2.8	2.8	0
Air Vehicles, Fixed Flight Subsystem	Horizontal Accelerator	Technical	5.3	5.3	0
Air Vehicles, Fixed Flight Subsystem	Dynamic Flight Simulator	Technical (w/remain at Warminster)	N/A	N/A	N/A
N/A	Special Access Program Spaces	Unknown	Unk	Unk	Unk
Air Vehicles, Fixed Structure	Structural Test Facility	Technical	15.3	15.3	0
Air Vehicles, Fixed Structure	CODE 60724 Machine Shop	Technical (Total for both Shops- 60724 & 60725)	11.9	11.9	0
Air Vehicles, Fixed Structure	Code 60725 Machine Shop	Technical		(included in above)	
Air Vehicles Fixed Avionics	VS Labs	Technical	6.7	6.7	0
Air Vehicles Fixed Avionics	VP Facility - PHIC (Program Hardware Integration Center)	Technical	7.1	7.1	0
Air Vehicles Fixed Avionics	VP Facility - SPF (Software Program Facility)	Technical	6.2	6.2	0
Air Vehicles Fixed Avionics	Anechoic Chamber	Technical	8.2	8.2	0
Air Vehicles Fixed Avionics	Anechoic Chamber	Technical	5.8	5.8	0
Air Vehicles Fixed Avionics	Aircraft Test Tower	Technical	1.3	1.3	0
Air Vehicles Fixed Avionics	Aircraft Test Tower	Technical	.2	.2	0
Air Vehicles Fixed Avionics	Antenna Test Tower	Technical	.2	.2	0
Air Vehicles Rotary, Avionics	Vertical Flight	Technical	5.5	5.5	0

Air Vehicles Rotary, Avionics	Vertical Flight	Technical	5.5	5.5	0
Air Vehicles Rotary, Avionics	VH Facility (HIS-2)	Technical	5.0	5.0	0
Air Vehicles, Fixed Flight Subsystem	Ejection Tower	Technical	1.3	1.3	0
Advanced Material	A Series of Small Unconnected Laboratorys	Technical	N/A	N/A	0

NOTE: NAWCAD laboratories and technical facilities are slated to be installed in buildings being built under BRAC 91 MILCON. Spaces under construction are commensurate with functional and fleet requirements. Therefore, there is no excess in these facilities.

Air Vehicles Rotary, Avionics	VH Facility (HIS-2)	Technical	5.0	5.0	0
Air Vehicles, Fixed Flight Subsystem	Ejection Tower	Technical	1.3	1.3	0

NOTE: NAWCAD laboratories and technical facilities are slated to be installed in buildings being built under BRAC 91 MILCON. Spaces under construction are commensurate with functional and fleet requirements. Therefore, there is no excess in these facilities.

R

NAWCAD PATUXENT RIVER

Common Support Function	Facility or Equipment Description	Type of Space	Space Capacity (KSF)		
			Current	Used	Excess
C4I Systems, Airborne C4I	Airborne Strategic Communication Eng & Test Fac (ASCET)	Technical	6.3	6.3	0
Air Vehicles, Rotary, Avionics	Helicopter Mission Systems Supt Center (HMSSC)	Technical	7.8	7.8	0
Air Vehicles, Fixed, Avionics	Fixed Wing ASUW & ASW Lab	Technical	11.3	11.3	0
Air Vehicles, Fixed, Avionics	Project Beartrap	Technical	1.6	1.6	0
Air Vehicles, Rotary, Propulsion Weapons, Cruise Missile	Propulsion System Evaluation Facility	Technical	77.0	77.0	0
Air Vehicles, Fixed, Avionics	Antenna Testing Laboratory Automated System (ATLAS)	Technical	.6	.6	0
Air Vehicles, Fixed, Avionics	Combat Identification System	Technical	15.6	15.6	0
Air Vehicles, Fixed, Avionics	Ground Range Antenna Test Facility (GRATF)	Technical	.2	.2	0
Air Vehicles, Fixed, Avionics Air Vehicles, Rotary, Avionics	Acoustic Test Facility (ATF) Acoustic Test Facility (ATF)	Technical	2.3	2.3	0
Air Vehicles, Fixed, Avionics Air Vehicles, Rotary, Avionics	Communications Test and Evaluation Lab (COMTEL) Communications Test and Evaluation Lab (COMTEL)	Technical	1.5	1.5	0

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R

NAWCHQ Change
VBC NAWC-21C
9/20/94

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NAWCAD PATUXENT RIVER

Common Support Function	Facility or Equipment Description	Type of Space	Space Capacity (KSF) Current	Used	Excess
C4I Systems, Airborne C4I	Airborne Strategic Communication Eng & Test Fac (ASCET)	Technical	6.3	6.3	0
Air Vehicles, Rotary, Avionics	Helicopter Mission Systems Supt Center (HMSSC)	Technical	7.8	7.8	0
Air Vehicles, Fixed, Avionics	Fixed Wing ASUW & ASW Lab	Technical	11.3	11.3	0
Air Vehicles, Fixed, Avionics	Project Beartrap	Technical	1.6	1.6	0
Air Vehicles, Rotary, Propulsion	Propulsion System Evaluation Facility	Technical	77.0	77.0	0
Air Vehicles, Fixed, Avionics	Antenna Testing Laboratory Automated System (ATLAS)	Technical	.6	.6	0
Air Vehicles, Fixed, Avionics	Combat Identification System	Technical	15.6	15.6	0
Air Vehicles, Fixed, Avionics	Ground Range Antenna Test Facility (GRATF)	Technical	.2	.2	0
Air Vehicles, Fixed, Avionics Air Vehicles, Rotary, Avionics	Acoustic Test Facility (ATF) Acoustic Test Facility (ATF)	Technical	2.3	2.3	0
Air Vehicles, Fixed, Avionics Air Vehicles, Rotary, Avionics	Communications Test and Evaluation Lab (COMTEL) Communications Test and Evaluation Lab (COMTEL)	Technical	1.5	1.5	0

PATUXENT RIVER CONT'D R

Common Support Function	Facility or Equipment Description	Type of Space	Space Capacity (KSF)		
			Current	Used	Excess
Air Vehicles, Fixed, Flight Subsystems Air Vehicles, Rotary, Flight Subsystems	Aircraft Electrical Evaluation Facility (AEEF) Aircraft Electrical Evaluation Facility (AEEF)	Technical	38.3	38.3	0
Air Vehicles, Fixed, Flight Subsystems Air Vehicles Rotary, Flight Subsystems	Aircrew Systems Test Facility Aircrew Systems Test Facility		16.3	16.3	0
Air Vehicles, Fixed, Propulsion Air Vehicles, Fixed, Avionics	Aircraft Support Systems Test Facility Aircraft Support Systems Test Facility	Technical	17.3	17.3	0
Air Vehicles, Fixed, Avionics Air Vehicles, Rotary Avionics Weapons, Guided Projectiles	Air Combat Environment Test and Evaluation Facility (ACETEF) Air Combat Environment Test and Evaluation Facility (ACETEF) Air Combat Environment Test and Evaluation Facility (ACETEF)	Technical	97.4	97.4	0
Air Vehicles, Fixed, Structure	Test & Evaluation Data Processing	Technical	2.0	2.0	0

NOTE: THESE LABS WERE BUILT PRIMARILY FOR TEST AND EVALUATION FUNCTIONS. WHEN TIME WAS AVAILABLE, THESE LABS WERE USED FOR OTHER FUNTIONS TO MAXIMIZE THE USE. ON THAT BASIS, THE PERCENTAGES SHOWN IN TABLE 3.4.1 DO NOT REFLECT THE SPACE DIVISION WITHIN LABS BUT RATHER A MULTIPLEXING BY TIME.

3.5 Expansion Potential

3.5.1 Laboratory Facilities: Use facilities records as of fourth-quarter FY93 in answering the following (in sq ft) for each CSF: (BRAC Criteria II)

WEBSTER FIELD

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess
Air Vehicles, Fixed, Flight Subsystem	**B 111A/P723****	**Admin**	**8.9**	**8.9**	**0**
	B 2120/2122/141/105		**21.2**	**21.1**	**0**
Air Vehicles, Fixed, Flight Subsystem	**B 111A/P723**	**Technical**	**15.9**	**15.9**	**0**
	B 2120/2122/141/105		**24.8**	**24.8**	**0**
Air Vehicles, Fixed, Flight Subsystem	**B 111A/P723**	**Staging**	**4.9**	**4.9**	**0**

3.5.1.1 Describe the capacity of your activity to absorb additional similar workyears categorized in the same common support function with minor facility modification. If major modification is required, describe to what extent the facilities would have to be modified. (Use FY97 workyears as your requirement) (BRAC Criteria III)

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEM

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

ADVANCED MATERIALS

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

AIR VEHICLES, FIXED, AVIONICS

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

AIR VEHICLES, FIXED STRUCTURES

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

AIR VEHICLES, ROTARY, AVIONICS

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

HUMAN SYSTEM

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

AIR VEHICLES, FIXED, PROPULSION

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

AIR VEHICLES, ROTARY, PROPULSION

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

WEAPONS CRUISE MISSILE

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

WEAPONS GUIDED PROJECTILES

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

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C4I SYSTEMS, AIRBORNE C4I

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

C4I SYSTEMS, FIXED GROUND-BASED C4I

R

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

3.5.1.2 If there is capacity to absorb additional workyears, how many additional workyears can be supported? (BRAC Criteria III)

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEM

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

ADVANCED MATERIALS

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

AIR VEHICLES, FIXED, AVIONICS

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

AIR VEHICLES, FIXED STRUCTURES

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

AIR VEHICLES, ROTARY, AVIONICS

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AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

3.5.1.2 If there is capacity to absorb additional workyears, how many additional workyears can be supported? (BRAC Criteria III)

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEM

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

ADVANCED MATERIALS

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AIR VEHICLES, ROTARY, AVIONICS

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AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

HUMAN SYSTEM

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

AIR VEHICLES, FIXED, PROPULSION

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

AIR VEHICLES, ROTARY, PROPULSION

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

WEAPONS, CRUISE MISSILE

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

WEAPONS, GUIDED PROJECTILES

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

C4I SYSTEMS, AIRBORNE C4I

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

C4I SYSTEMS, FIXED GROUND-BASED C4I

R

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

3.5.1.3 For 3.5.1.1 and 3.5.1.2 (above) describe the impact of military construction programs or other alteration projects programmed in the FY95 PBS. (BRAC Criteria II)

N/A

HUMAN SYSTEM

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

3.5.1.3 For 3.5.1.1 and 3.5.1.2 (above) describe the impact of military construction programs or other alteration projects programmed in the FY95 PBS. (BRAC Criteria II)

N/A

AIR VEHICLES, FIXED, PROPULSION

337 acres

AIR VEHICLES, ROTARY, PROPULSION

337 acres

WEAPONS, CRUISE MISSILE

337 acres

WEAPONS, GUIDED PROJECTILES

337 acres

C4I SYSTEMS, AIRBORNE C4I

337 acres

C4I SYSTEMS, FIXED GROUND-BASED C4I

337 acres

NAWCHQ Change
VBC 9/20/94
NAWC-21D

R

3.5.3 Utilities: Provide an estimate of your installation's capability to expand or procure additional utility services (electric, gas, water). Estimates should be provided in appropriate units -- e.g., KWH of electricity. (BRAC Criteria II)

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEM

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

ADVANCED MATERIALS

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

AIR VEHICLES, FIXED, AVIONICS

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

AIR VEHICLES, FIXED STRUCTURES

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

AIR VEHICLES, ROTARY, AVIONICS

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

C4I SYSTEMS, FIXED GROUND-BASED C4I

R

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

NAWCHQ change
VBC 9/20/94
NAWC-21D

3.5.2 Land Use: Provide number of buildable acres for additional laboratory/administrative support construction at your installation. (BRAC Criteria II)

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEM

337 acres

ADVANCED MATERIALS

337 acres

AIR VEHICLES, FIXED, AVIONICS

337 acres

AIR VEHICLES, FIXED STRUCTURES

337 acres

AIR VEHICLES, ROTARY, AVIONICS

337 acres

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

337 acres

HUMAN SYSTEM

337 acres

3.5.3 Utilities: Provide an estimate of your installation's capability to expand or procure additional utility services (electric, gas, water). Estimates should be provided in appropriate units -- e.g., KWH of electricity. (BRAC Criteria II)

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEM

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
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AIR VEHICLES, FIXED, AVIONICS

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Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

AIR VEHICLES, FIXED STRUCTURES

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

AIR VEHICLES, ROTARY, AVIONICS

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
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AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

HUMAN SYSTEM

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

AIR VEHICLES, FIXED, PROPULSION R

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

AIR VEHICLES, ROTARY, PROPULSION R

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

WEAPONS, CRUISE MISSILE R

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

WEAPONS, GUIDED PROJECTILES R

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

C4I SYSTEMS, AIRBORNE C4I R

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

Should be 134R ~~133R~~ (9-6-94)

NAWCHQ Change
VBC 9/20/94
NAWC-21D

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEM

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

HUMAN SYSTEM

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

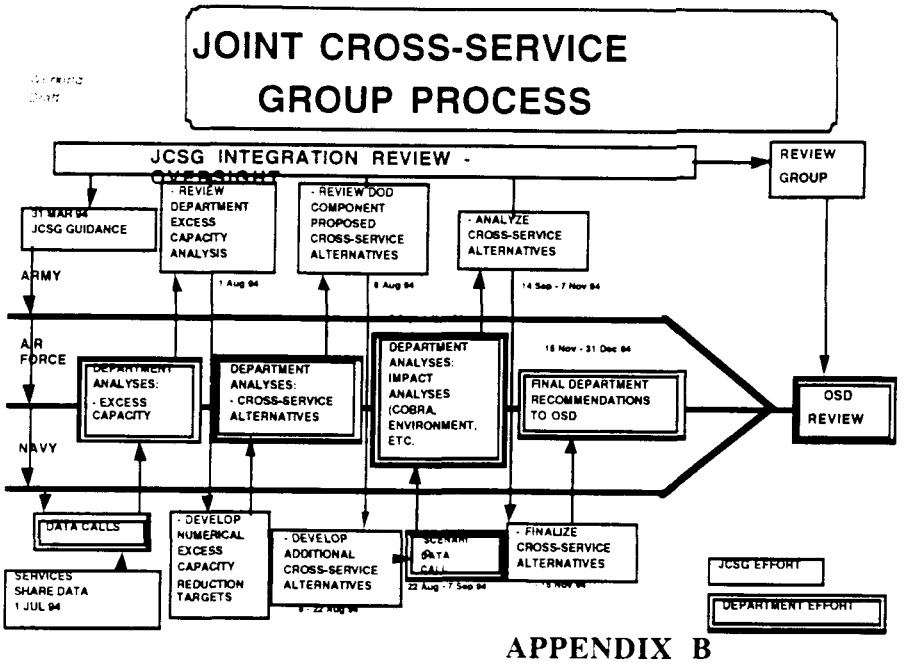
SECTION IV: APPENDICES

A. Macro Process/Schedule
B. List of Activities
C. Common Support Functions

SECTION IV: APPENDICES

A. Macro Process/Schedule
B. List of Activities
C. Common Support Functions

APPENDIX A



APPENDIX B

LIST OF ACTIVITIES

AIR FORCE

1. Armstrong Lab, Brooks AFB
2. Armstrong Lab, Tyndall AFB
3. Armstrong Lab, Wright-Patterson AFB
4. Armstrong Lab, Williams AFB
5. Human Systems Center, Brooks AFB
6. Wright Lab, Wright-Patterson AFB
7. Wright Lab, Eglin AFB
8. Aeronautical Systems Center, Wright-Patterson AFB
9. Aeronautical Systems Center, Eglin AFB
10. Oklahoma City Air Logistics Center, Tinker AFB (In-service engineering)
11. Ogden Air Logistics Center, Hill AFB (In-service engineering)
12. San Antonio Air Logistics Center, Kelly AFB (In-service engineering)
13. Sacramento Air Logistics Center, McClellan AFB (In-service engineering)
14. Warner-Robins Air Logistics Center, Robins AFB (In-service engineering)
15. Phillips Lab, Kirtland AFB
16. Phillips Lab, Hanscom AFB
17. Phillips Lab, Edwards AFB
18. Space & Missile Center, Los Angeles AFB

19. Space & Missile Center, Norton AFB
20. Sacramento Air Logistics Center, Peterson AFB
21. Rome Lab, Griffiss AFB
22. Rome Lab, Hanscom AFB
23. Electronic Systems Center, Hanscom AFB
24. Sacramento Air Logistics Center, Peterson AFB (In-service engineering)

ARMY

1. Army Research Lab (ARL), Adelphi, MD
2. ARL, Aberdeen Proving Grounds (APG), MD
3. ARL, White Sands Missile Range, NM
4. ARL, NASA Langley, VA
5. ARL, NASA Lewis, OH
6. Natick Research, Development and Engineering Center, Natick, MA
7. Aviation Research, Development and Engineering Center, St Louis, MO
8. Aviation Troop Command, Aeroflight Dynamics Directorate, Moffitt Field, CA
9. Aviation Troop Command, Aviation Applied Technology Directorate, Fort Eustis, VA
10. Edgewood Research, Development and Engineering Center, Aberdeen Proving Ground, MD
11. Communications Electronics Command Research, Development and Engineering Center, Ft Mammoth, NJ
12. Communication Electronics Command Research, Development and Engineering Center - Night Vision EO Directorate, Ft Belvoir, VA
13. Missile Research, Development and Engineering Center, Redstone Arsenal, AL
14. Armaments Research, Development and Engineering Center, Picatinny Arsenal, NJ
15. Armaments Research, Development and Engineering Center, Benet Labs, Watervliet Arsenal, NY
16. Tank-Automotive Command Research, Development and Engineering Center, Warren, MI
17. USA Research Institute of Infectious Diseases, Ft Detrick, MD
18. Walter Reed Army Institute of Research, Washington D.C.
19. USA Institute of Surgical Research, Ft Sam Houston, TX
20. USA Aeromedical Research Lab, Ft Rucker, AL
21. Medical Research Institute of Chemical Defense Aberdeen Proving Grounds, MD
22. USA Research Institute of Environmental Medicine, Natick, MA
23. Construction Engineering Research Laboratory, Champaign, IL
24. Cold Regions Research and Engineering Lab, Hanover, NH
25. Topographic Engineering Center, Alexandria, VA
26. Waterways Experiment Station, Vicksburg, MS
27. USA Research Institute for Behavioral & Social Sciences, Alexandria, VA
28. Simulation, Training and Instrumentation Command (STRICOM), Orlando, FL

NAVY

1. Naval Air Warfare Center, Weapons Division, China Lake
2. Naval Air Warfare Center, Weapons Division, Point Mugu
3. Naval Air Warfare Center, Aircraft Division, Patuxent River
4. Naval Air Warfare Center, Aircraft Division, Indianapolis
5. Naval Air Warfare Center, Aircraft Division, Lakehurst

6. Naval Research Lab, Washington D.C.
7. Naval Research Lab Detachment, Bay St Louis
8. Naval Surface Warfare Center, Carderock Division, Bethesda
9. Naval Surface Warfare Center, Carderock Detachment, Annapolis
10. Naval Surface Warfare Center, Crane Division
11. Naval Surface Warfare Center, Crane Detachment, Louisville
12. Naval Surface Warfare Center, Dahlgren Division
13. Naval Surface Warfare Center, Dahlgren Detachment, Panama City
14. Naval Surface Warfare Center, Indian Head Division
15. Naval Surface Warfare Center, Port Hueneme Division
16. Naval Command, Control, and Ocean Surveillance Center, RDT&E Division, San Diego
17. Naval Command, Control, and Ocean Surveillance Center, In-Service Engineering, West Coast Division, San Diego
18. Naval Command, Control, and Ocean Surveillance Center, In-Service Engineering Division, Charleston
19. Naval Aerospace Medical Research Center, Pensacola
20. Naval Biodynamics Lab, New Orleans
21. Naval Dental Research Lab, Great Lakes
22. Naval Health Research Center, San Diego
23. Naval Medical Research Institute, Bethesda
24. Naval Undersea Warfare Center, Keyport Division, WA
25. Naval Surface Warfare Center, Carderock, Philadelphia Detachment
26. Naval Undersea Warfare Center, Newport, RI
27. Naval Undersea Warfare Center (Newport), New London, CT
28. Naval Personnel Research and Development Center, San Diego, CA

DEPARTMENT OF DEFENSE

1. Armed Forces Radiobiology Research Institute (AFRRI), Bethesda, MD

APPENDIX C

COMMON SUPPORT FUNCTIONS (DEFINITIONS LISTED FOLLOWING PAGES)

Product Functions

1. Air Vehicles
   - Fixed
     - -- Structure
     - -- Propulsion
     - -- Avionics
     - -- Flight Subsystems
   - Rotary
     - -- Structure
     - -- Propulsion
     - -- Avionics
     - -- Flight Subsystems

2. Weapons
   - ICBMs/SLBMs
   - Conventional Missiles/Rockets
   - Cruise Missiles
   - Guided Projectiles
   - Bombs
   - Guns and Ammunition
   - Directed Energy
   - Chemical/Biological

3. Space Systems
   - Launch Vehicles
   - Satellites
   - Ground Control Systems

4. C4I Systems
   - Airborne C4I
   - Fixed Ground-Based C4I
   - Ground Mobile C4I

Pervasive Functions

1. Electronic Devices
2. Environmental Sciences
3. Infectious Diseases
4. Human Systems
5. Manpower and Personnel
6. Training Systems
7. Environmental Quality
8. Advanced Materials

DEFINITIONS

COMMON SUPPORT FUNCTIONS

Product Functions

1. **Air Vehicles**. Air vehicles are broken out into common support functions for fixed wing and rotary wing. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of air vehicles. Included are all air vehicles including their application as UAV's and targets.

- Structures. Includes but not limited to all air vehicles structure technology, engineering and production efforts. Include technology and engineering practices which advance structural design and analysis; advanced structural concepts and fabrication techniques; and structural integrity.

- Propulsion. Includes but not limited to all technology, engineering and production efforts associated with air vehicle propulsion such as turbine engine, rotorcraft power drive, and hypersonic propulsion components. Such components include compressors, inlets and nozzles, turbines, mechanical systems and control, gears, bearings, shafts, and clutches. In addition, include associated subsystems activities such as turborocket, turboramjet and rotorcraft transmissions; and supporting technical and engineering disciplines.

- Avionics. Includes but not limited to all technology, engineering and production efforts associated with the air platform's integrated avionics system. The avionics suite includes but is not limited to weapon delivery systems, electronic warfare, navigation, communications, radar, electro-optic sensors, signal/data processing and associated software system and support. Includes efforts associated with developing the integrated avionics system (i.e. optimizing functional partitioning, distribution and integration of avionics/related functions).

- Flight Subsystems. Includes but not limited to all technology, engineering and production efforts for air vehicle support systems such as landing gear; crew enclosures; egress systems; mechanical equipment integrity; electrical component integrity; subsystem integration; and aircraft power, pressurization, and temperature control systems.

2. **Weapons.** Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of ICBMs/SLBMs, conventional missiles and rockets, cruise missiles, guided projectiles, bombs, guns and ammunition, directed energy and chemical/biological munitions. Include with each weapon as appropriate, all related technology, engineering and production activities such as fusing/safe and arm, missile propulsion, warheads and explosives, and guidance and control.

3. **Space**. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of launch vehicles, satellites and associated ground control systems (satellite control only; ground systems for telemetry of data included in C4I). Include under satellites, all technology, engineering and production activities associated with space communications and space-based surveillance (and associated sensors) and space-based C4I.

4. **C4I**. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of airborne, fixed ground-based and mobile ground based C4I systems. Include all technology, engineering and production activities associated with communications networks, radios and links, distributed information systems, data fusion, decision aids, and associated computer architectures.

Pervasive Functions (6.1, 6.2, and 6.3)

1. **Electronic Devices.** Includes but not limited to all science and technology activities supporting development of semiconductor and superconductor materials for optoelectronic, acoustic and microwave devices. Include all associated electronic materials/device fabrication and processing.

2. **Environmental Sciences.** Includes but not limited to all science and technology activities to improve measurement, characterization and modeling of the earth atmosphere and space environment. Examples include global prediction systems, space effects, and celestial backgrounds/astronomical reference sources.

3. **Infectious Diseases.** Includes but not limited to all science and technology activities which preserve manpower and performance by the prevention and treatment of militarily important infectious diseases that occur naturally worldwide.

4. **Human Systems.** Includes but not limited to all science and technology activities to enable, protect, sustain and enhance human effectiveness in DOD operations. The focus of this pervasive, multi-disciplinary area is the human and therefore impacts all DOD systems and operations. This area includes: (1) human performance definition, assessment, and aiding; (2) physiologic bioeffects of toxic hazards, ionizing and non-ionizing radiation, biodynamic (bio-mechanical) stress, and extreme environments; (3) military operational medicine; and (4) generic, human-centered design standards/methodologies for crew station subsystems, information management and display, and life support.

5. **Manpower and Personnel.** Includes but not limited to all science and technology activities which support four broad areas: (1) selection and classification of DOD personnel (including pilots); (2) identification of operational tasks performed and requirements for skills, knowledge, and aptitudes; (3) matching the right people with the jobs they are best suited for according to the needs of DOD, (4) and developing techniques for measuring and enhancing the productivity of the operational force.

6. **Training Systems.** Includes but not limited to all science and technology which support training of personnel, including training strategies, devices and simulators, and computer aided intelligent tutoring systems.

7. **Environmental Quality.** Includes but not limited to all science and technology activities which support the development of technologies to reduce the environmental costs of DOD operations while ensuring mission accomplishment is not jeopardized by adverse environmental impacts. Specifically, this area encompasses technologies to: (1) identify and cleanup sites contaminated with hazardous materials as a result of DOD operations (cleanup); (2) ensure DOD compliance with current and anticipated local, national, and international environmental laws and treaties (compliance); (3) minimize DOD use of hazardous materials and reduce DOD hazardous waste generation (pollution prevention); and (4) provide for protection of natural resources under DOD stewardship (conservation).

8. **Advanced Materials.** Includes but not limited to all science and technology activities related to structural, high temperature, electromagnetic protection, electronic, magnetic, optical, and biomolecular materials. Note: excludes materials areas which were included in DDR&E decision of 18 Mar 94 related to the Army's Materials Research Facility at Aberdeen Proving Ground and the Navy's Materials Facility at Carderock.

DATA CALL 12 REVISION 2
BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

WILLIAM E. NEHMAN
NAME (Please type or print)

Signature

COMMANDER
Title

8/18/94
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
MAJOR CLAIMANT LEVEL

WILLIAM C. BOWES
NAME (Please type or print)

Signature

COMMANDER
Title

19AUG 94
Date

NAVAL AIR SYSTEMS COMMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

Signature

Title

8/26/94
Date

DATA CALL 12 REVISION 2
BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 8 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

RAYMOND A. DUDDERAR
NAME (Please type or print)

RADuddera
Signature

ACTING COMMANDER
Title

8/15/94
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION
PATUXENT RIVER, MARYLAND 20670-5304

5400
Ser AD07/1066

AUG 15 1994

From: Commander, Naval Air Warfare Center Aircraft Division, Patuxent River, MD 20670-5304
To: Commander, Naval Air Warfare Center, 1421 Jefferson Davis Highway, Arlington, VA 22243-6000

Subj: RELEASE OF BASE REALIGNMENT AND CLOSURE DATA CALL IN THE ABSENCE OF THE COMMANDER

1. During the period from 0900, 15 August 1994 until 1800, 17 August 1994, I will be on temporary additional duty.

2. Captain Raymond A. Dudderar, USN, will be Acting Commander. In my absence, he is authorized to release the completed Base Realignment and Closure Data Call, and provide the certification for the data call.

3. My point of contact at Division Headquarters is Mr. Stuart B. Simon, Code AD07. He can be reached at commercial (301) 826-1122 or DSN 326-1122.

Barton D. Strong
BARTON D. STRONG

Distribution:
CONAWCAD Indianapolis
CONAVAIRENGSTA Lakehurst
CONAWCAD Warminster
CONAWCAD Trenton
CONAWCTSD Orlando
COMNAWCAD Patuxent River
NAWCAD Patuxent River (CT00)
NAWCAD Indianapolis (Code 01)
NAVAIRENGSTA Lakehurst (Code 71)
NAWCAD Warminster (Code 01A1)
NAWCAD Trenton (Code 07B)
NAWCTSD Orlando (Code 503)
CONAS, Patuxent River

FCK RECEIVED DATED
8-22-94

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 18 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

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I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

Change I Data Call # Twelve/NAWCAD Patuxent River/22 Aug 94

ACTIVITY COMMANDER

BARTON D. STRONG
NAME (Please type or print)

Barton D. Strong
Signature

Commander
Title

22 August 1994
Date

Naval Air Warfare Center Aircraft Division, Patuxent River, MD
Activity

Enclosure (2)

DATA CALL 12 CHANGE 1
BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

WILLIAM E. NEWMAN
NAME (Please type or print)

Signature

COMMANDER
Title

8/24/94
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
MAJOR CLAIMANT LEVEL

WILLIAM C. BOWES
NAME (Please type or print)

Signature

COMMANDER
Title

24 AUG 94
Date

NAVAL AIR SYSTEMS COMMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

Signature

Title

8/30/94
Date

Data Call 12, Change 2
Pax River

FAX REC'D SIGNED
9-6-94

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

L. L. LUNDBERG
NAME (Please type or print)

Signature

ACTING COMMANDER
Title

9/20/94
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

W. C. BOWES, VADM, USN
NAME (Please type or print)

Signature

COMMANDER
Title

20 Sep 94
Date

NAVAL AIR SYSTEMS COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

Signature

Title

9/21/94
Date

DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER
NAVAL AIR WARFARE CENTER HEADQUARTERS
1421 JEFFERSON DAVIS HWY
ARLINGTON VA 22243

IN REPLY REFER TO
1000
Ser NAWC-21C

SEP 16 2001

From: Commander, Naval Air Warfare Center
To: Distribution

Subj: RELEASE OF BASE REALIGNMENT AND CLOSURE DATA CALL IN THE ABSENCE OF THE COMMANDER

1. During the period 19-21 September I will be on travel.

2. Mr. Lewis L. Lundberg, Technical Director, Naval Air Warfare Center, is designated as acting as Acting Commander during this period. As such, he is authorized to release completed Base Realignment and Closure Data Calls and to provide certification for the data calls.

W. E. NEWMAN

Distribution:
COMNAVAIRWARCENWPNDIV
COMNAVAIRWARCENACDIV
NAVAIRWARTRASYSDIV

DATA CALL 12 CHANGE II
BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 8 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

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Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

BARTON D. STRONG
NAME (Please type or print)

Barton D. Strong
Signature

COMMANDER
Title

8 Sept 1994
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

Data Call #12
Audit Changes
Patuxent River

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

L. L. LUNDBERG
NAME (Please type or print)

Signature

ACTING COMMANDER
Title

9/20/94
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

W. C. BOWES, VADM, USN
NAME (Please type or print)

Signature

COMMANDER
Title

20 Sep 94
Date

NAVAL AIR SYSTEMS COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

Signature

Title

9/21/94
Date

DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER
NAVAL AIR WARFARE CENTER HEADQUARTERS
1421 JEFFERSON DAVIS HWY
ARLINGTON VA 22243

IN REPLY REFER TO
1000
Ser NAWC-21C/

SEP 16 [illegible]

From: Commander, Naval Air Warfare Center
To: Distribution

Subj: RELEASE OF BASE REALIGNMENT AND CLOSURE DATA CALL IN THE ABSENCE OF THE COMMANDER

1. During the period 19-21 September I will be on travel.

2. Mr. Lewis L. Lundberg, Technical Director, Naval Air Warfare Center, is designated as acting as Acting Commander during this period. As such, he is authorized to release completed Base Realignment and Closure Data Calls and to provide certification for the data calls.

W. E. Newman
W. E. NEWMAN

Distribution:
COMNAVAIRWARCENWPNDIV
COMNAVAIRWARCENACDIV
NAVAIRWARTRASYSDIV

FOR [illegible] 94

DATA CALL #12 - AUDIT
BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 8 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

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I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

CAPTAIN JOHN B. PATTERSON
NAME (Please type or print)

Signature

SEP 16 1994

ACTING COMMANDER
Title

Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type of print

Signature

Title

Date

Activity

In certify that the information herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

W.C. BOWES, VADM USN

NAME (Please type or print

Signature

COMMANDER

Title

19 Sep 94

Date

NAVAL AIR SYSTEMS COMMAND

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER

NAME (Please type of print

Signature

Title

9/21/94

Date

Data Call #12
Appendix D
Patuxent River UIC: 00421

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

KARRIE CIAVATTONE
NAME (Please type or print)

Karrie Ciavattone
Signature

BRAC 95 COORDINATOR
Title

19 September 1994
Date

AIR-09B
Division

Base Realignment & Closure Program Office
Department

Naval Air Systems Command
Activity

ALL PEN & INK CHANGES FOR APPENDIX D, THIS SUBMISSION

Enclosure (1)

TRANCHE 12
APPENDIX D
PATUXENT RIVER, MD 20421

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

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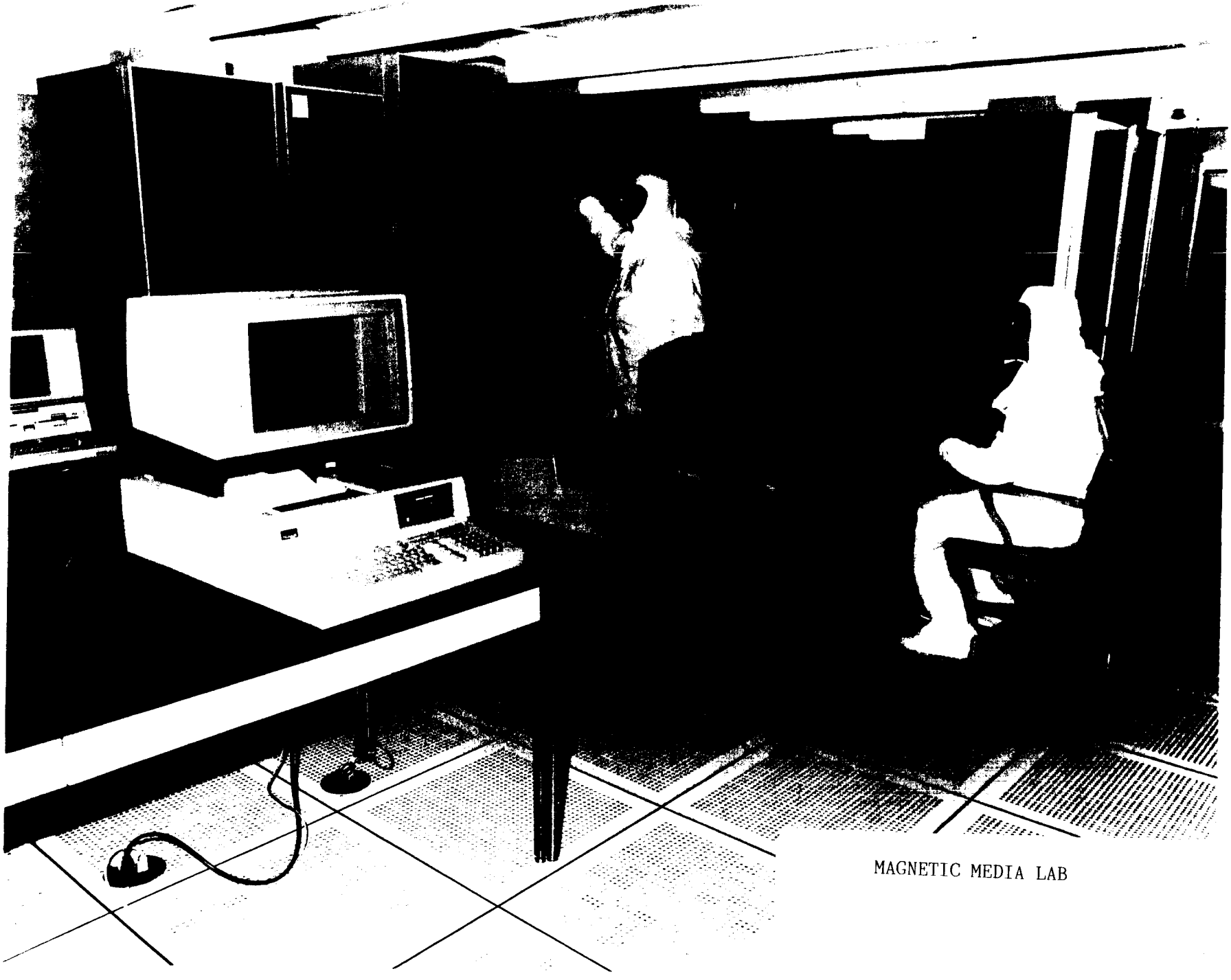
Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

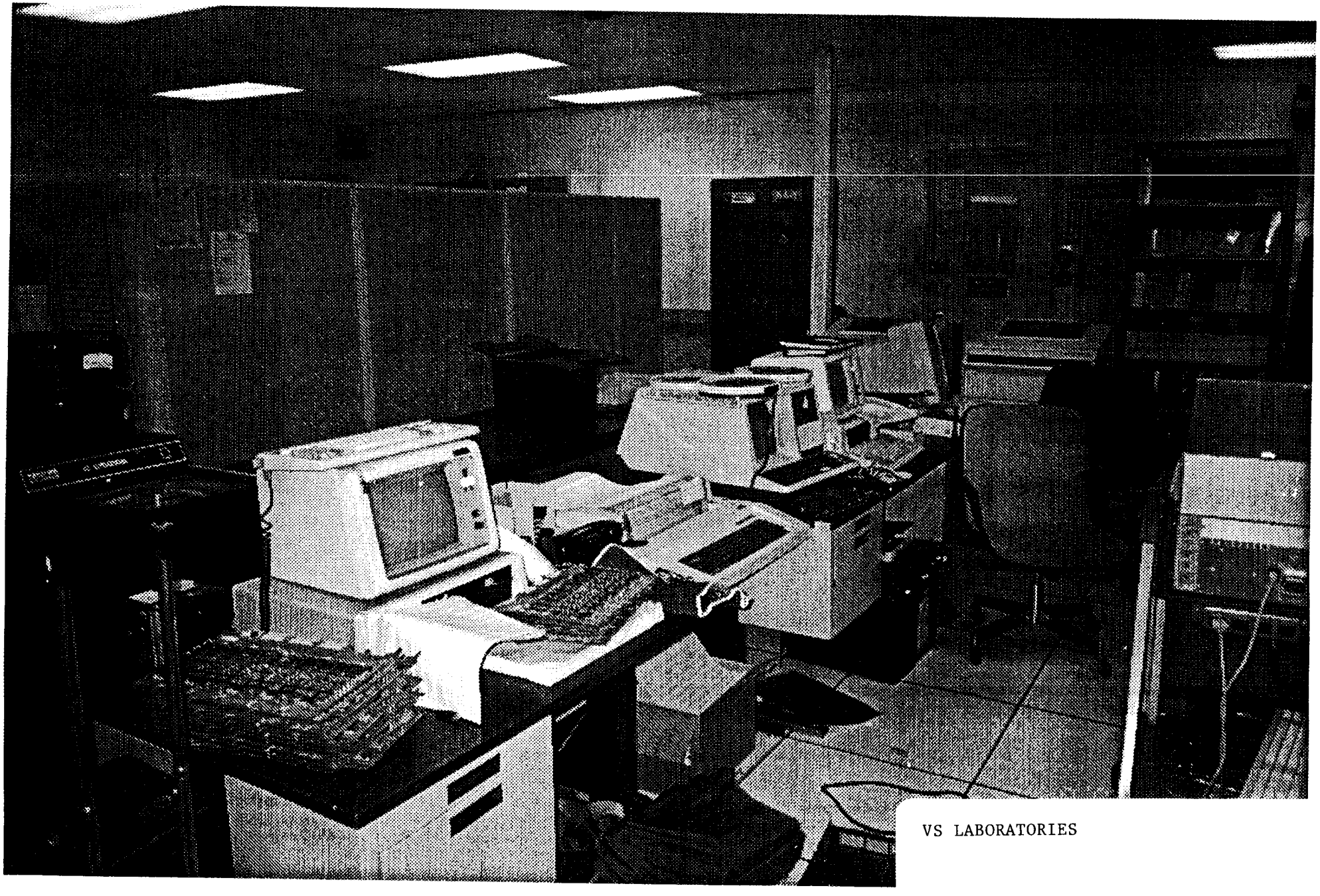
ACTIVITY COMMANDER

W. E. NEWMAN, RADM, USN	W E Newman
NAME (Please type or print)	Signature
COMMANDER	9/16/94
Title	Date
NAVAL AIR WARFARE CENTER	
Activity	

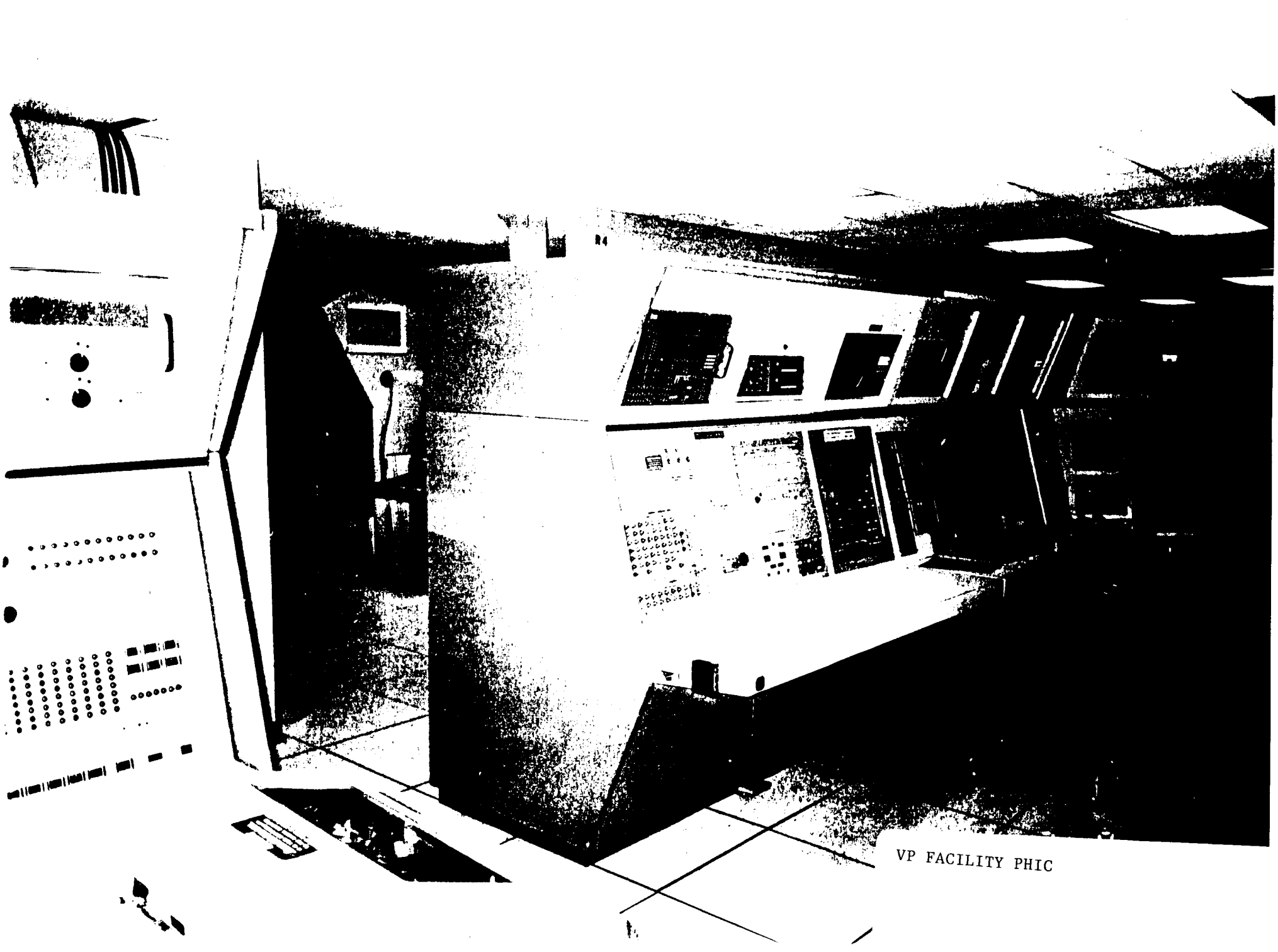
CENTRAL COMPUTER FACILITY



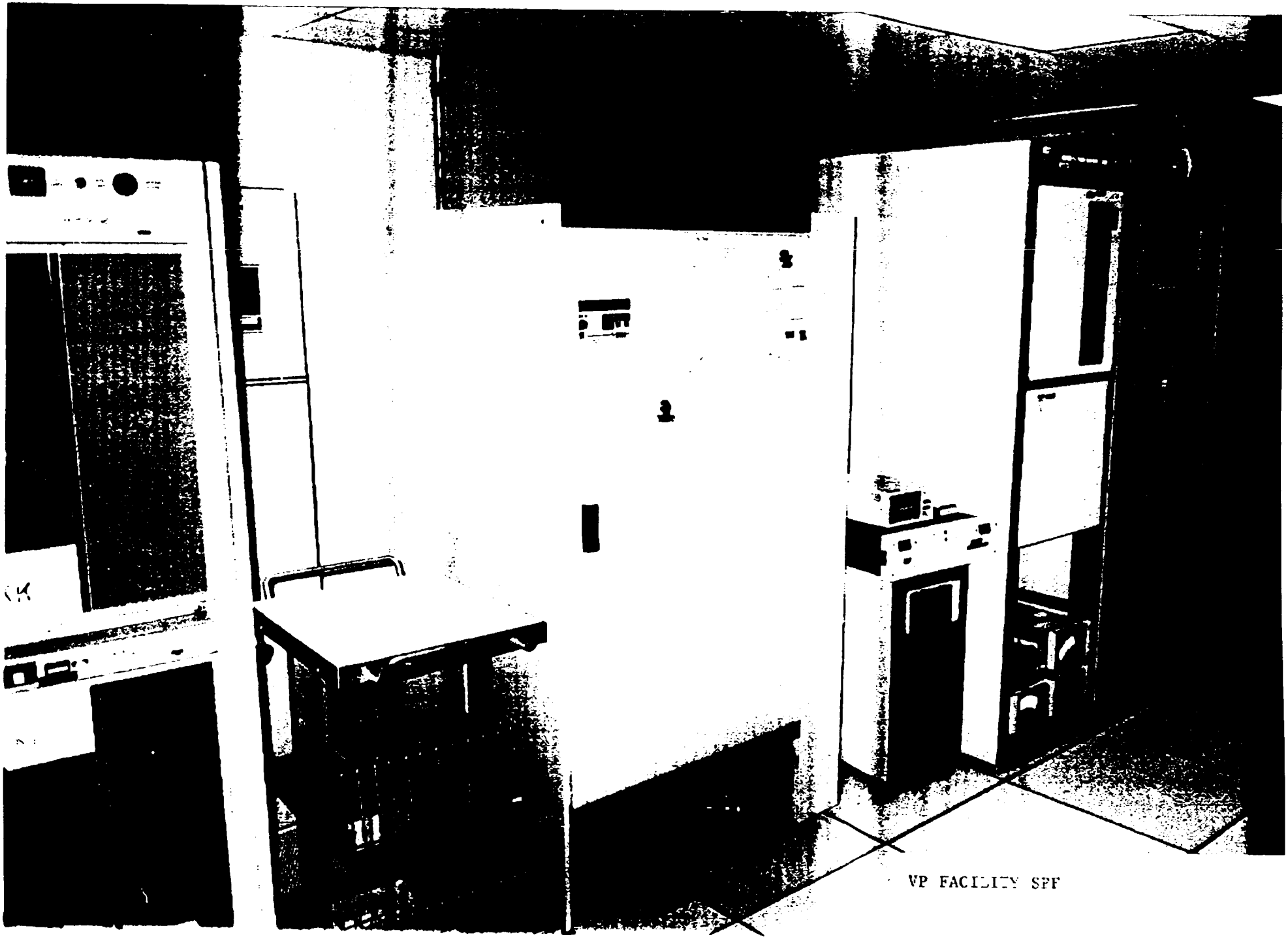
MAGNETIC MEDIA LAB



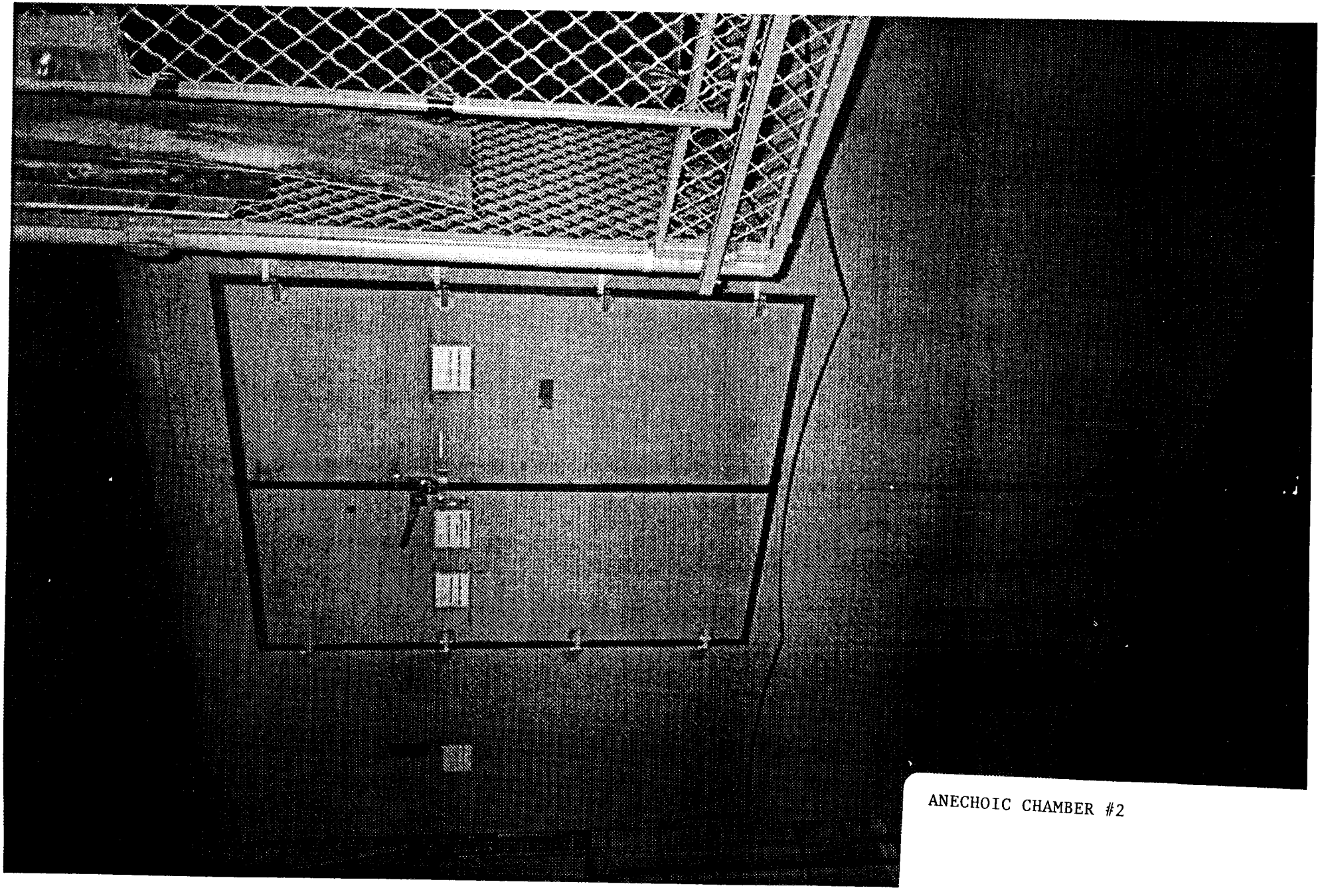
VS LABORATORIES



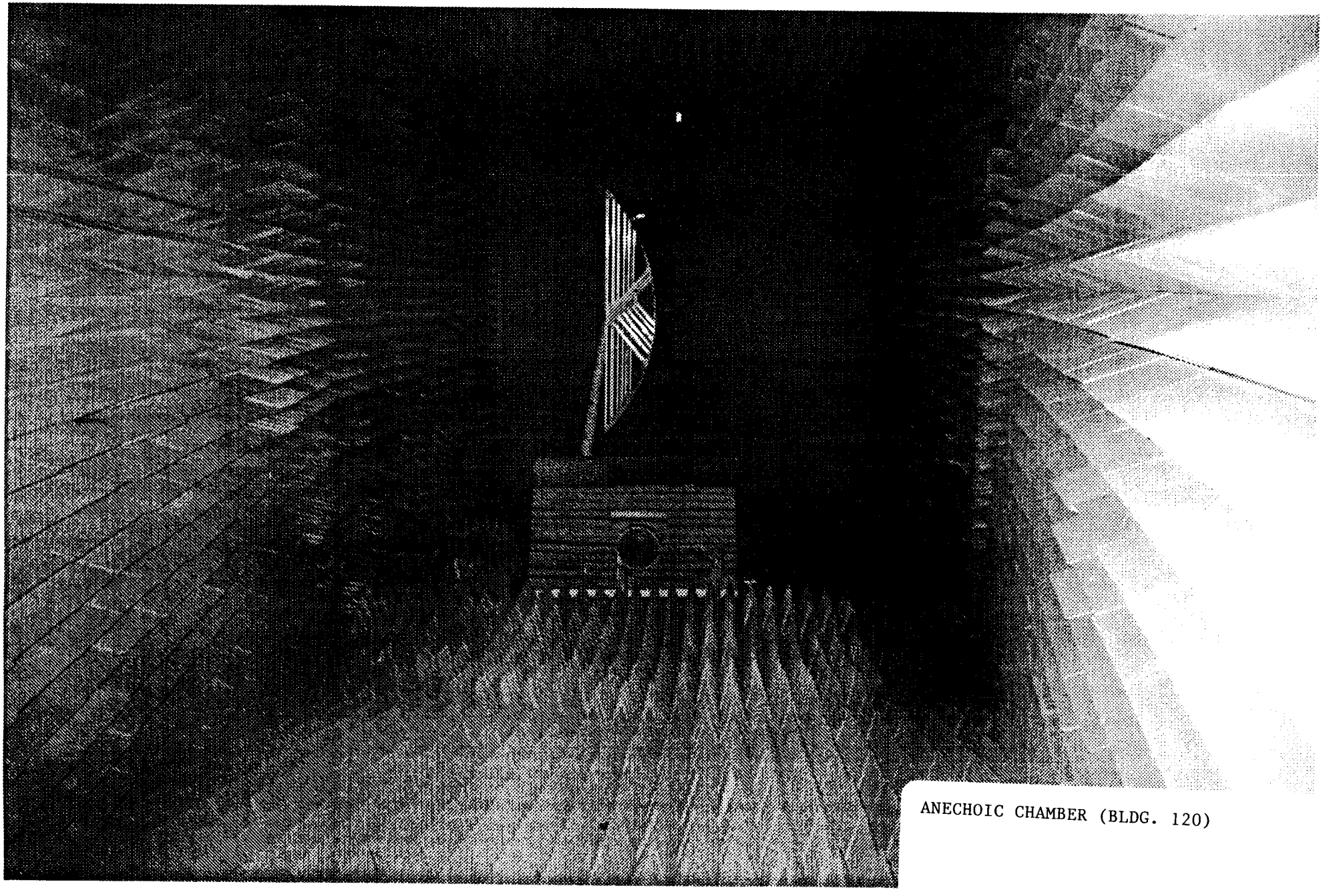
VP FACILITY PHIC



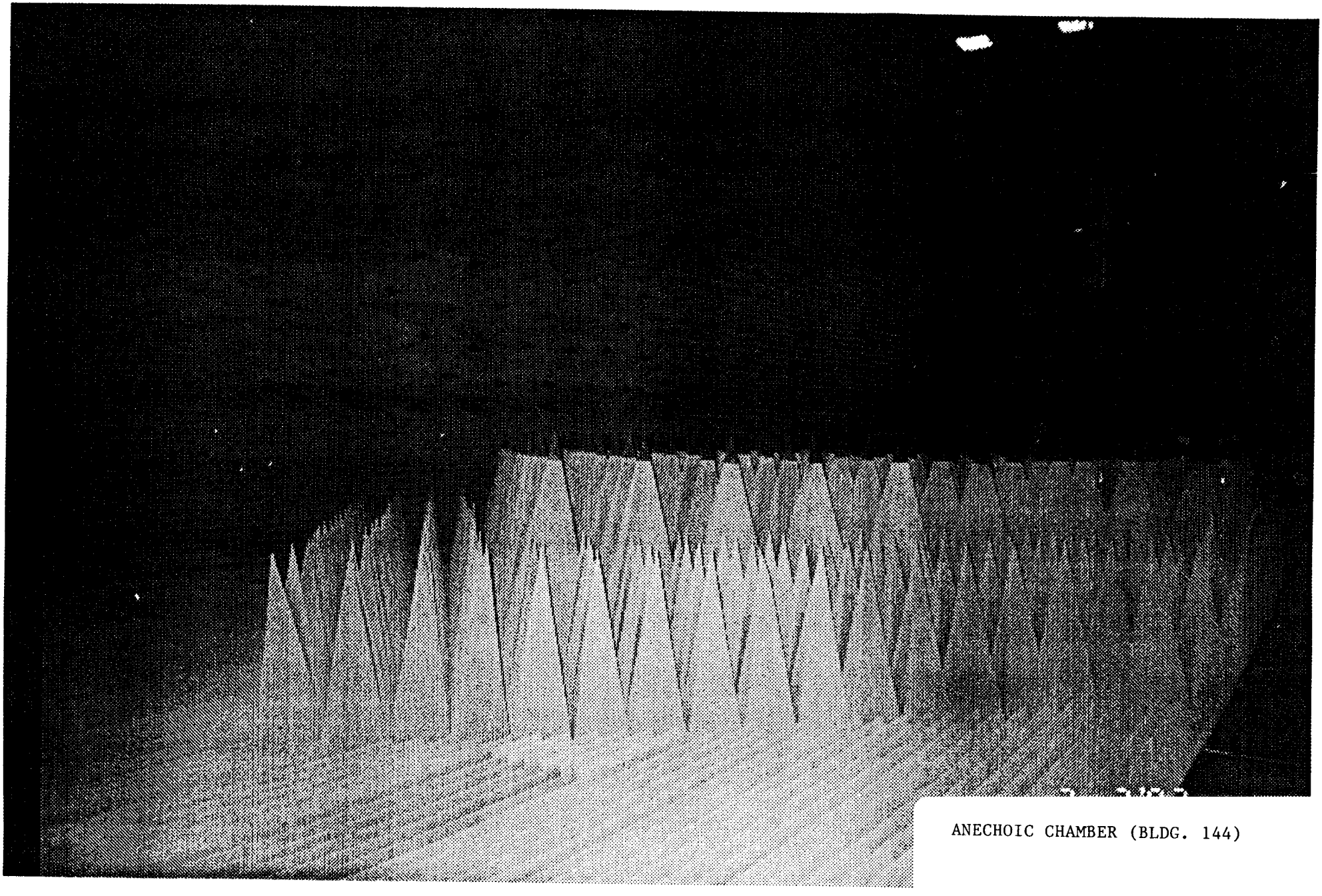
VP FACILITY SPF



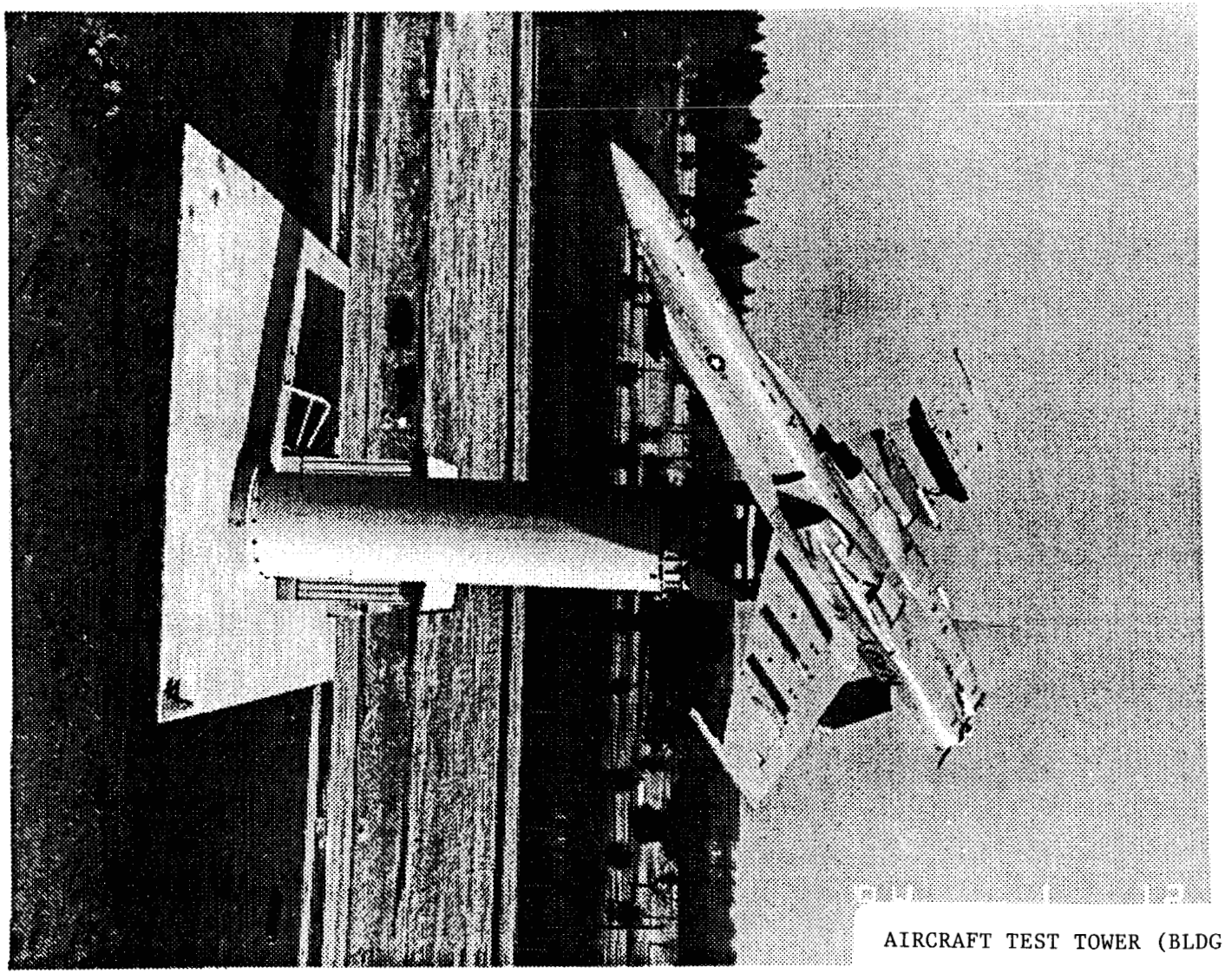
ANECHOIC CHAMBER #2



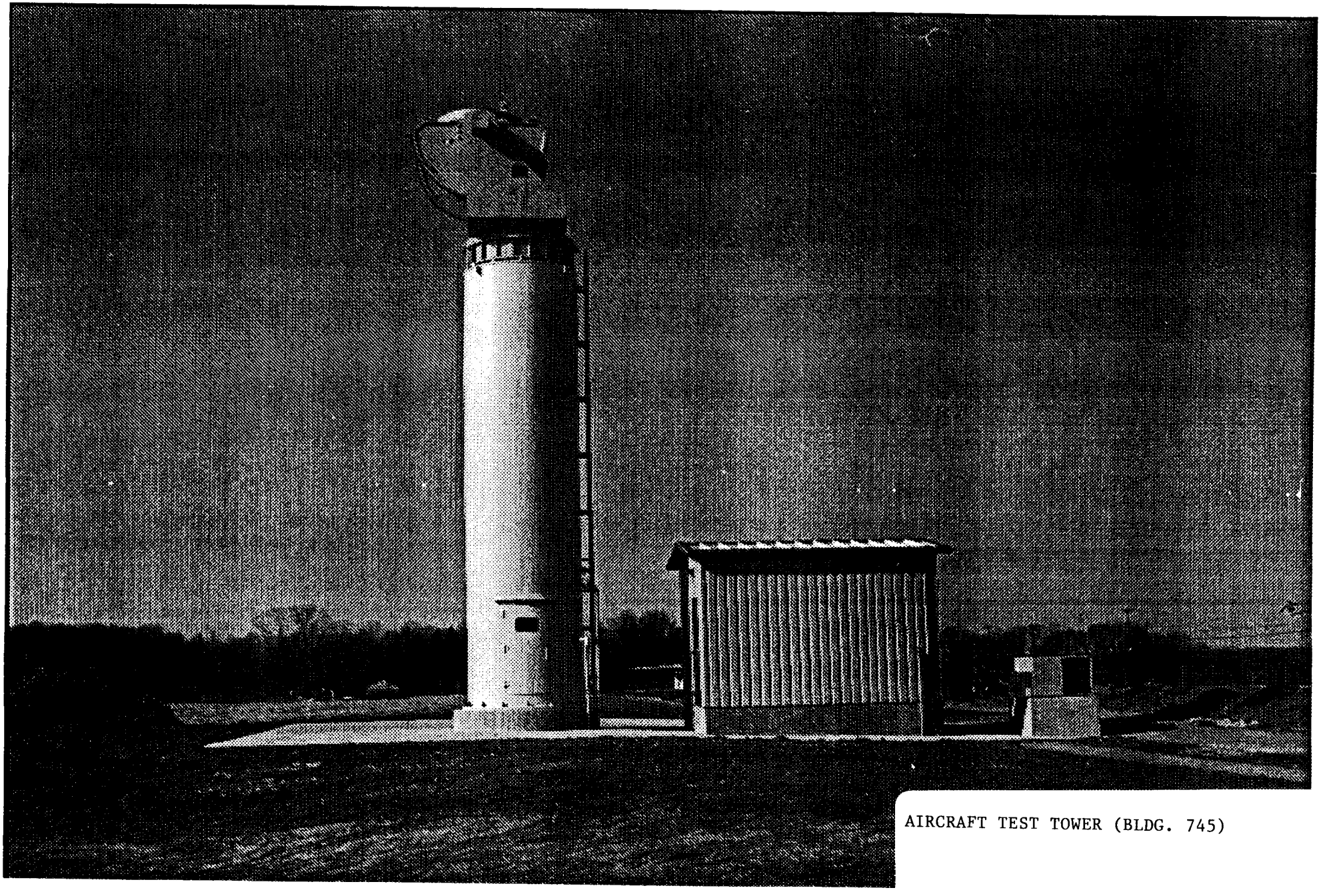
ANECHOIC CHAMBER (BLDG. 120)



ANECHOIC CHAMBER (BLDG. 144)

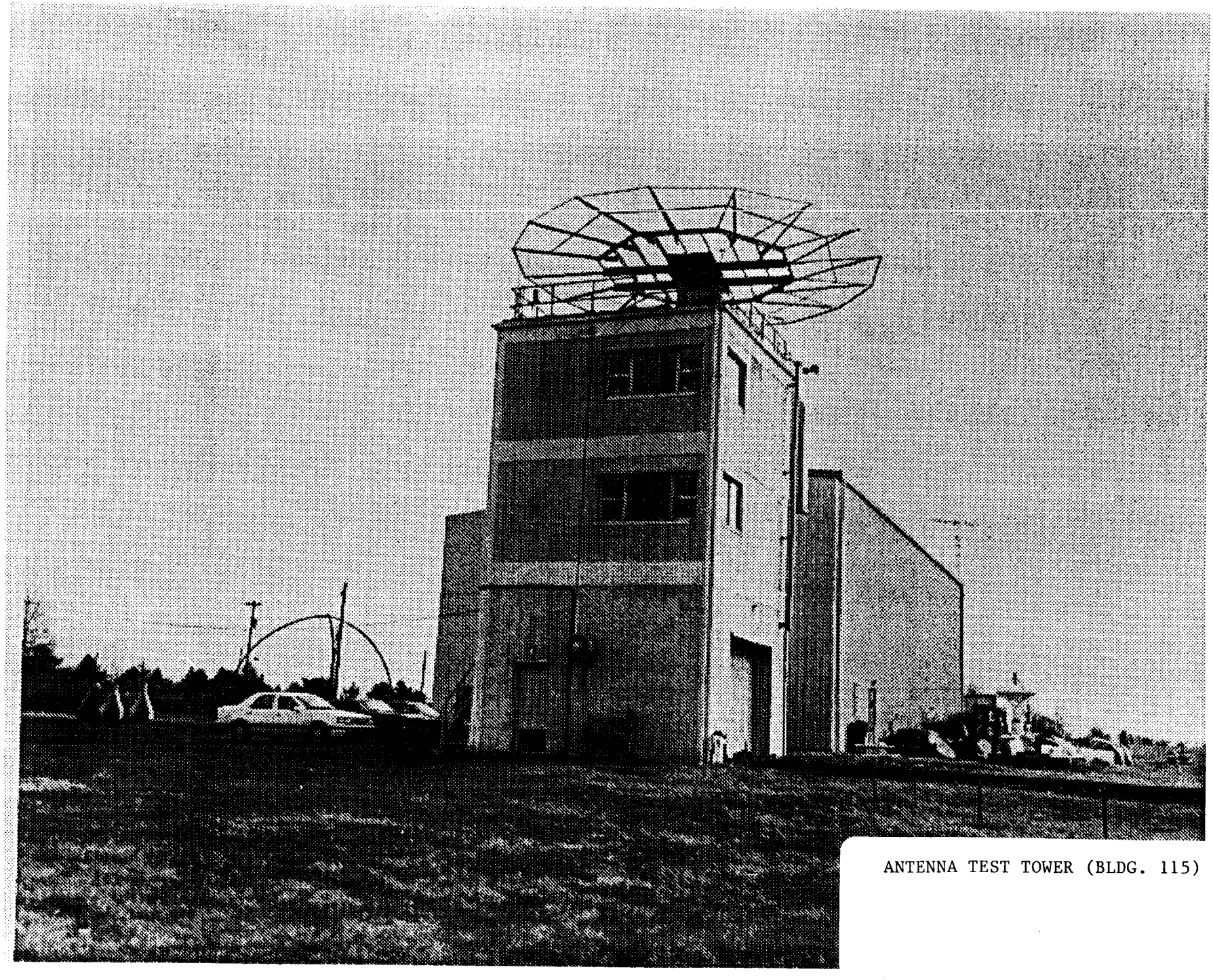


AIRCRAFT TEST TOWER (BLDG. 367)

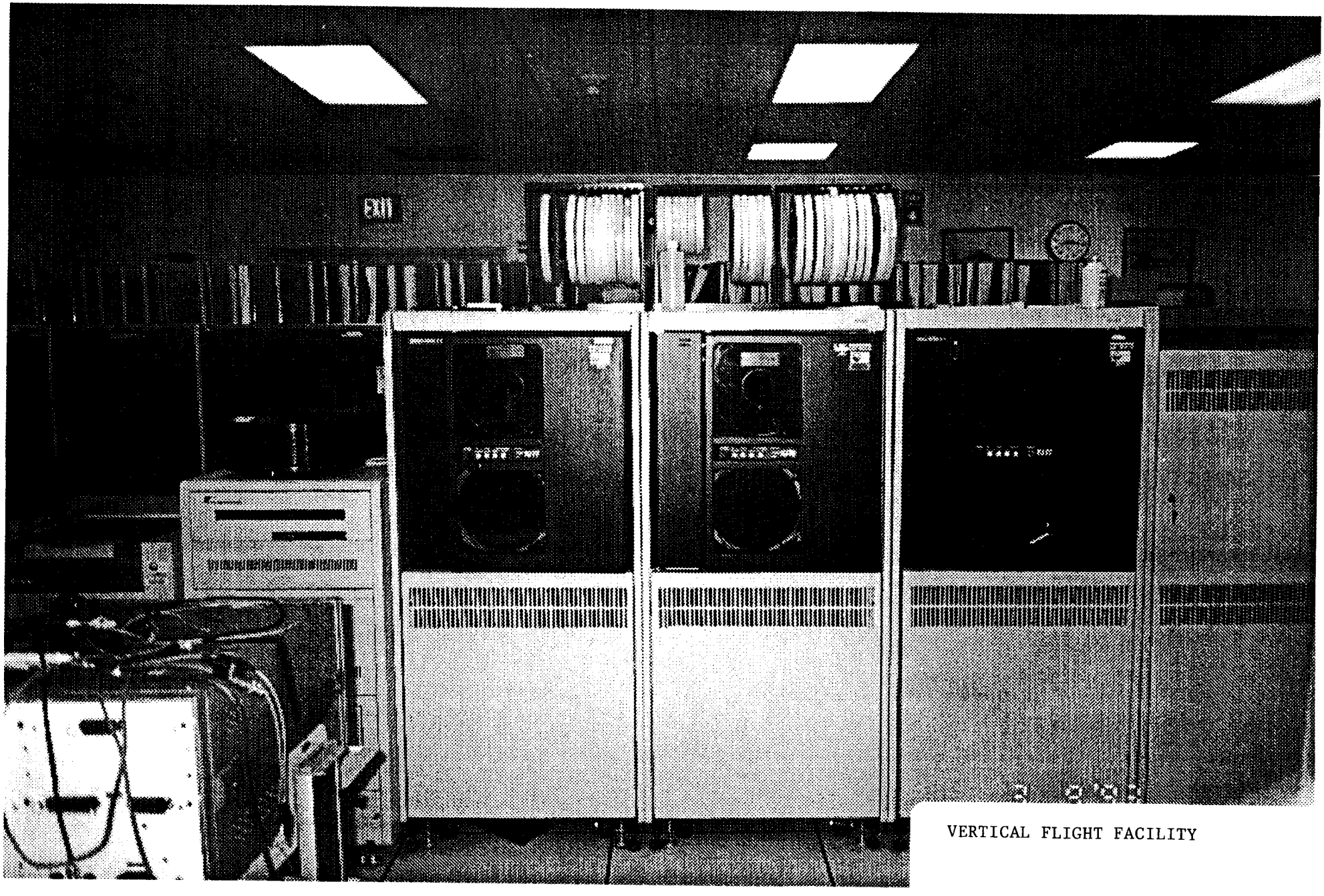


AIRCRAFT TEST TOWER (BLDG. 745)

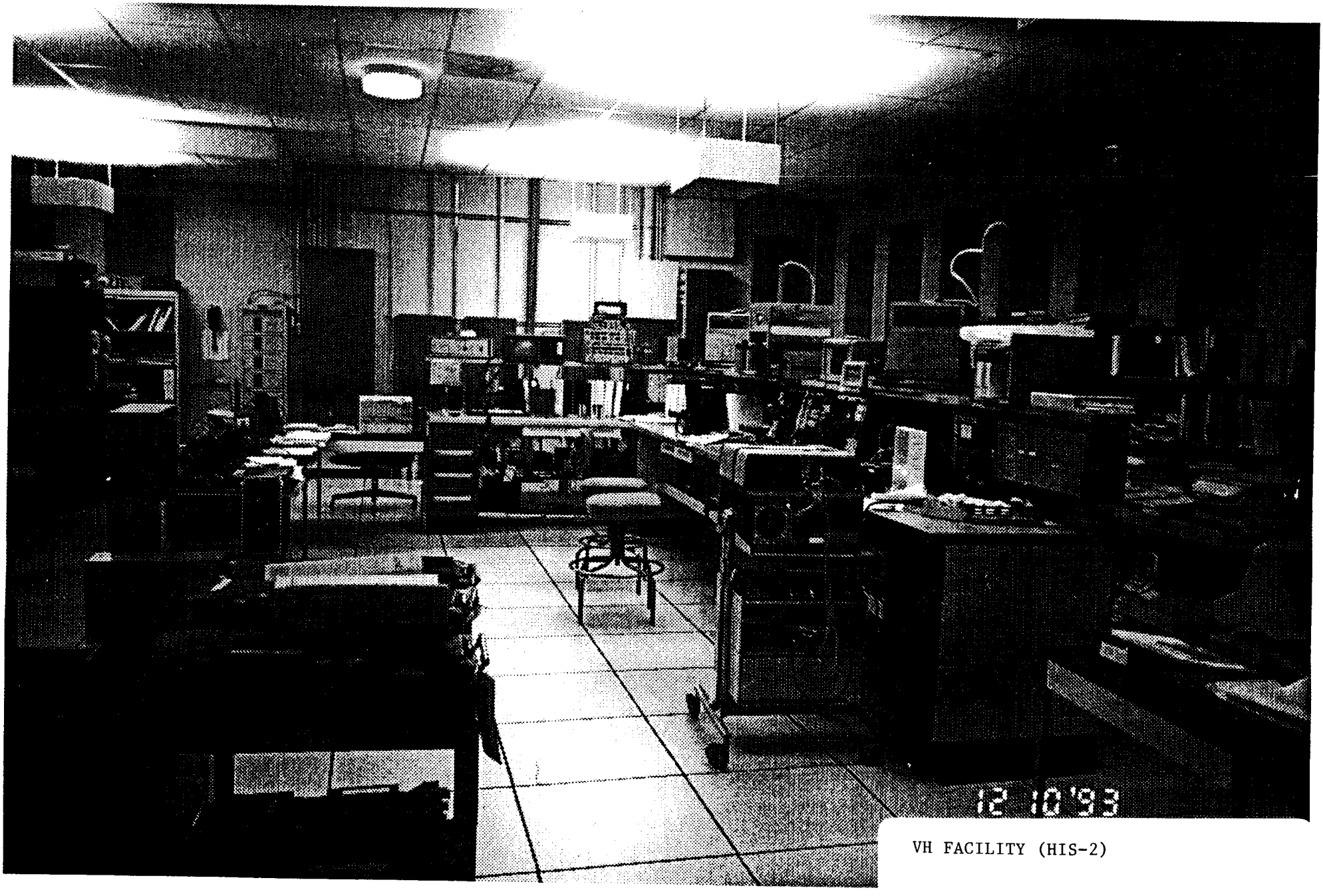
9.5.27



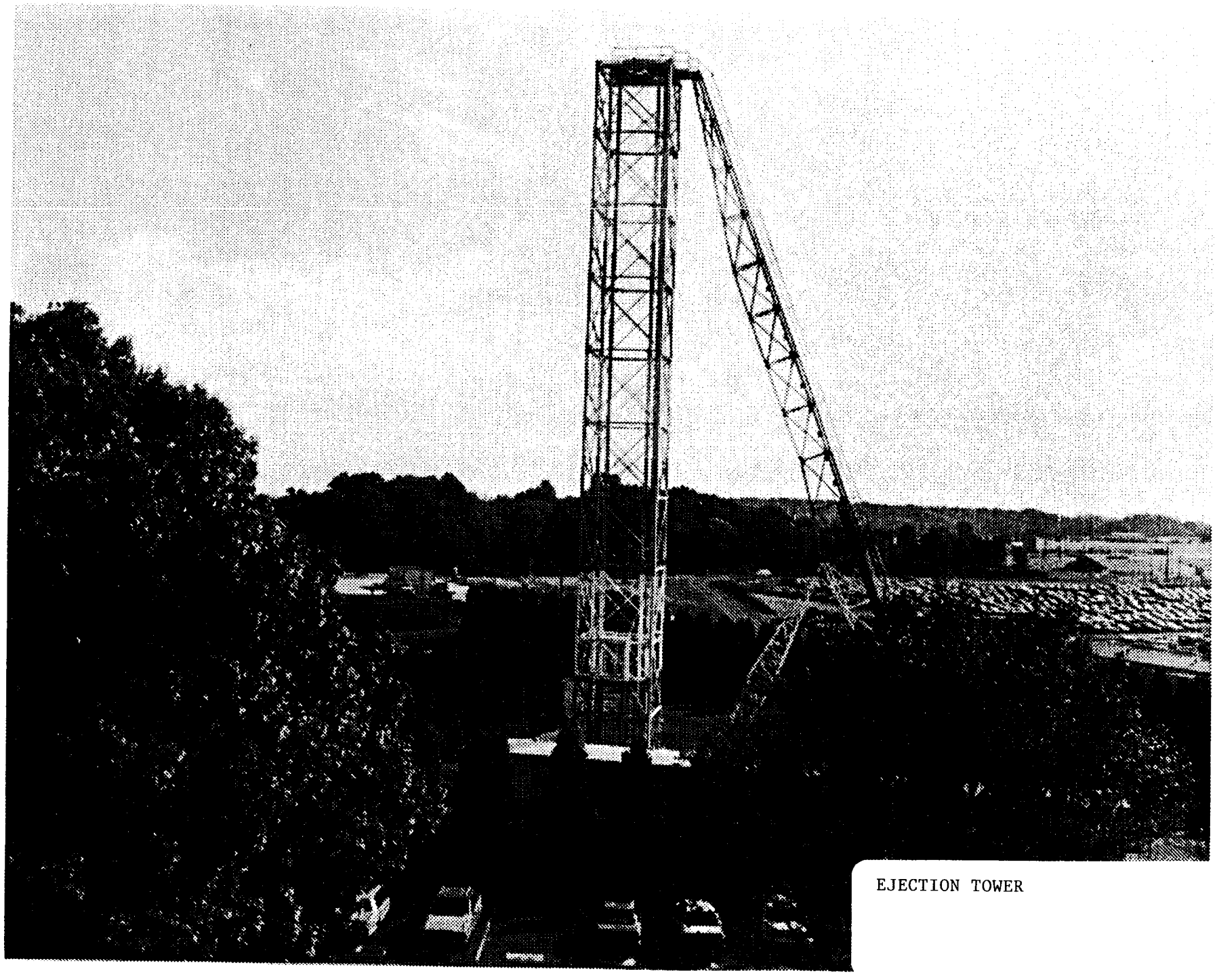
ANTENNA TEST TOWER (BLDG. 115)



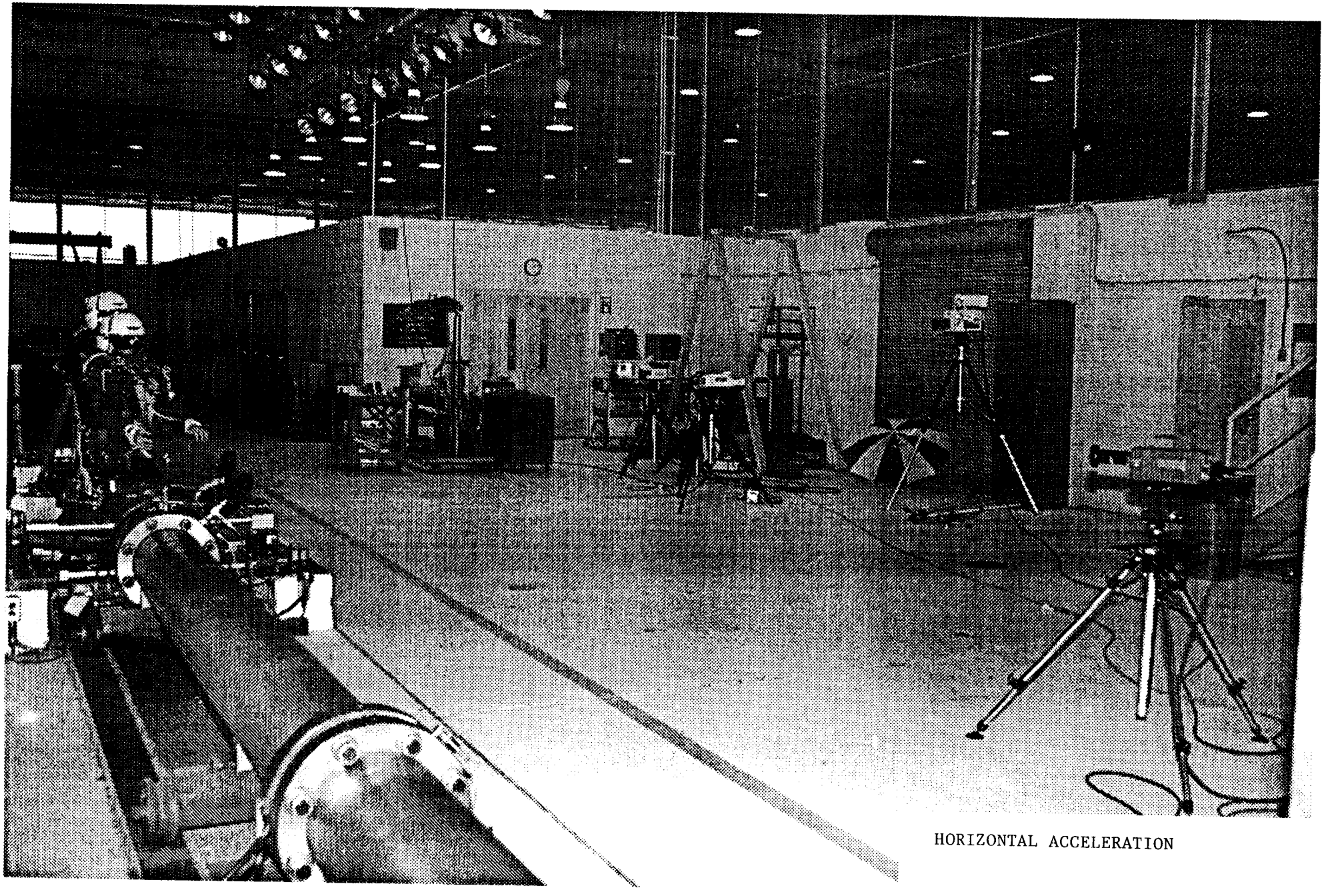
VERTICAL FLIGHT FACILITY



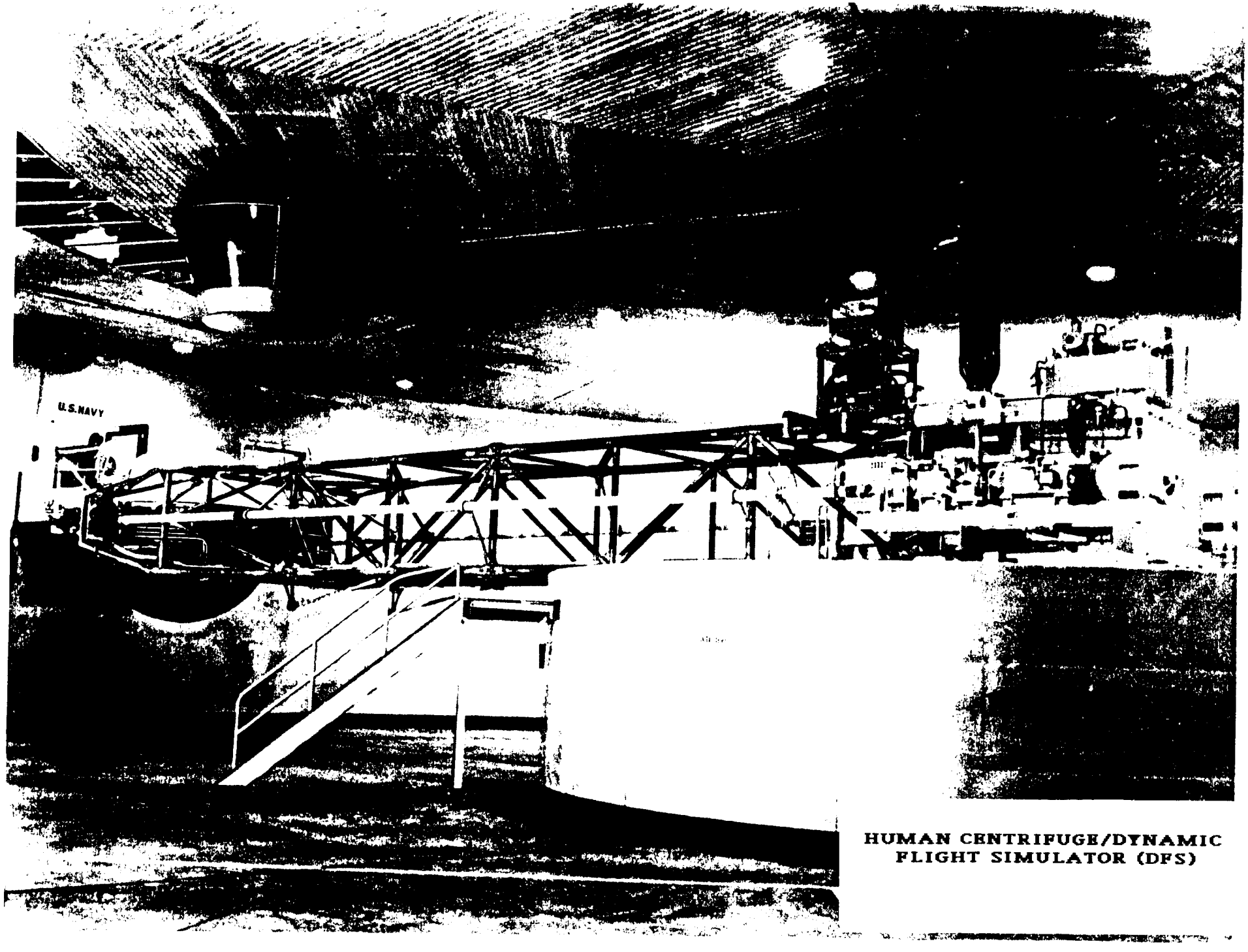
VH FACILITY (HIS-2)



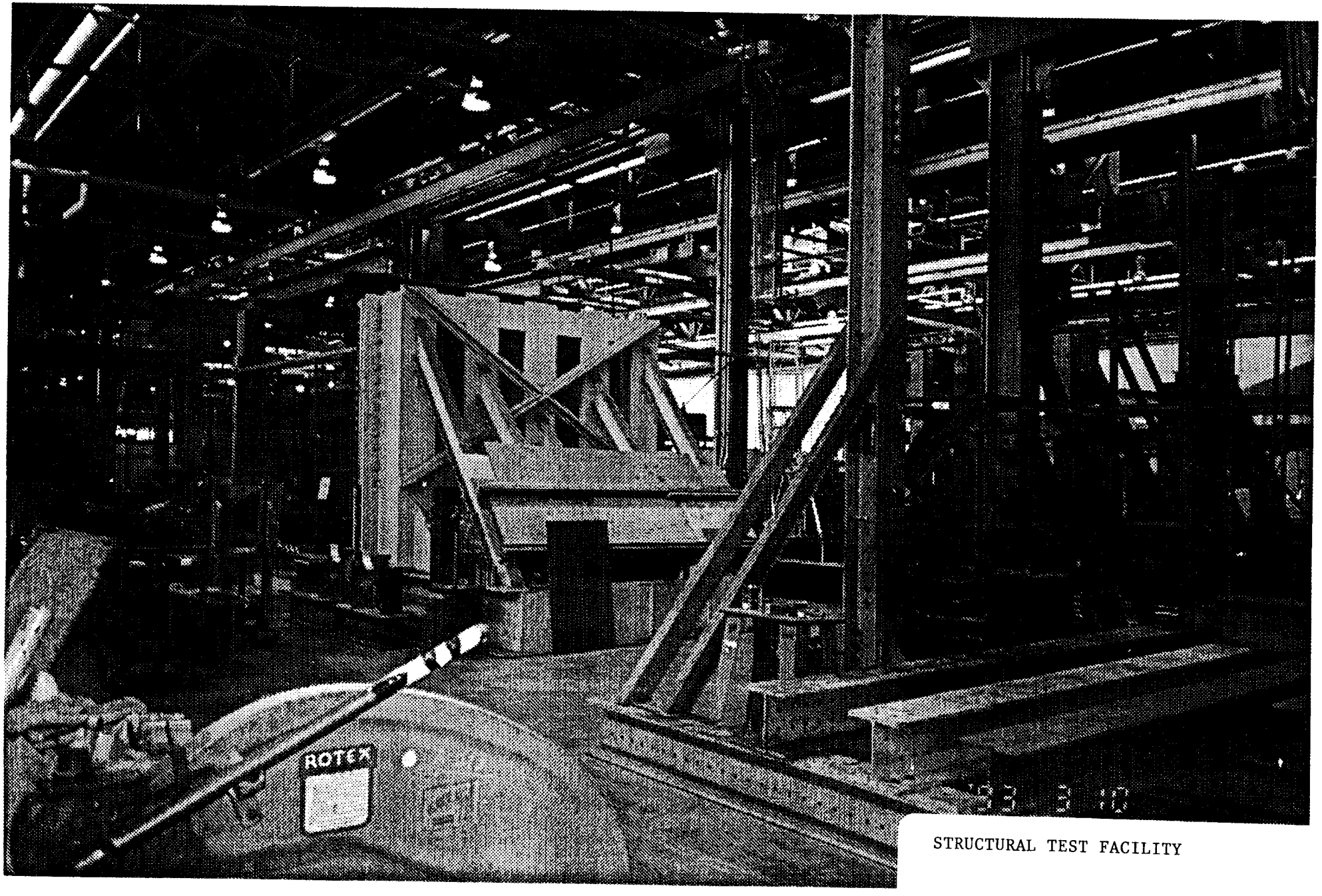
EJECTION TOWER



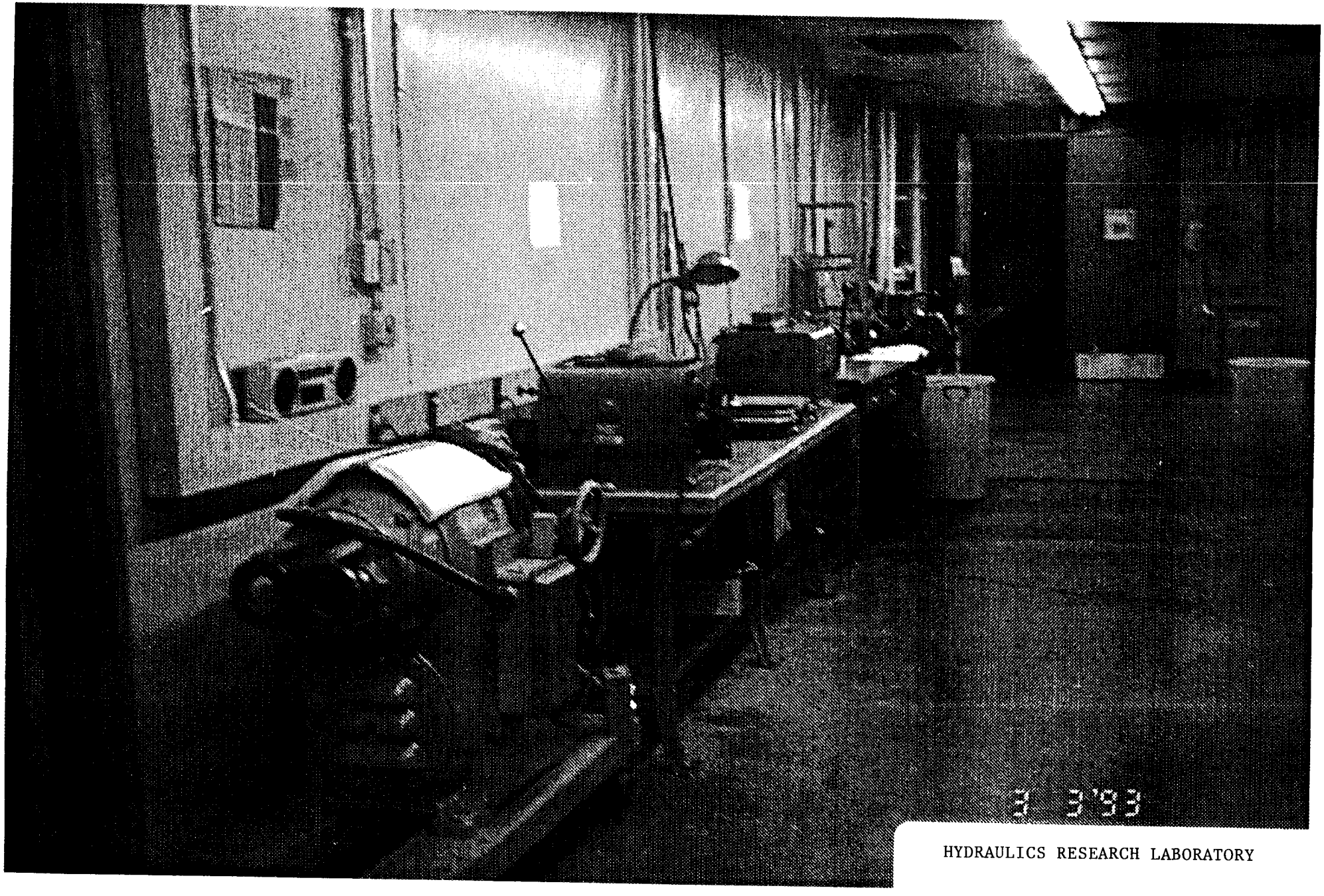
HORIZONTAL ACCELERATION



HUMAN CENTRIFUGE/DYNAMIC
FLIGHT SIMULATOR (DFS)

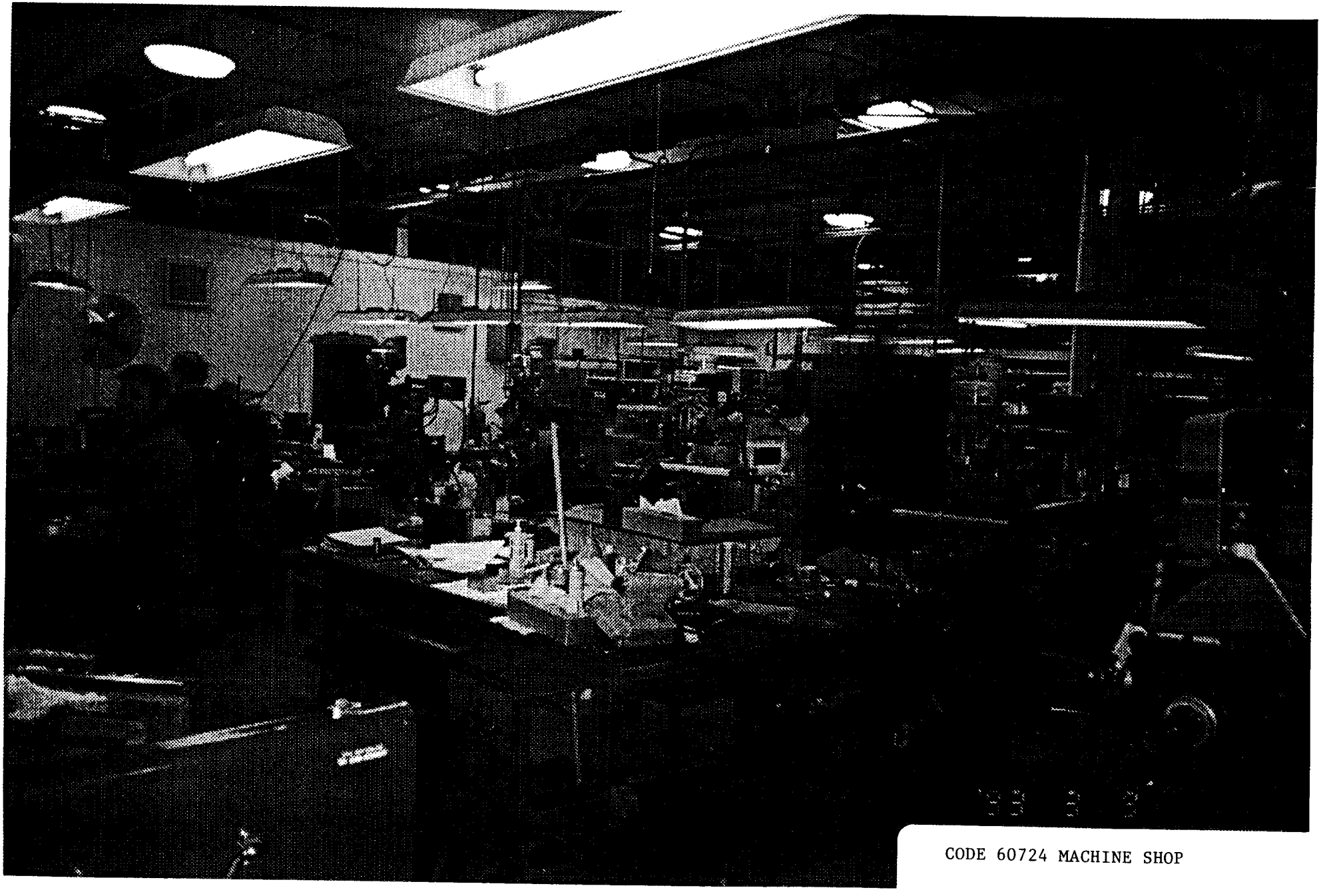


STRUCTURAL TEST FACILITY

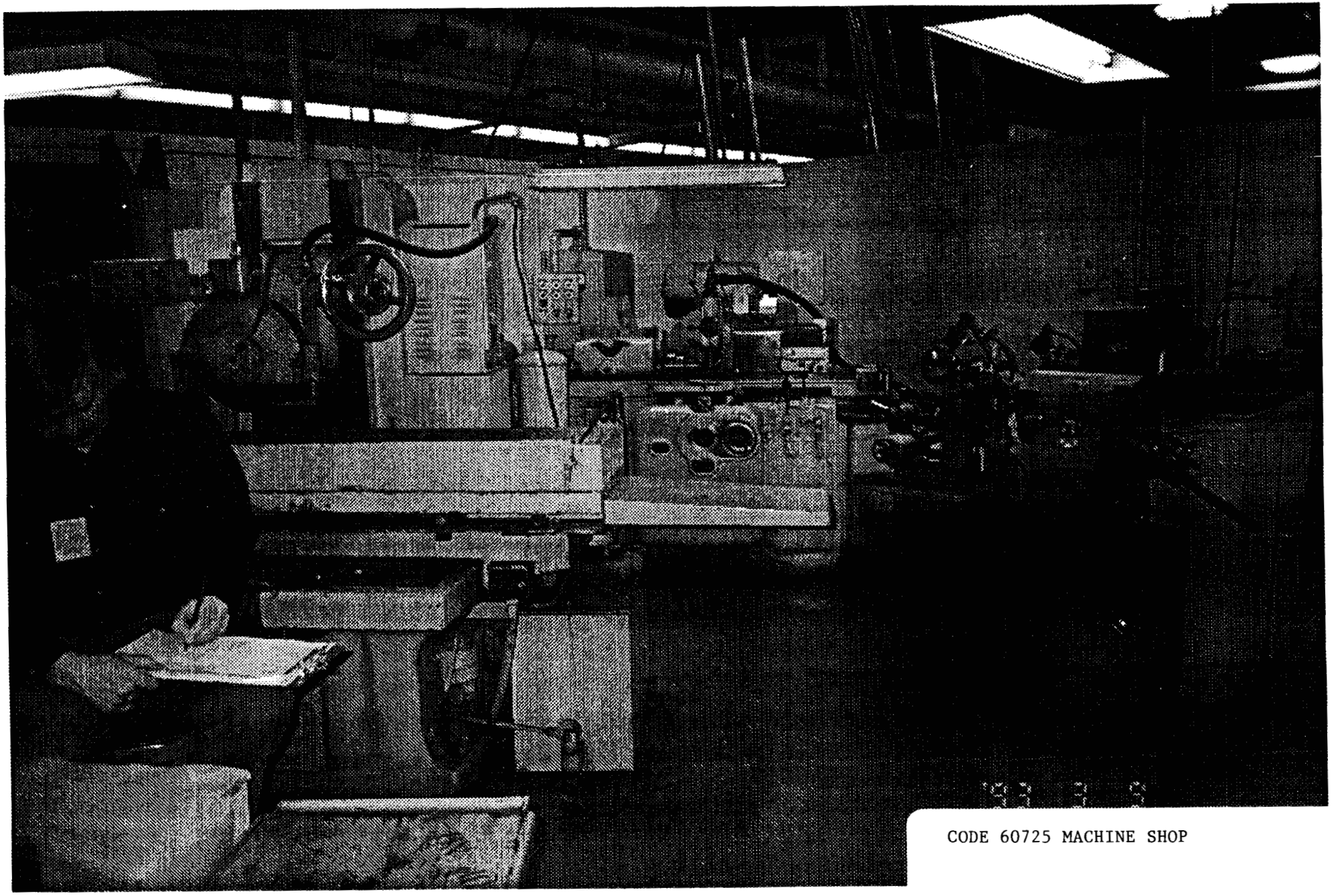


HYDRAULICS RESEARCH LABORATORY

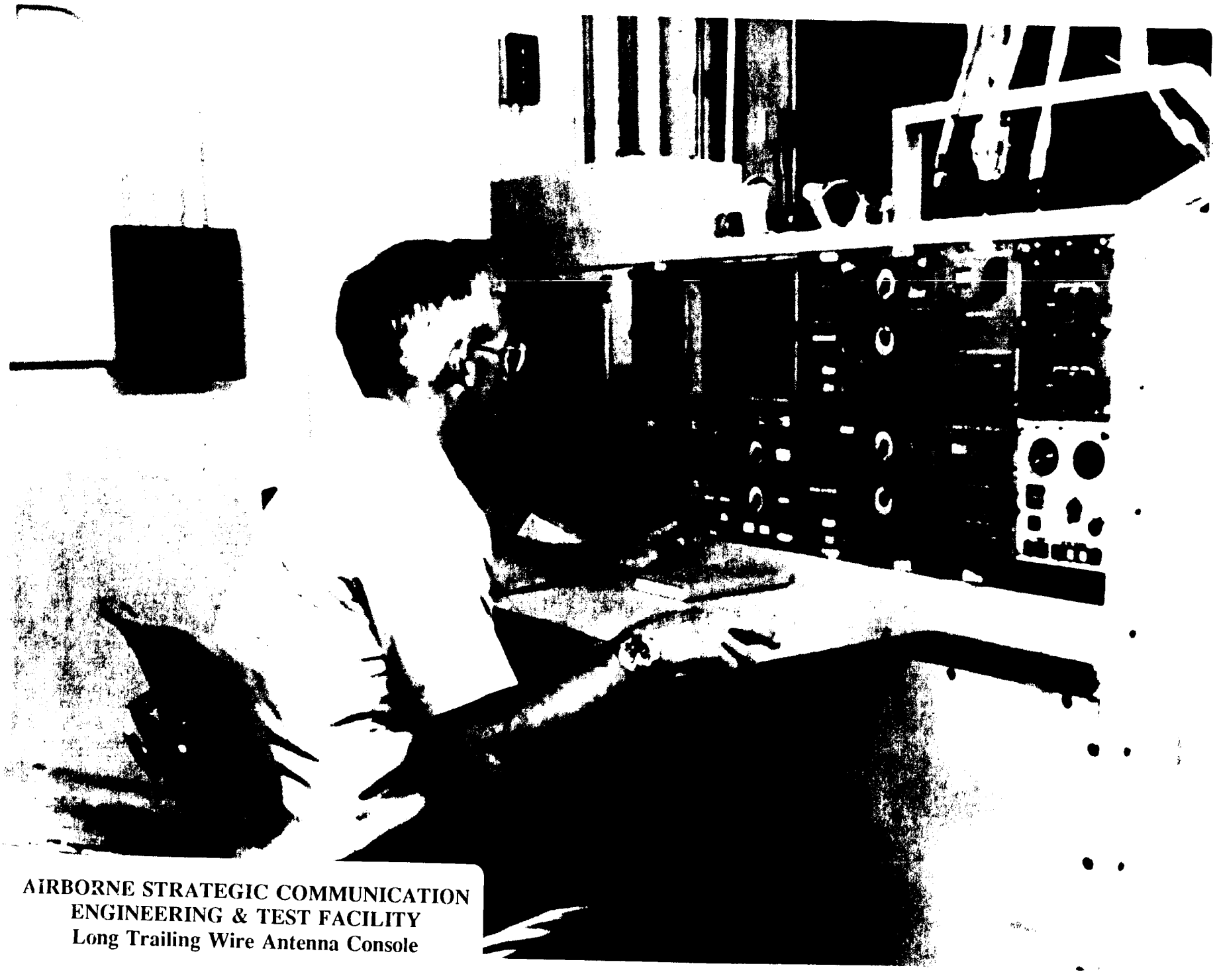
9.6.69.1



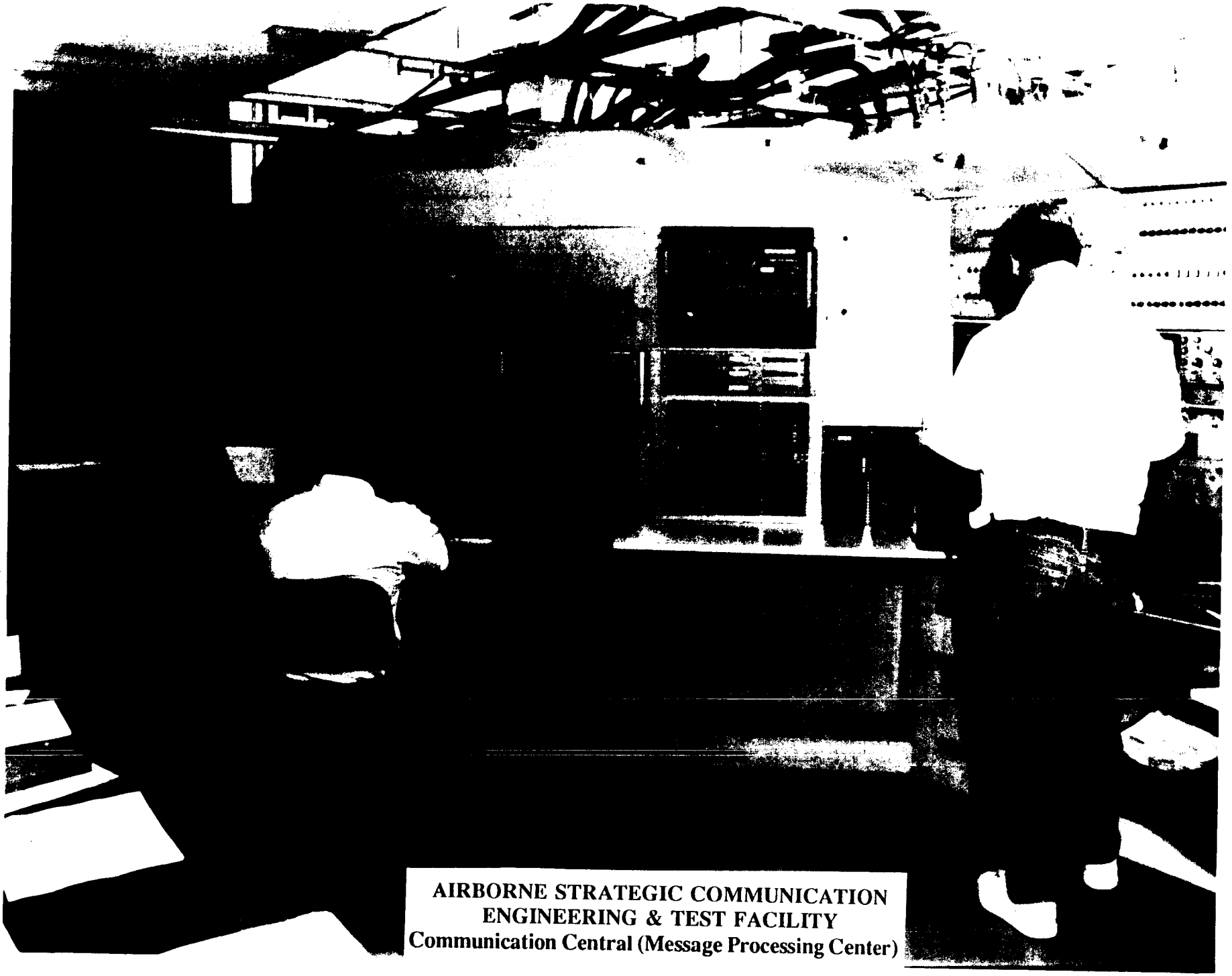
CODE 60724 MACHINE SHOP



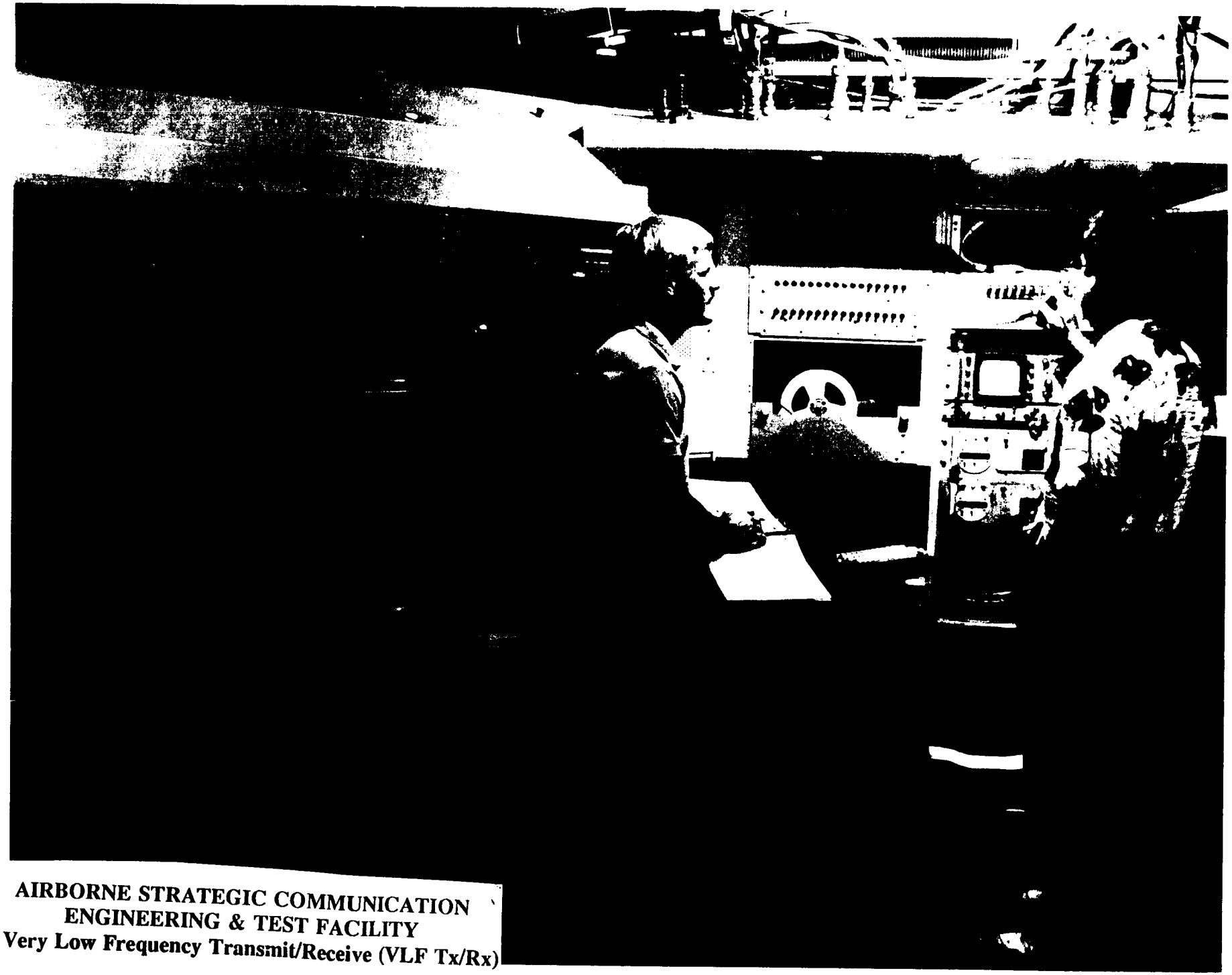
CODE 60725 MACHINE SHOP



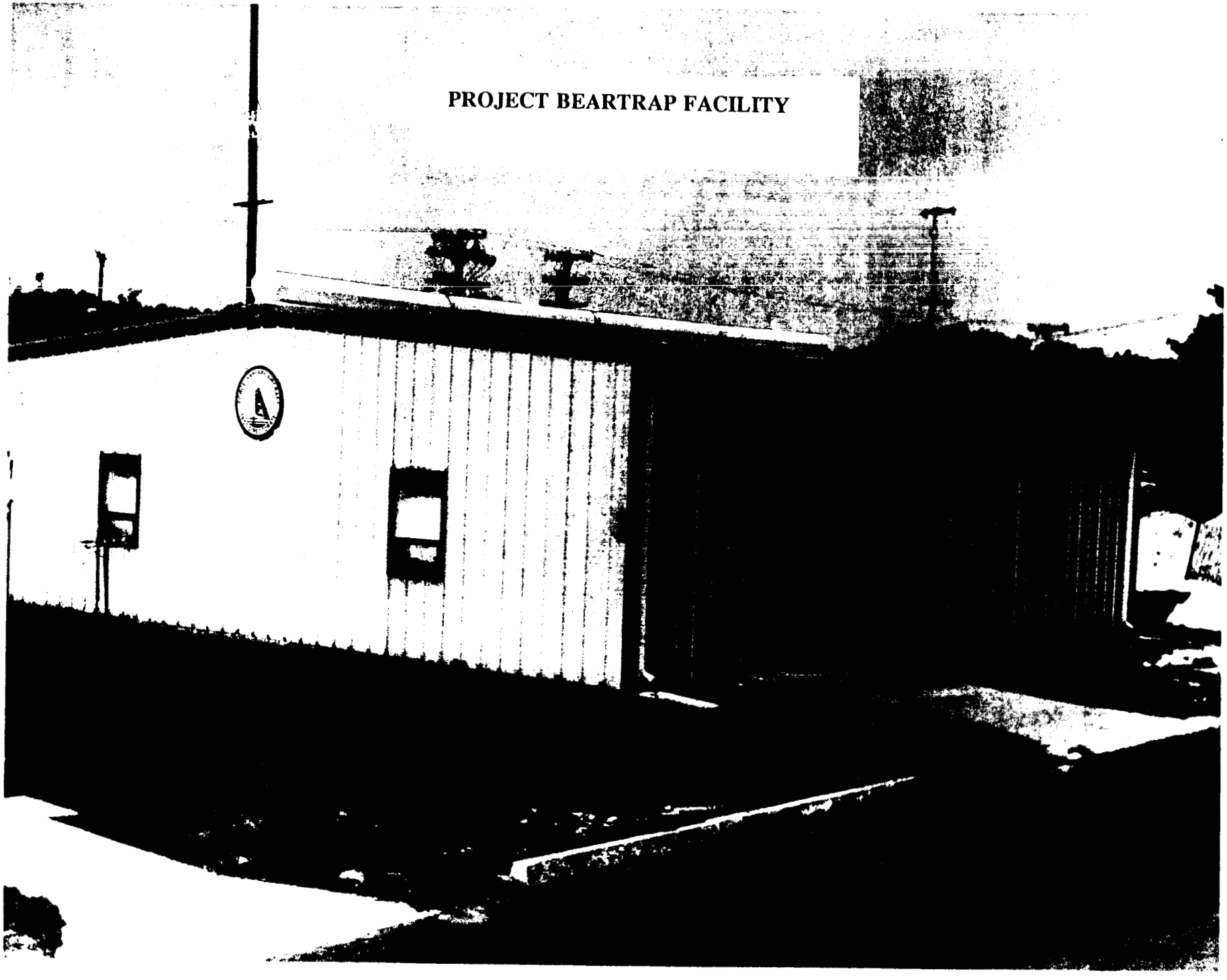
AIRBORNE STRATEGIC COMMUNICATION
ENGINEERING & TEST FACILITY
Long Trailing Wire Antenna Console

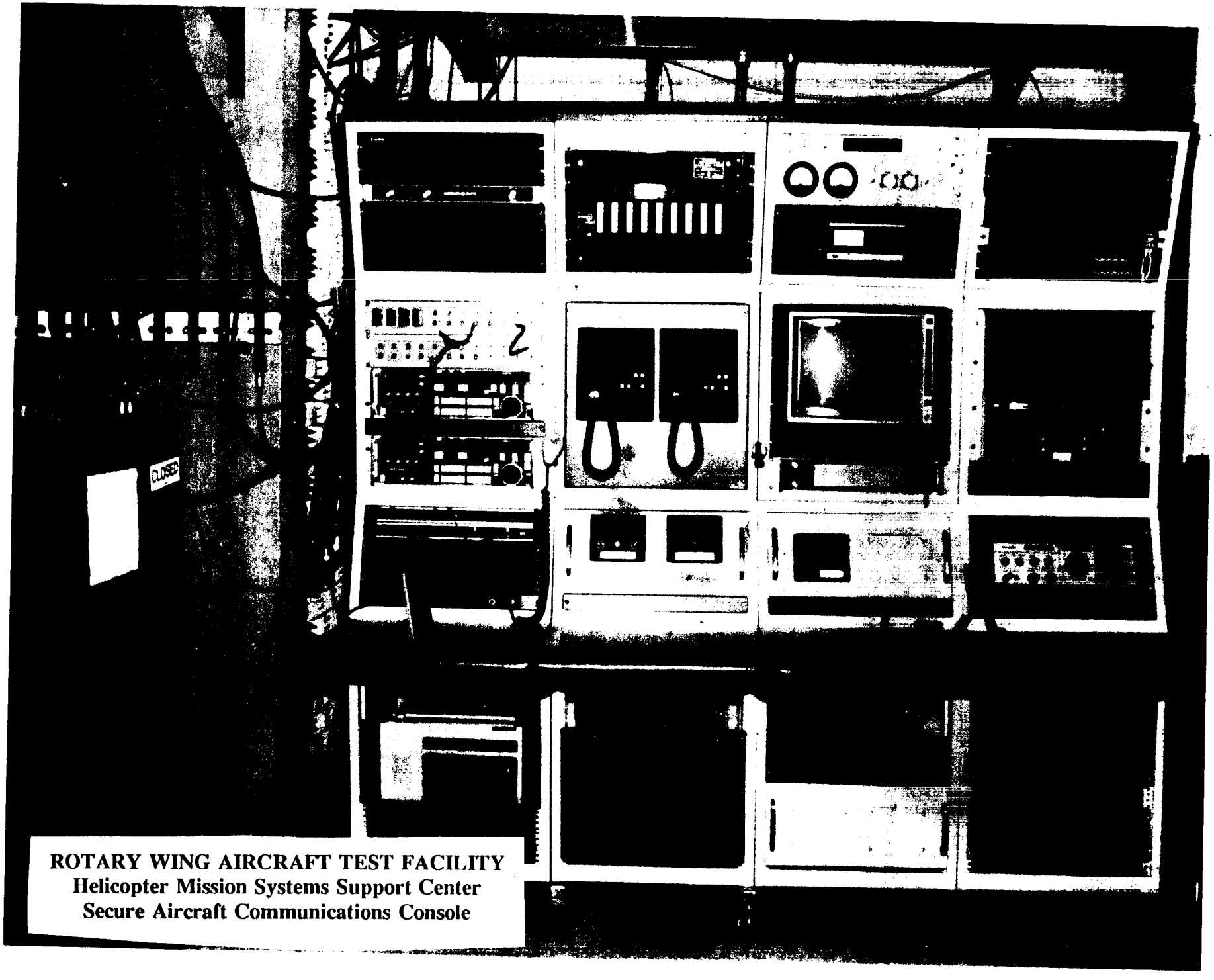


AIRBORNE STRATEGIC COMMUNICATION
ENGINEERING & TEST FACILITY
Communication Central (Message Processing Center)



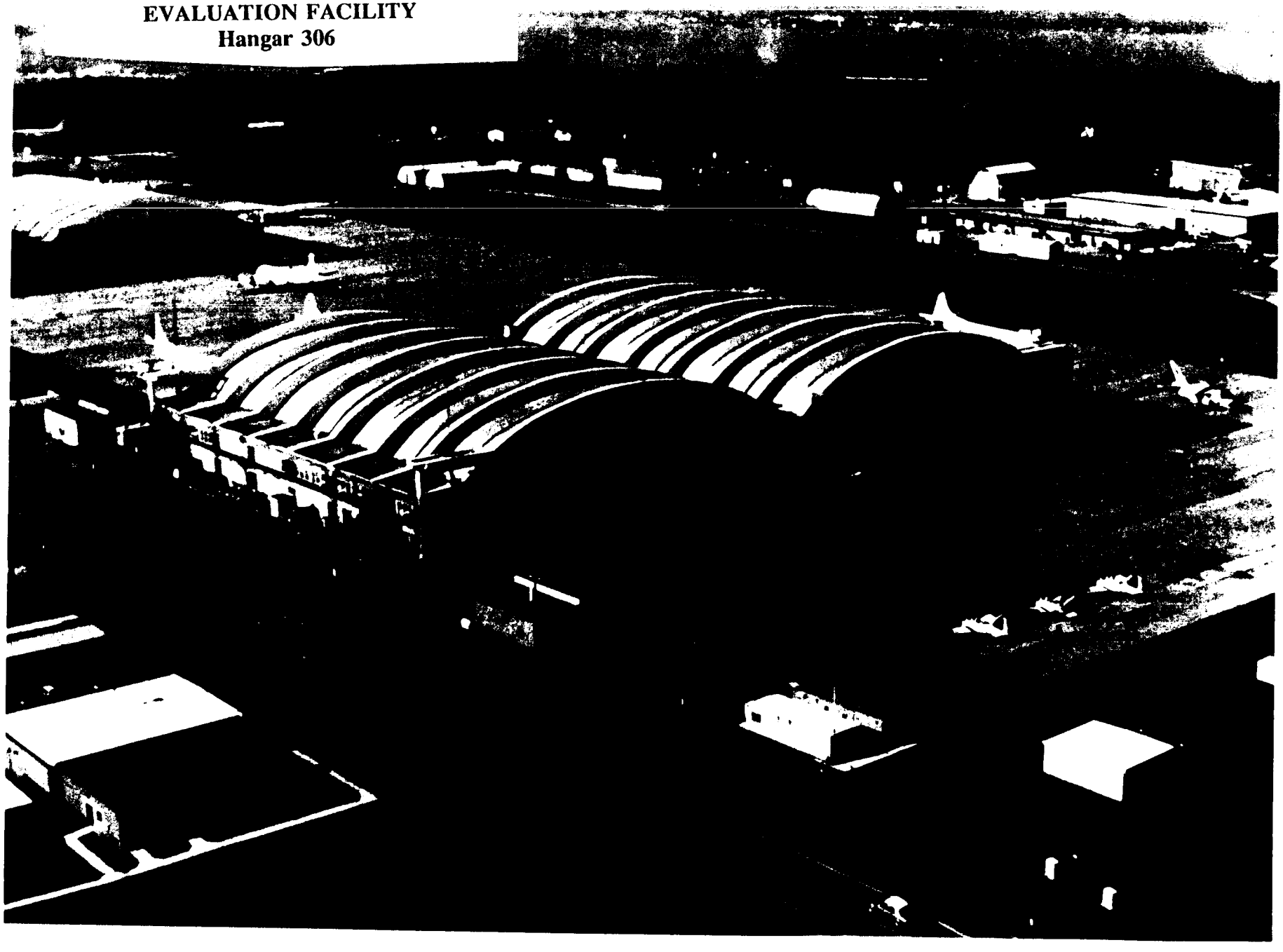
AIRBORNE STRATEGIC COMMUNICATION
ENGINEERING & TEST FACILITY
Very Low Frequency Transmit/Receive (VLF Tx/Rx)

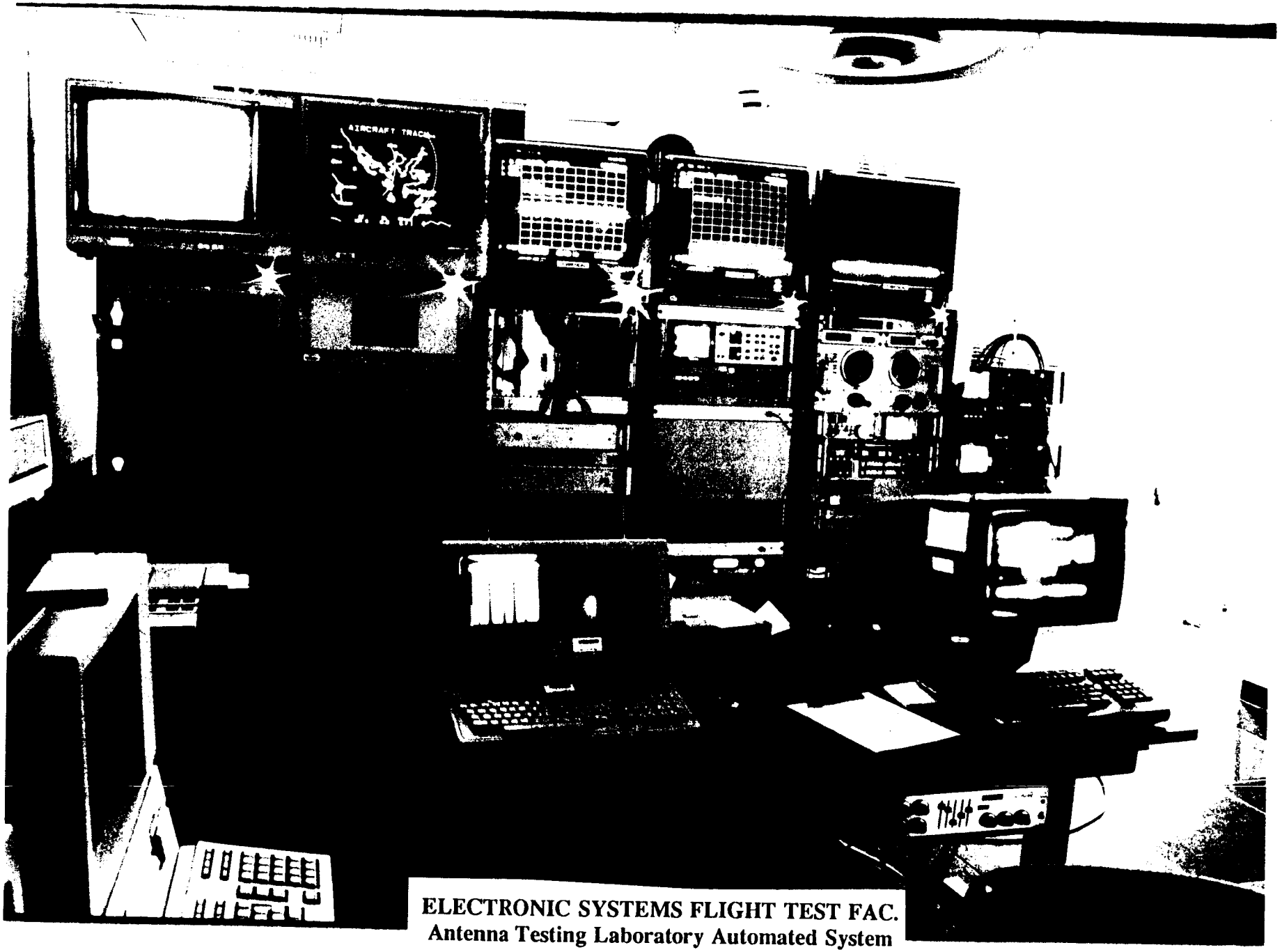

PROJECT BEARTRAP FACILITY
A



ROTARY WING AIRCRAFT TEST FACILITY
Helicopter Mission Systems Support Center
Secure Aircraft Communications Console

FORCE WARFARE AIRCRAFT TEST & EVALUATION FACILITY
Hangar 306

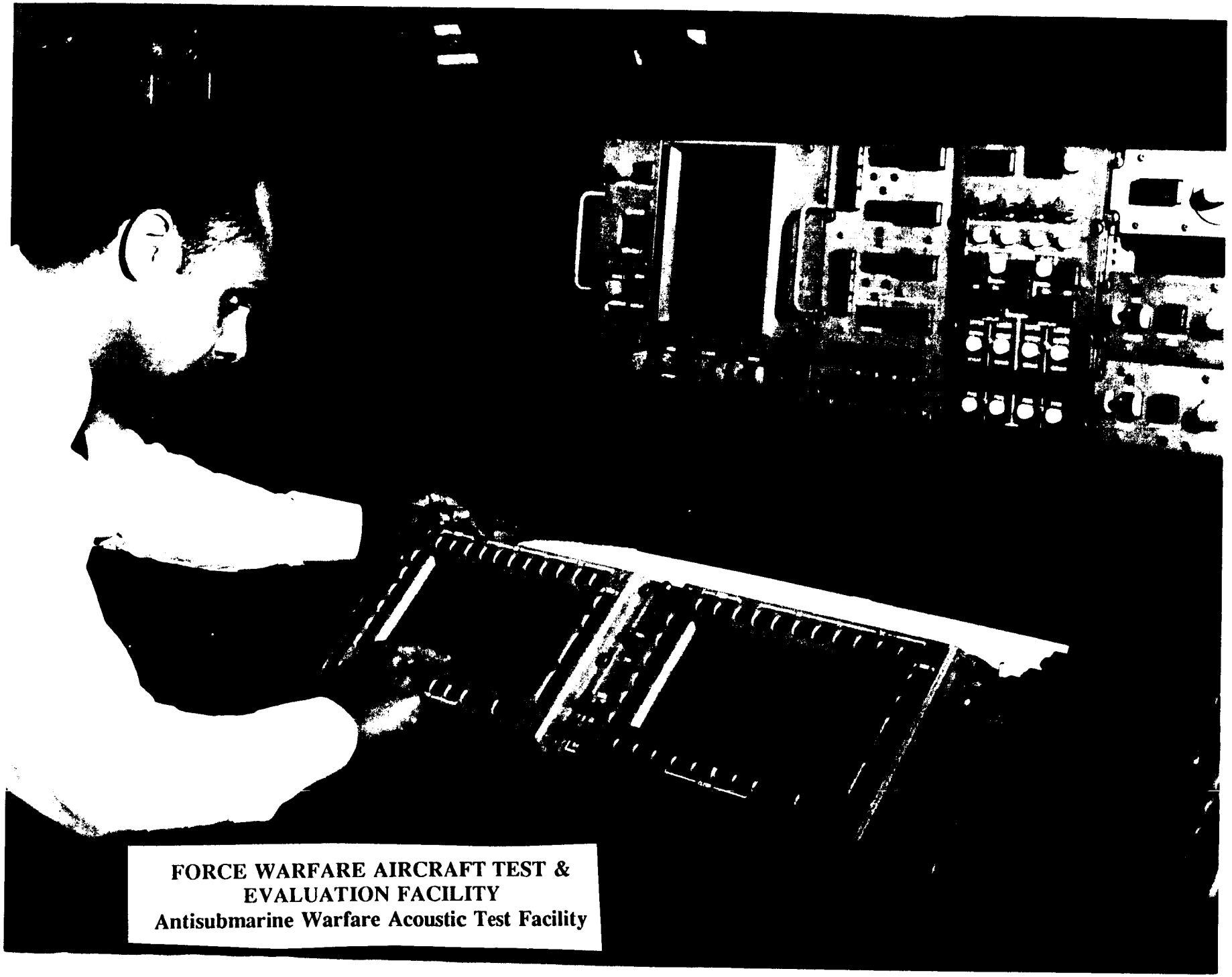




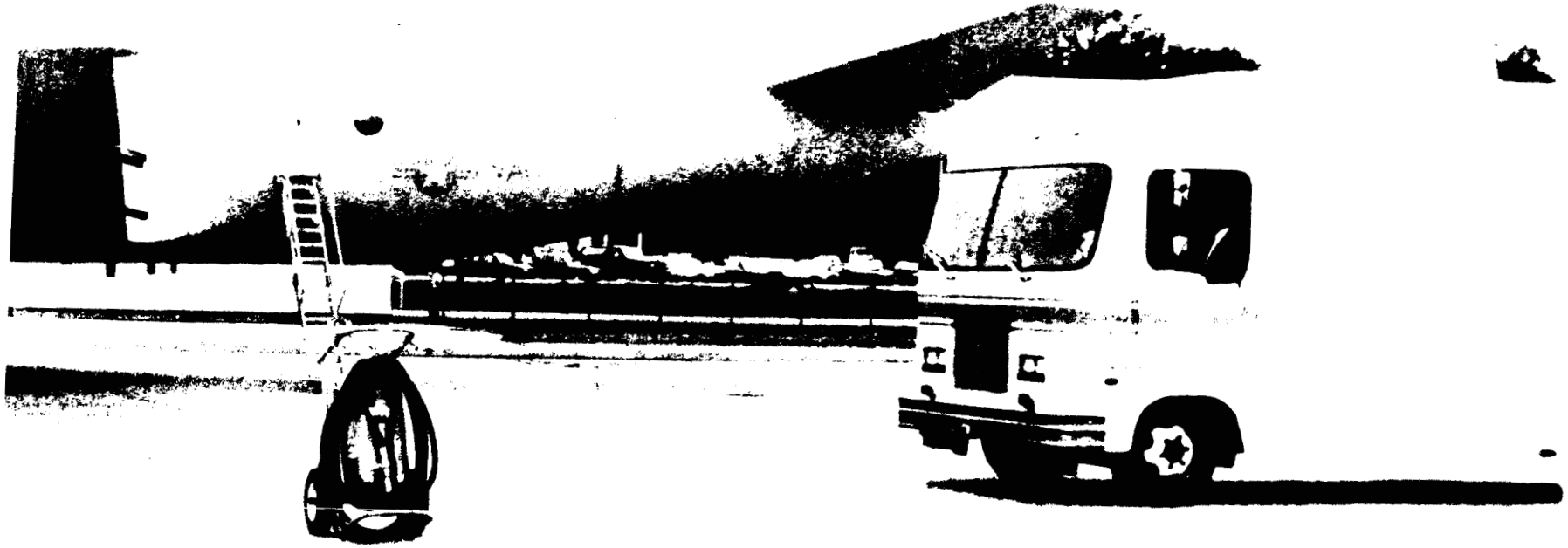
ELECTRONIC SYSTEMS FLIGHT TEST FAC.
Antenna Testing Laboratory Automated System
(ATLAS)

ELECTRONIC SYSTEMS FLIGHT TEST FAC.
Combat Identification Systems Data Analysis Center

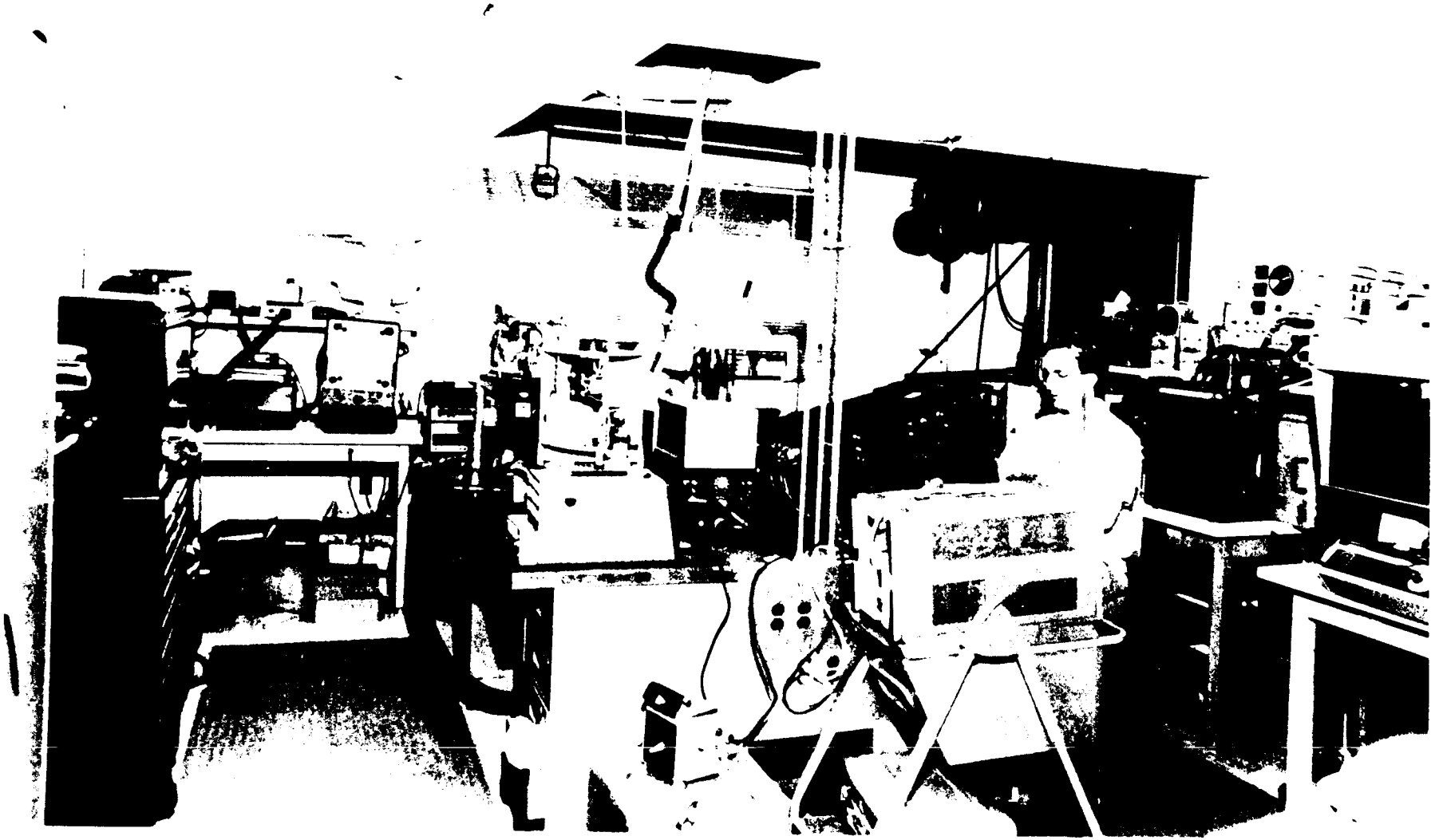
ELECTRONIC SYSTEMS FLIGHT TEST FAC.
Ground Range Antenna Test Facility (GRATF)



FORCE WARFARE AIRCRAFT TEST & EVALUATION FACILITY
Antisubmarine Warfare Acoustic Test Facility

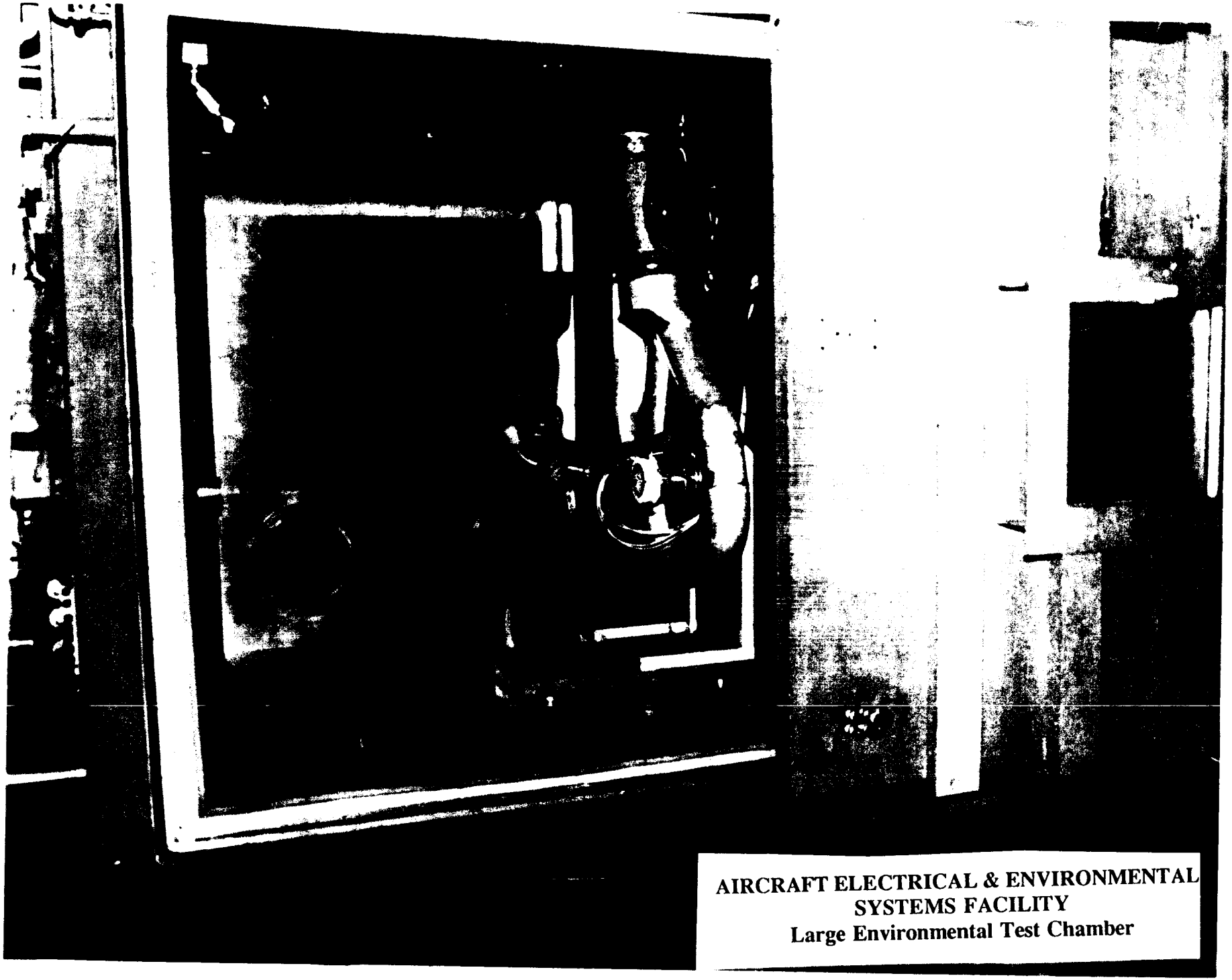


FORCE WARFARE AIRCRAFT TEST &
EVALUATION FACILITY
Mobil Acoustic Test Van

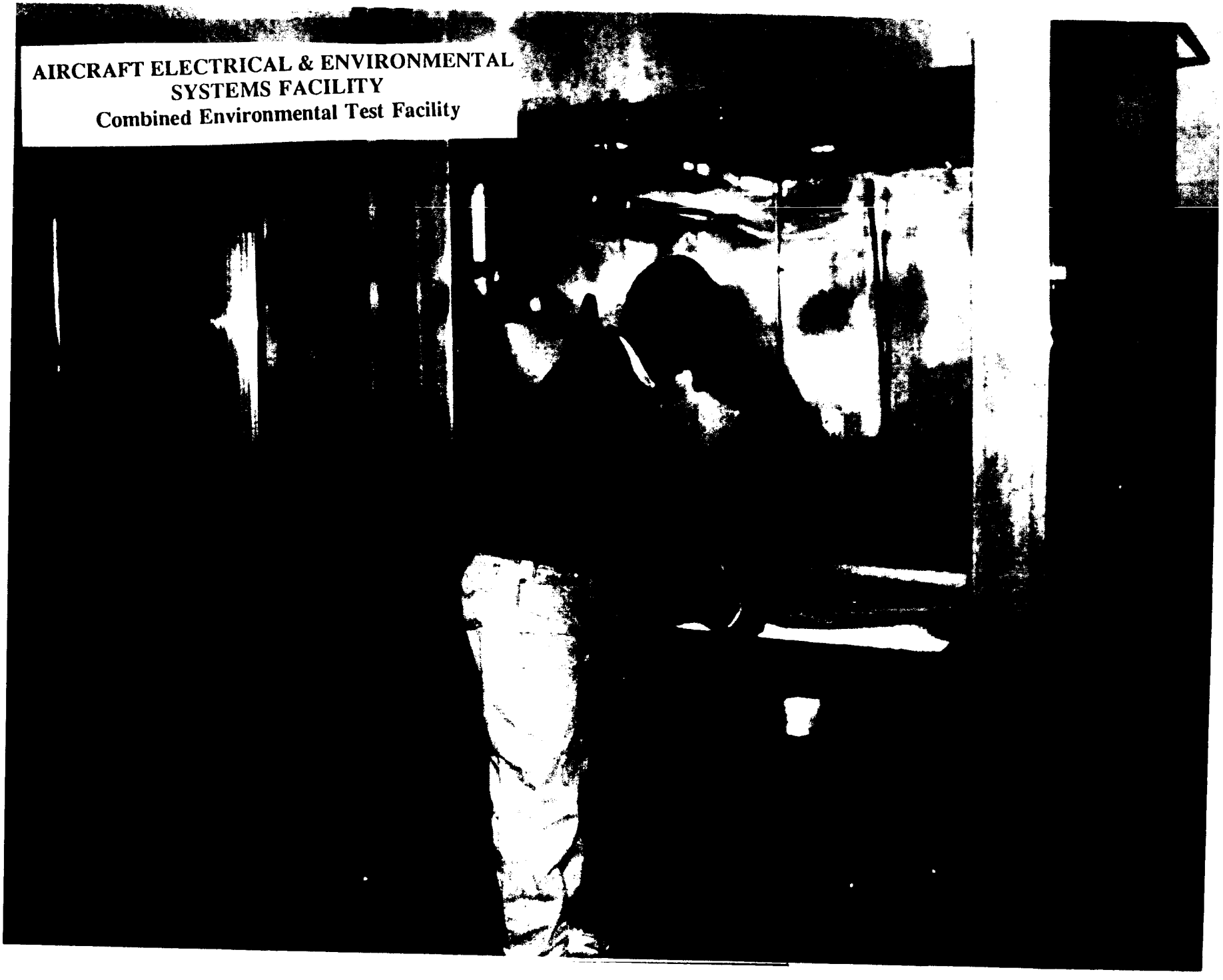


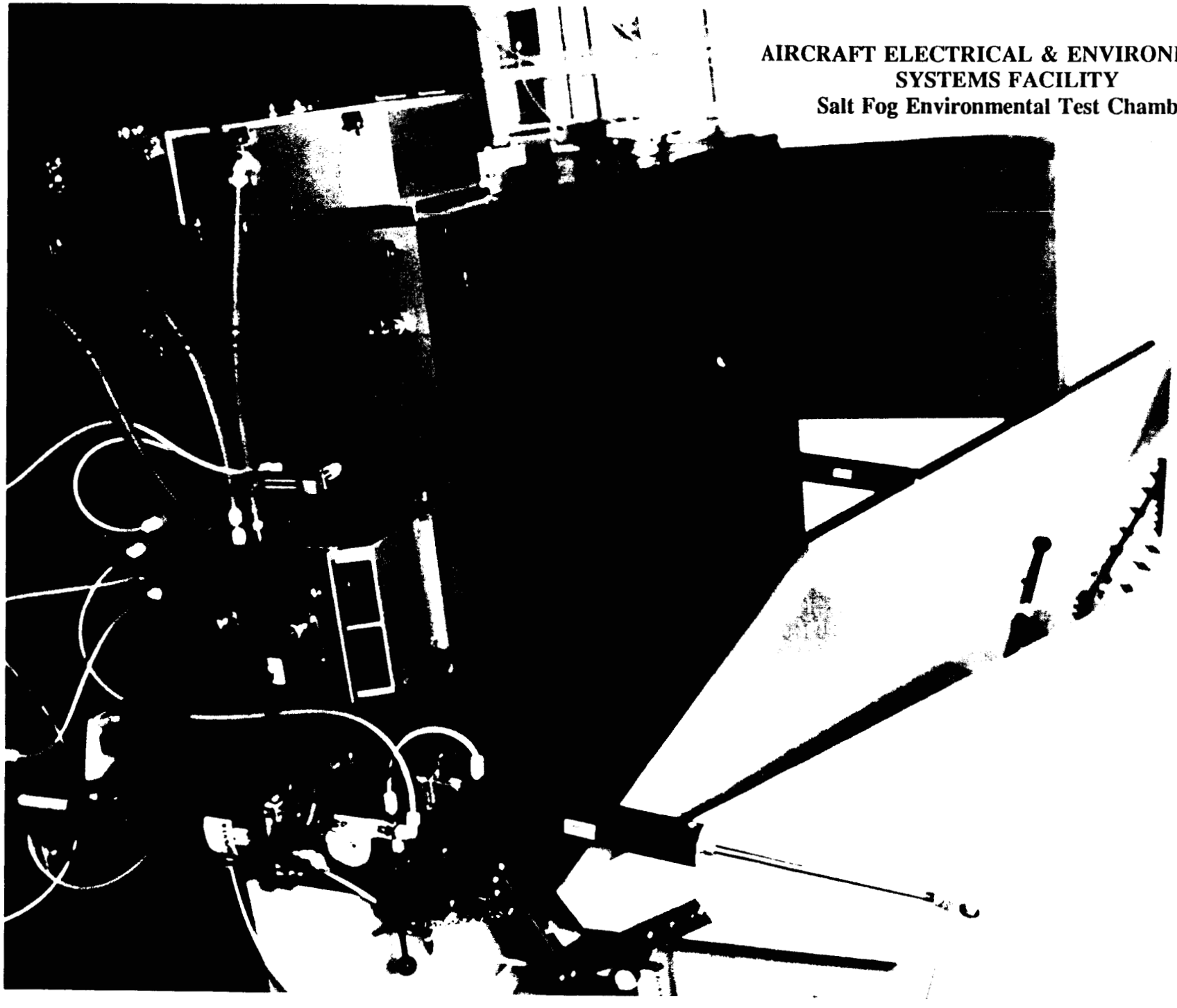
ELECTRONIC SYSTEMS FLIGHT TEST FAC.
Surveillance & Topographical Analysis of Radar Systems (STARS) Laboratory

AIRCRAFT ELECTRICAL & ENVIRONMENTAL SYSTEMS FACILITY
Exterior



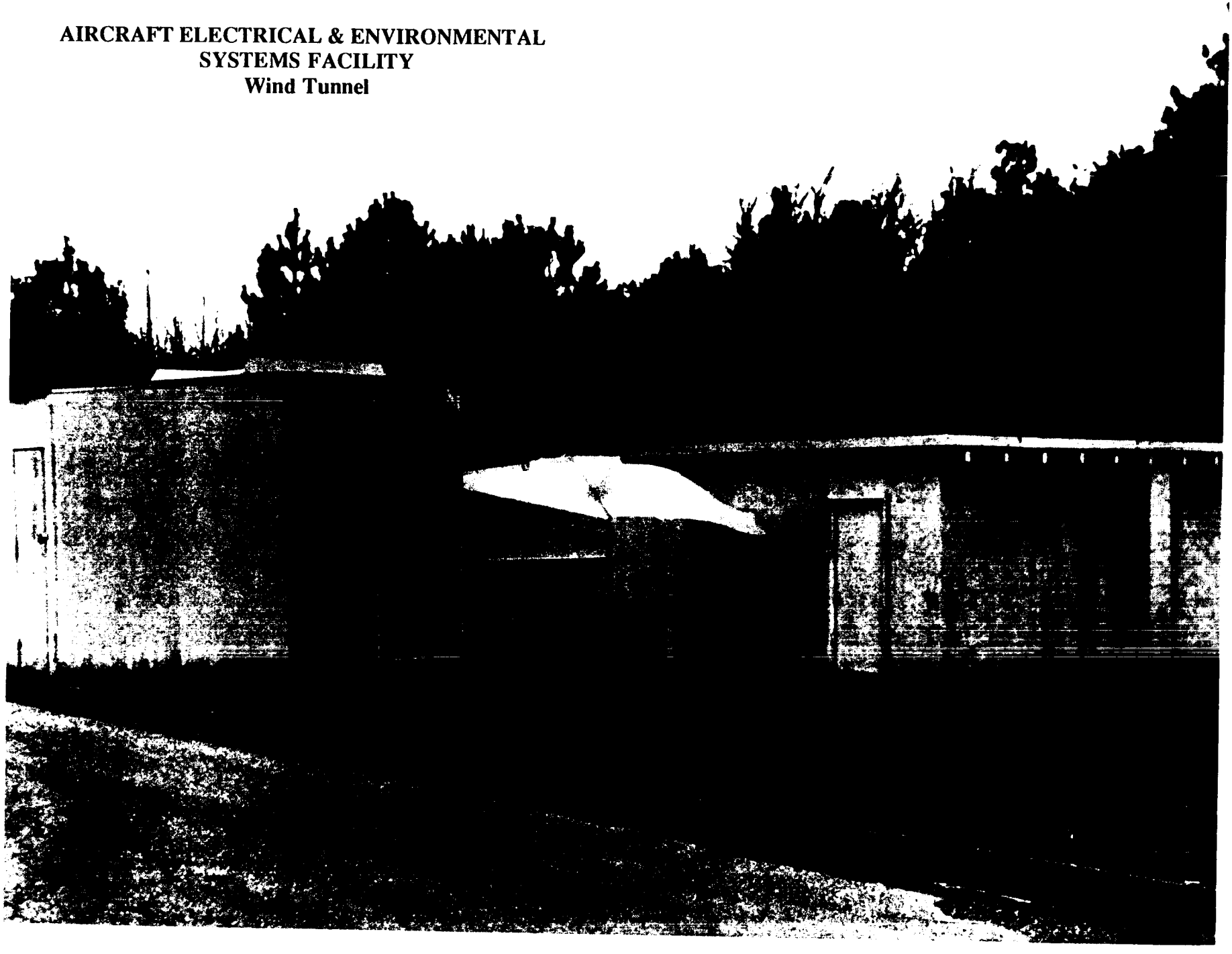
AIRCRAFT ELECTRICAL & ENVIRONMENTAL SYSTEMS FACILITY
Large Environmental Test Chamber


AIRCRAFT ELECTRICAL & ENVIRONMENTAL
SYSTEMS FACILITY
Combined Environmental Test Facility

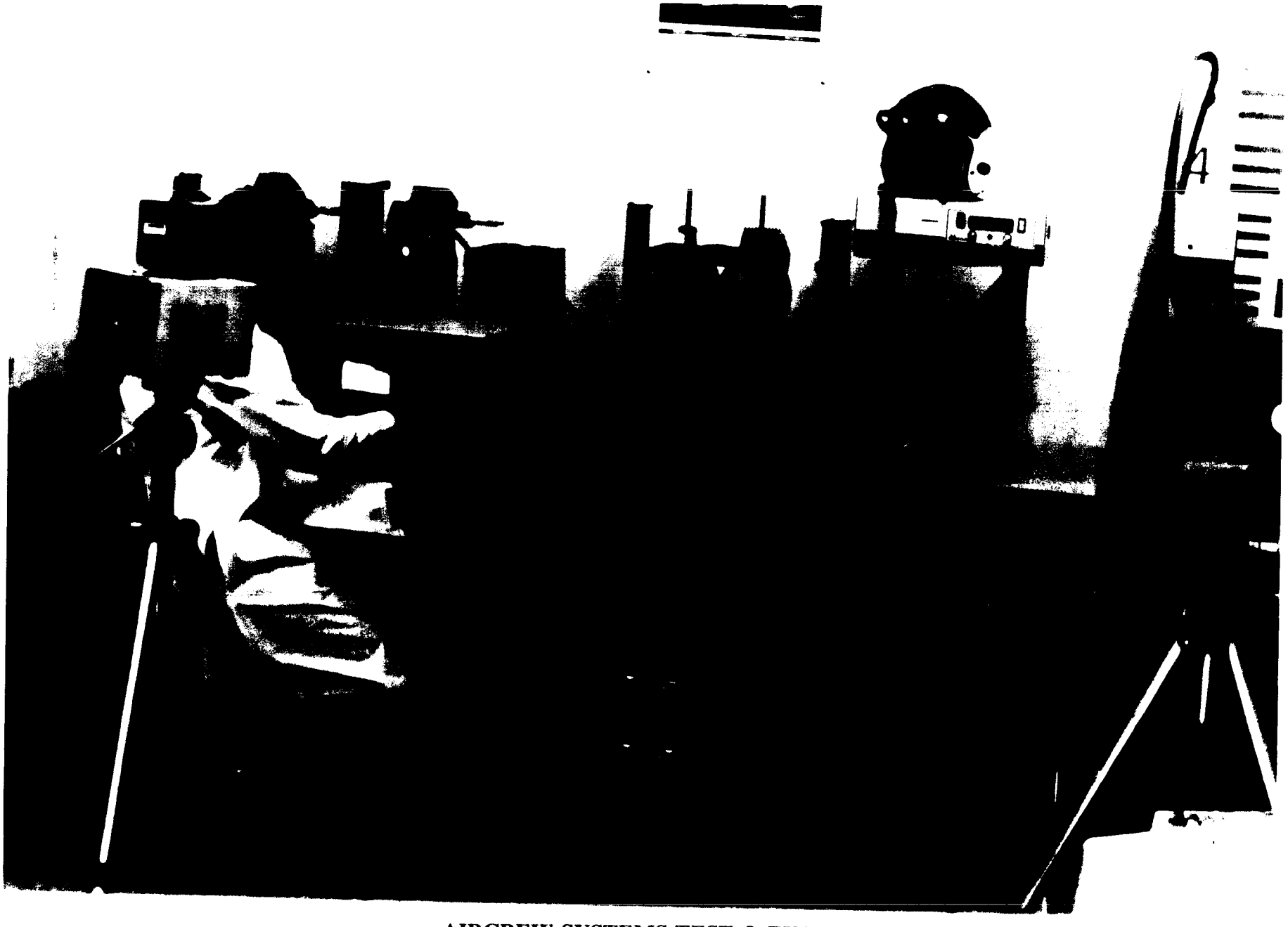


AIRCRAFT ELECTRICAL & ENVIRONMENTA
SYSTEMS FACILITY
Salt Fog Environmental Test Chamber

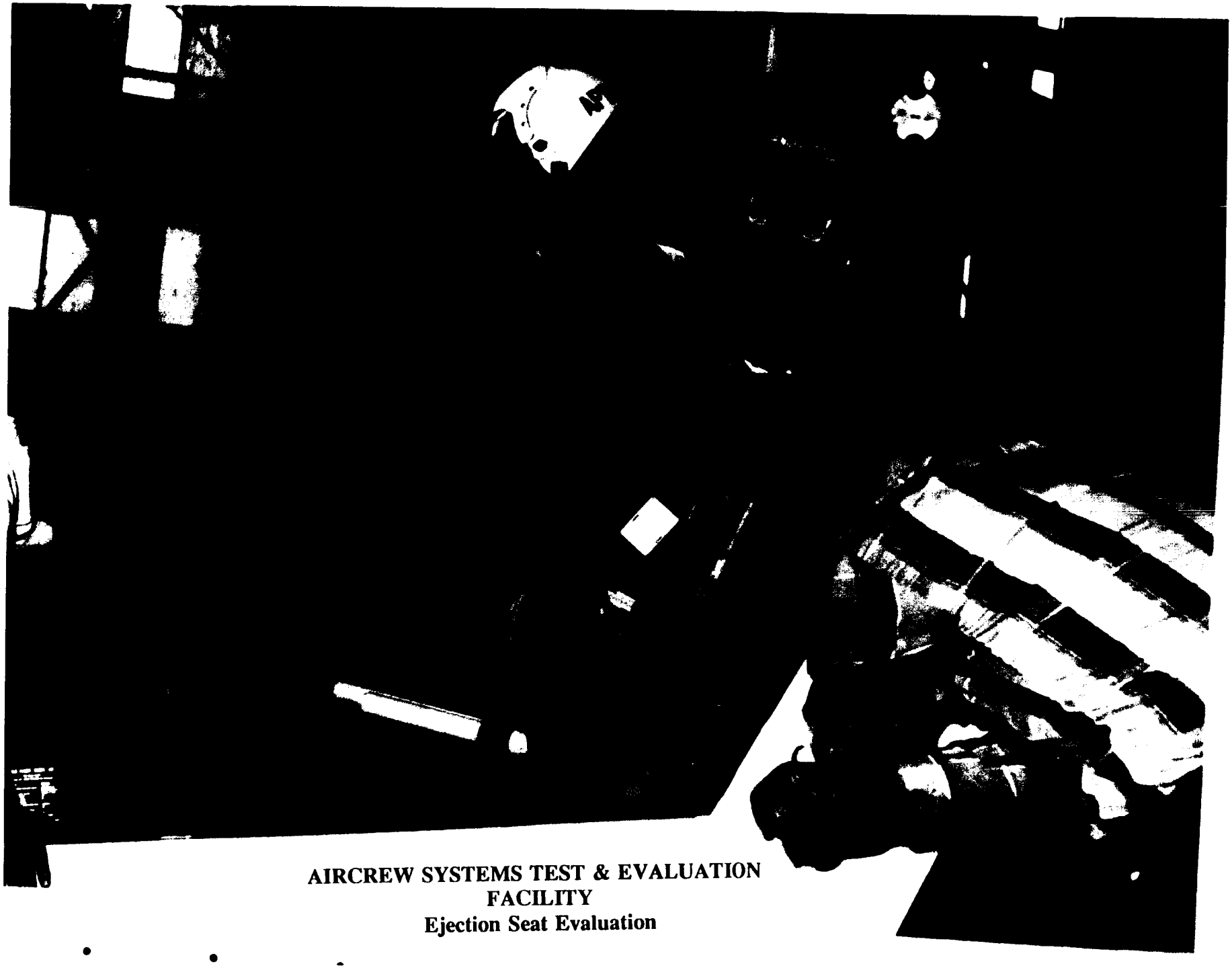
AIRCRAFT ELECTRICAL & ENVIRONMENTAL SYSTEMS FACILITY
Wind Tunnel



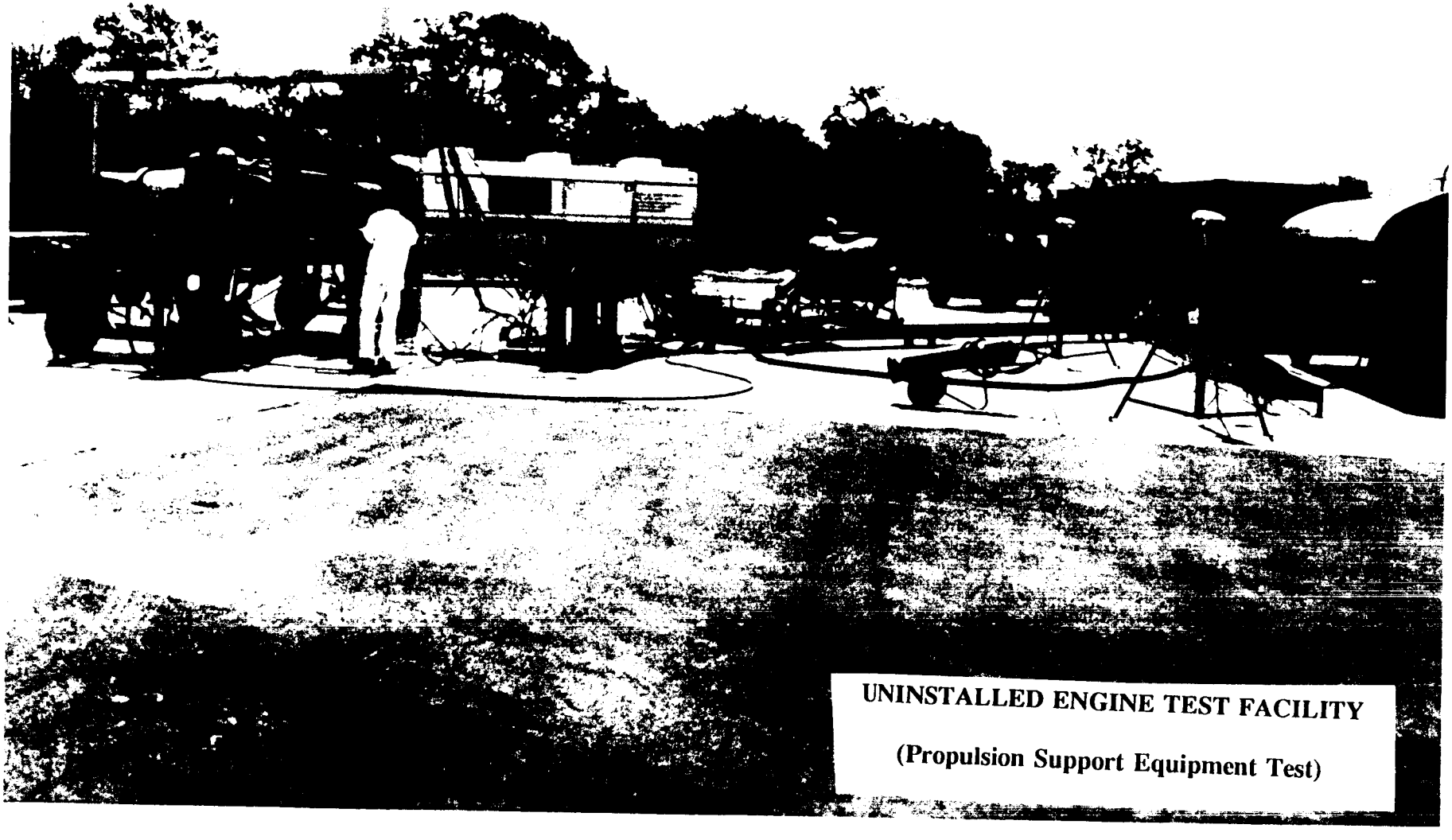
AIRCREW SYSTEMS TEST & EVALUATION FACILITY
Aircrew Gas & Fluid Lab



AIRCREW SYSTEMS TEST & EVALUATION FACILITY
Aircraft Lighting Lab

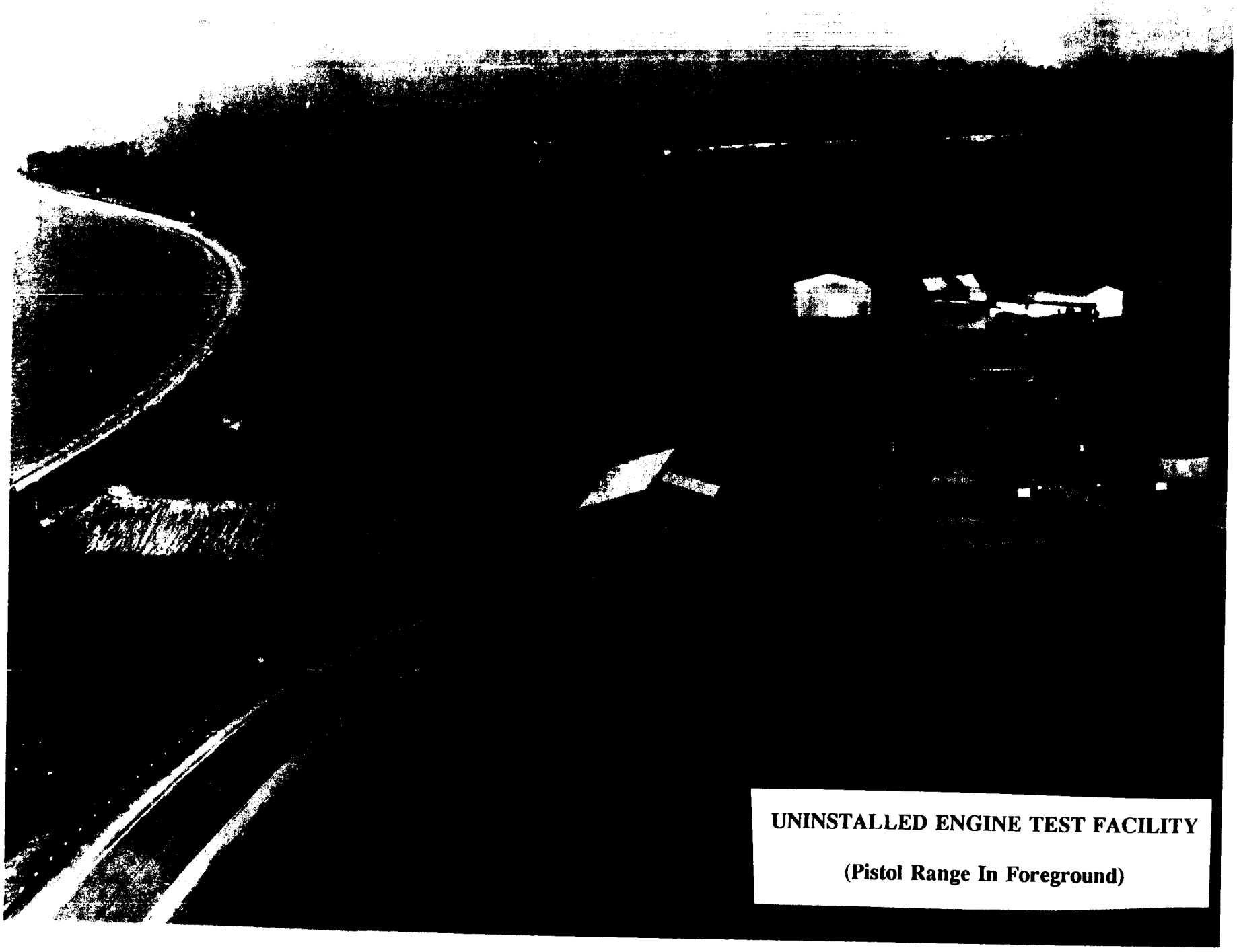


AIRCREW SYSTEMS TEST & EVALUATION FACILITY
Ejection Seat Evaluation



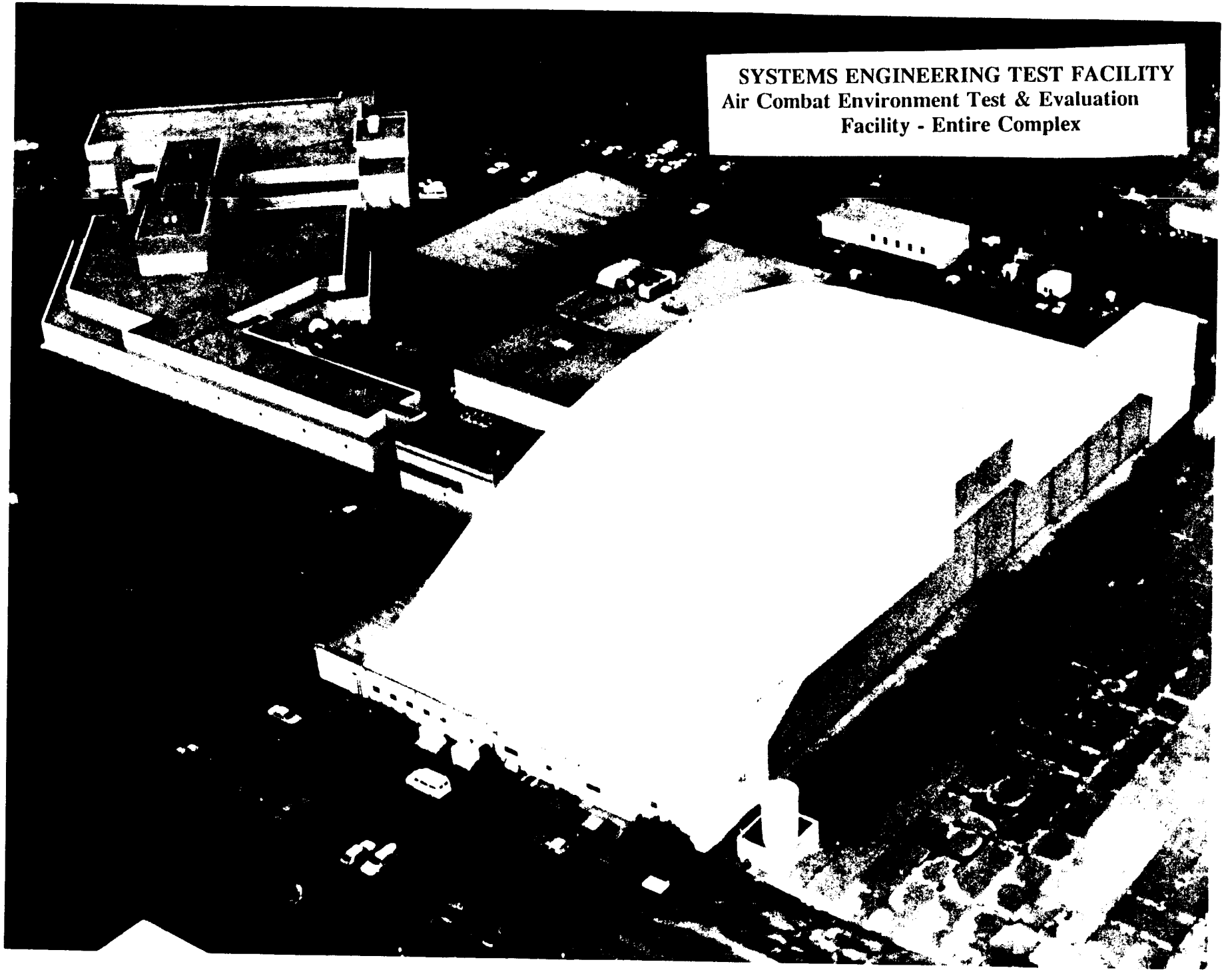
UNINSTALLED ENGINE TEST FACILITY

(Propulsion Support Equipment Test)



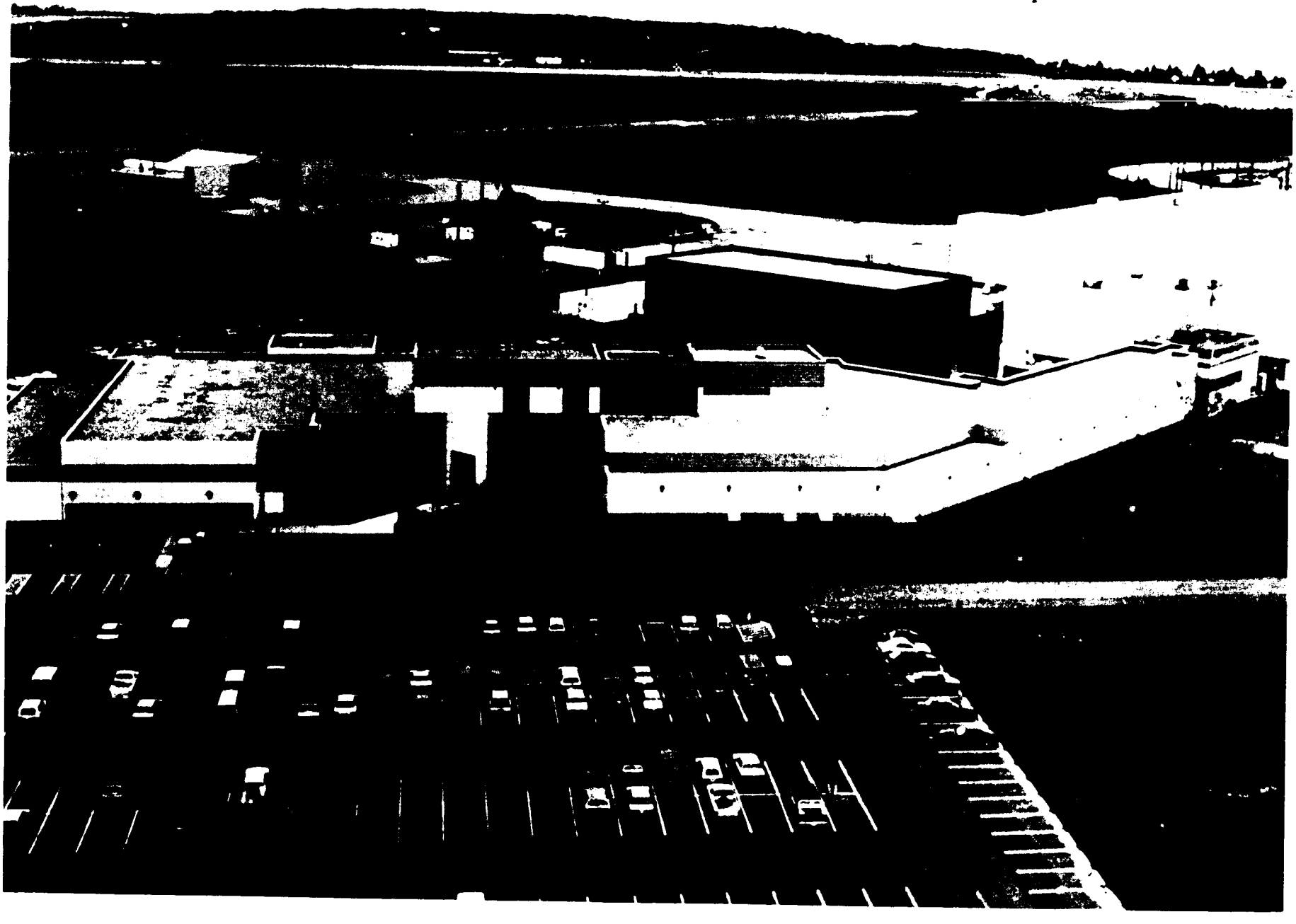
UNINSTALLED ENGINE TEST FACILITY

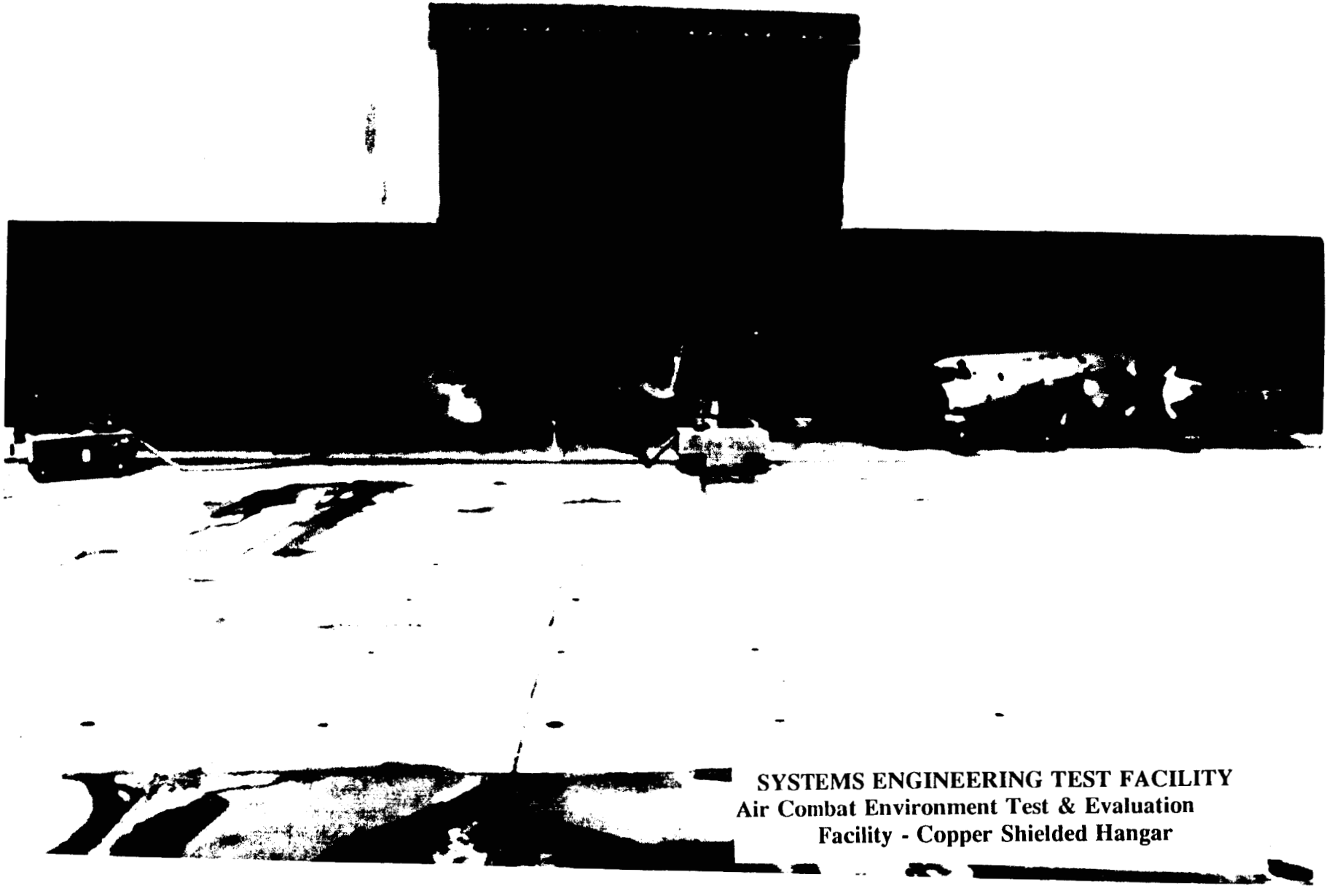
(Pistol Range In Foreground)


SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation
Facility - Entire Complex

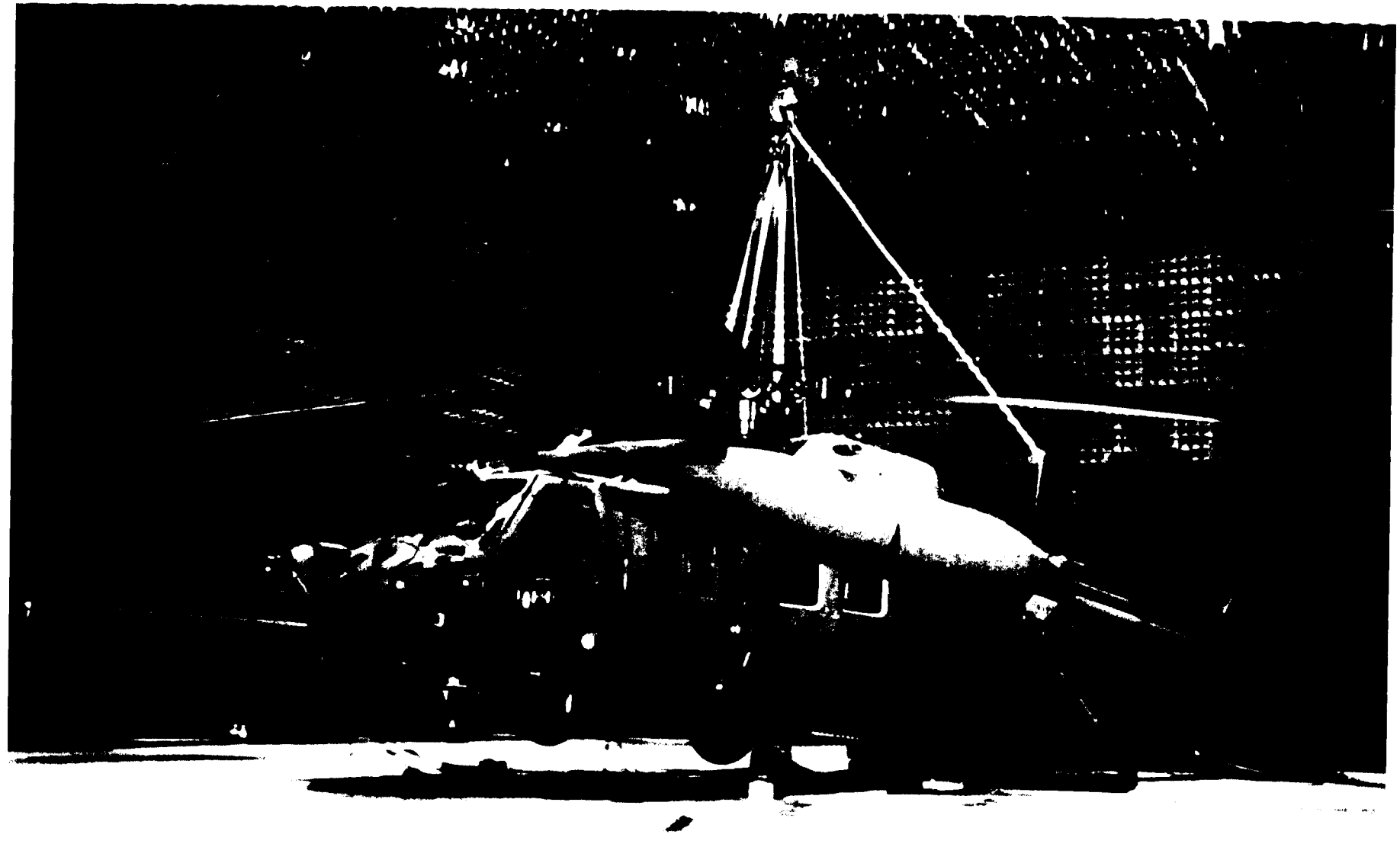
SYSTEMS ENGINEERING TEST FACILITY

Main Complex

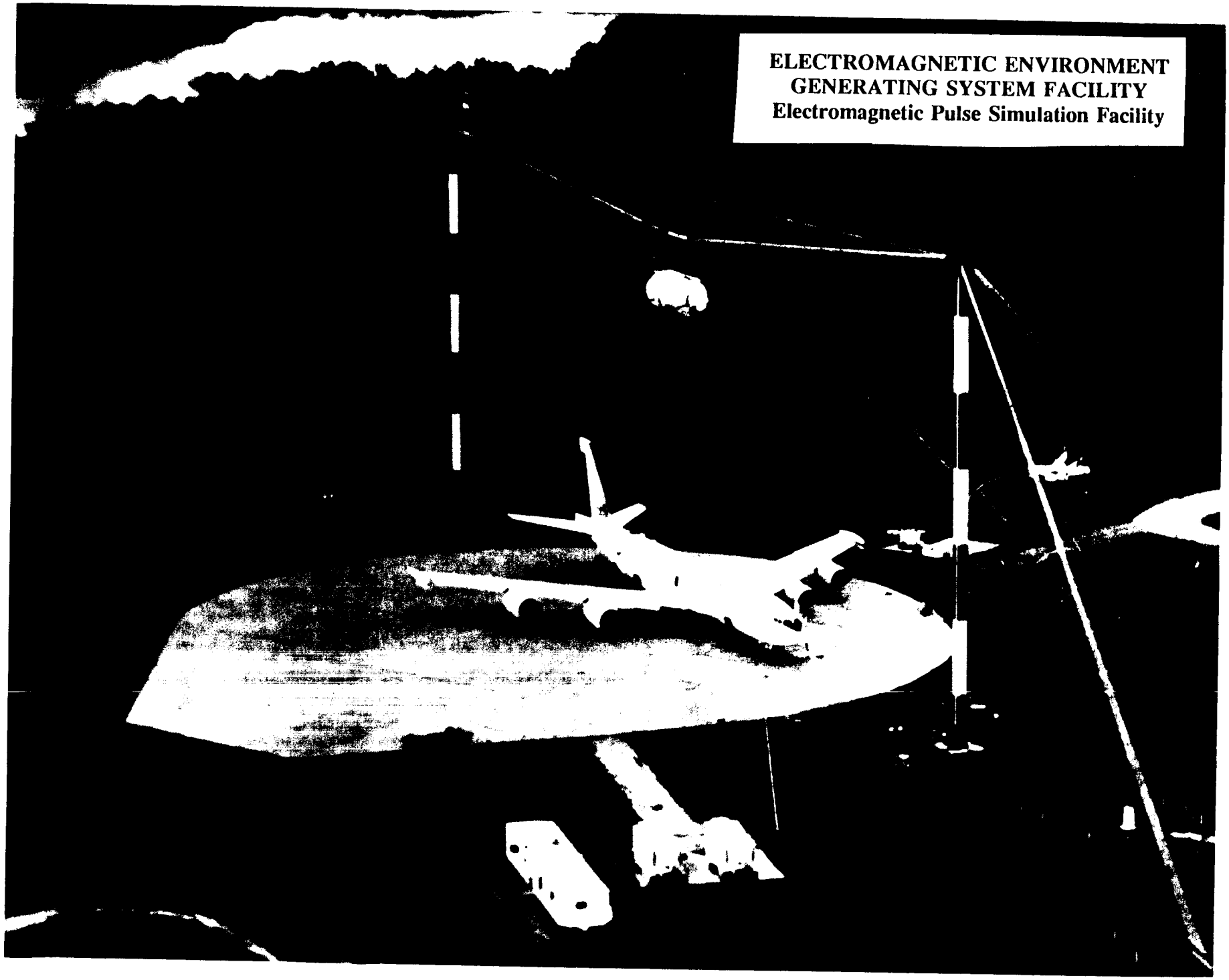


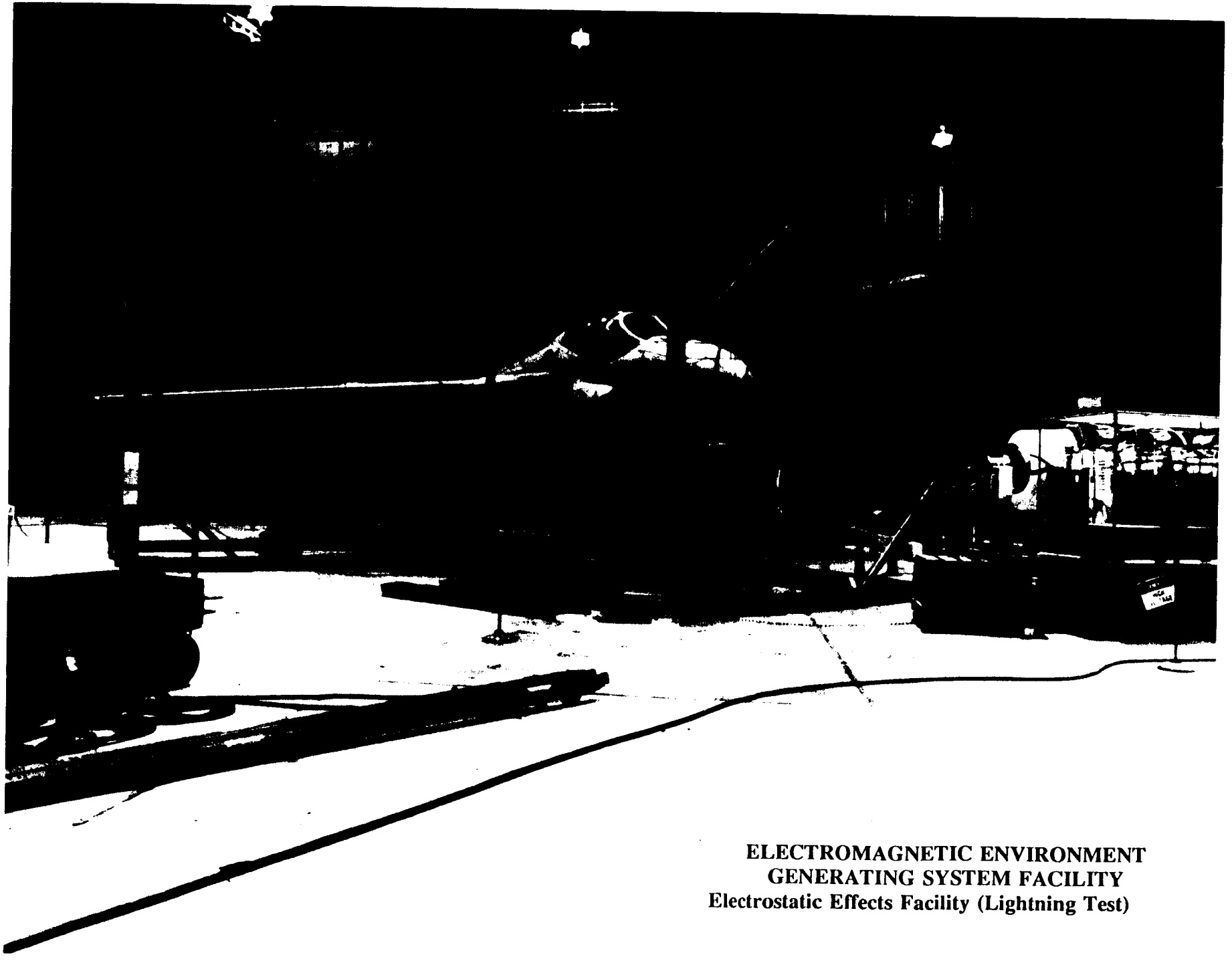


SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation
Facility - Copper Shielded Hangar



SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation
Facility - Anechoic Chamber

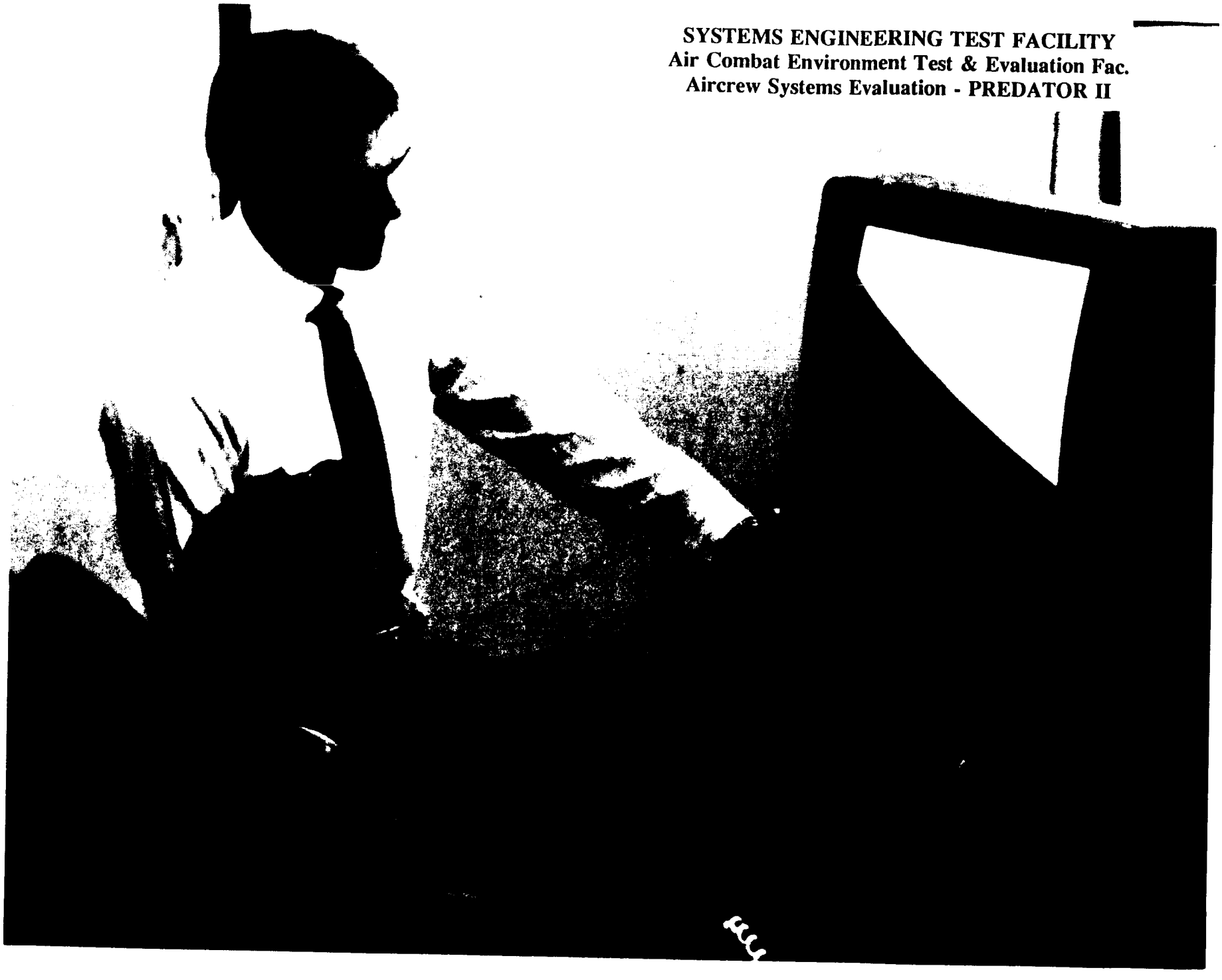

ELECTROMAGNETIC ENVIRONMENT
GENERATING SYSTEM FACILITY
Electromagnetic Pulse Simulation Facility

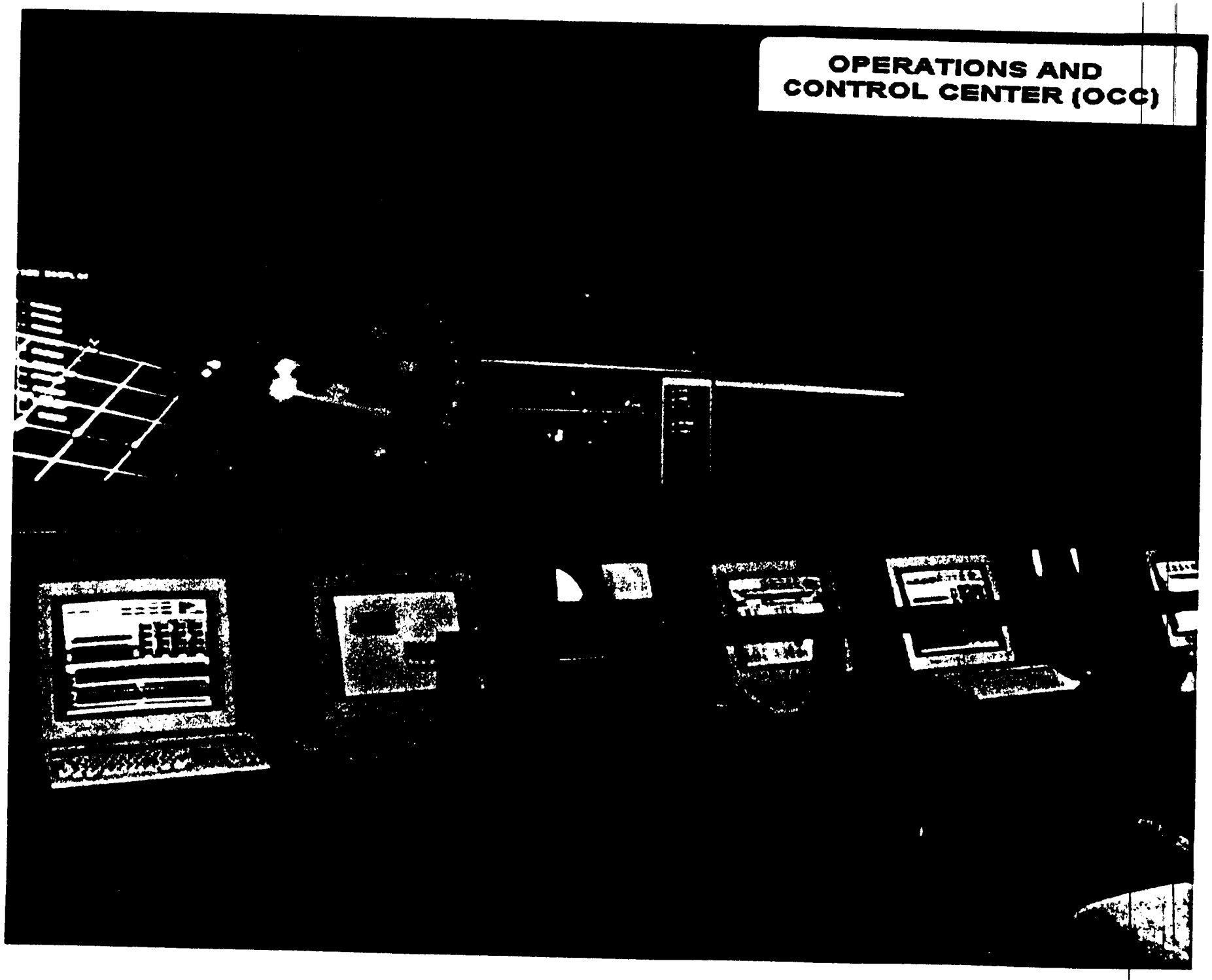


ELECTROMAGNETIC ENVIRONMENT GENERATING SYSTEM FACILITY
Electrostatic Effects Facility (Lightning Test)

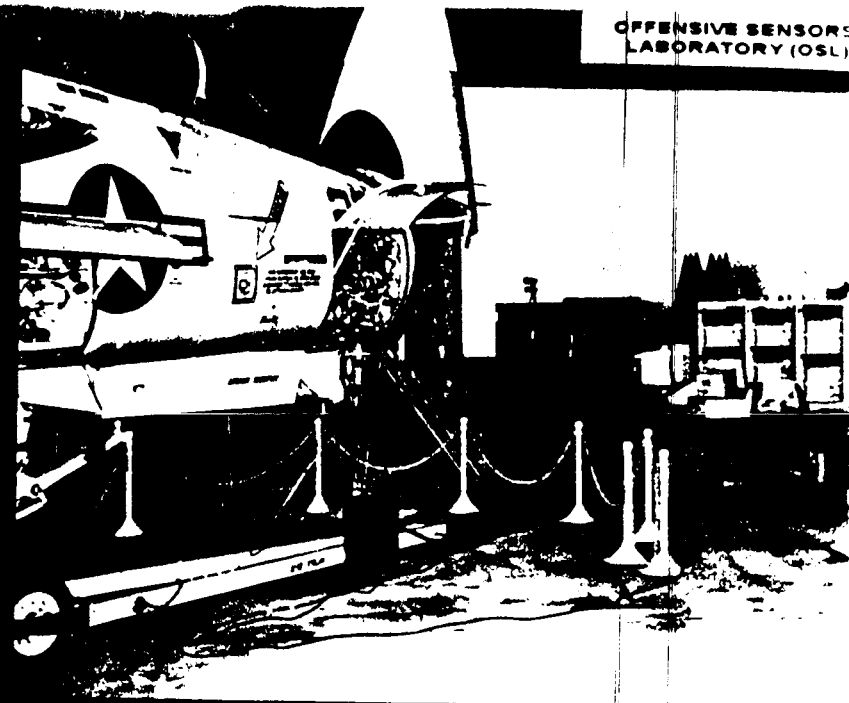
ELECTROMAGNETIC ENVIRONMENT GENERATING SYSTEM FACILITY
TEMPEST Test Lab (Portable Unit)

SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation Fac.
Aircrew Systems Evaluation - PREDATOR II

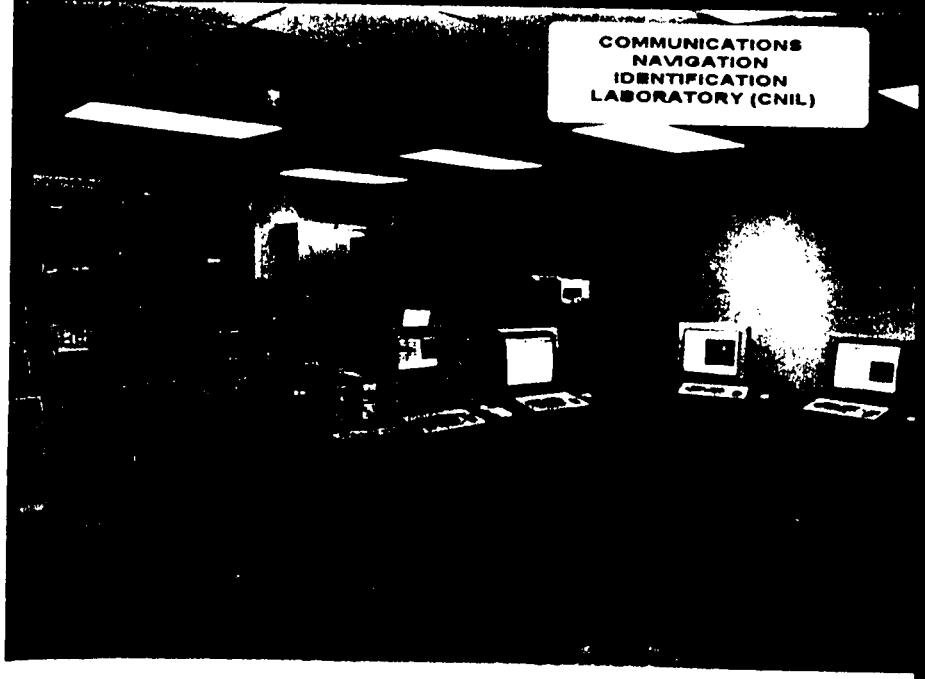



OPERATIONS AND
CONTROL CENTER (OCC)

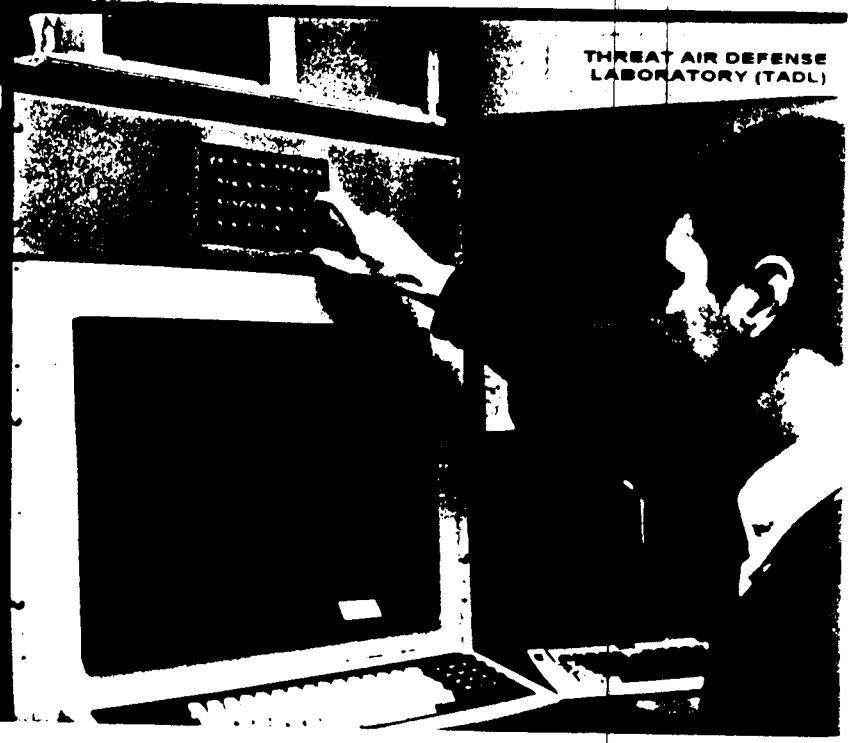
ELECTRONIC WARFARE INTEGRATED SYSTEMS TEST LABORATORY (EWISTL)



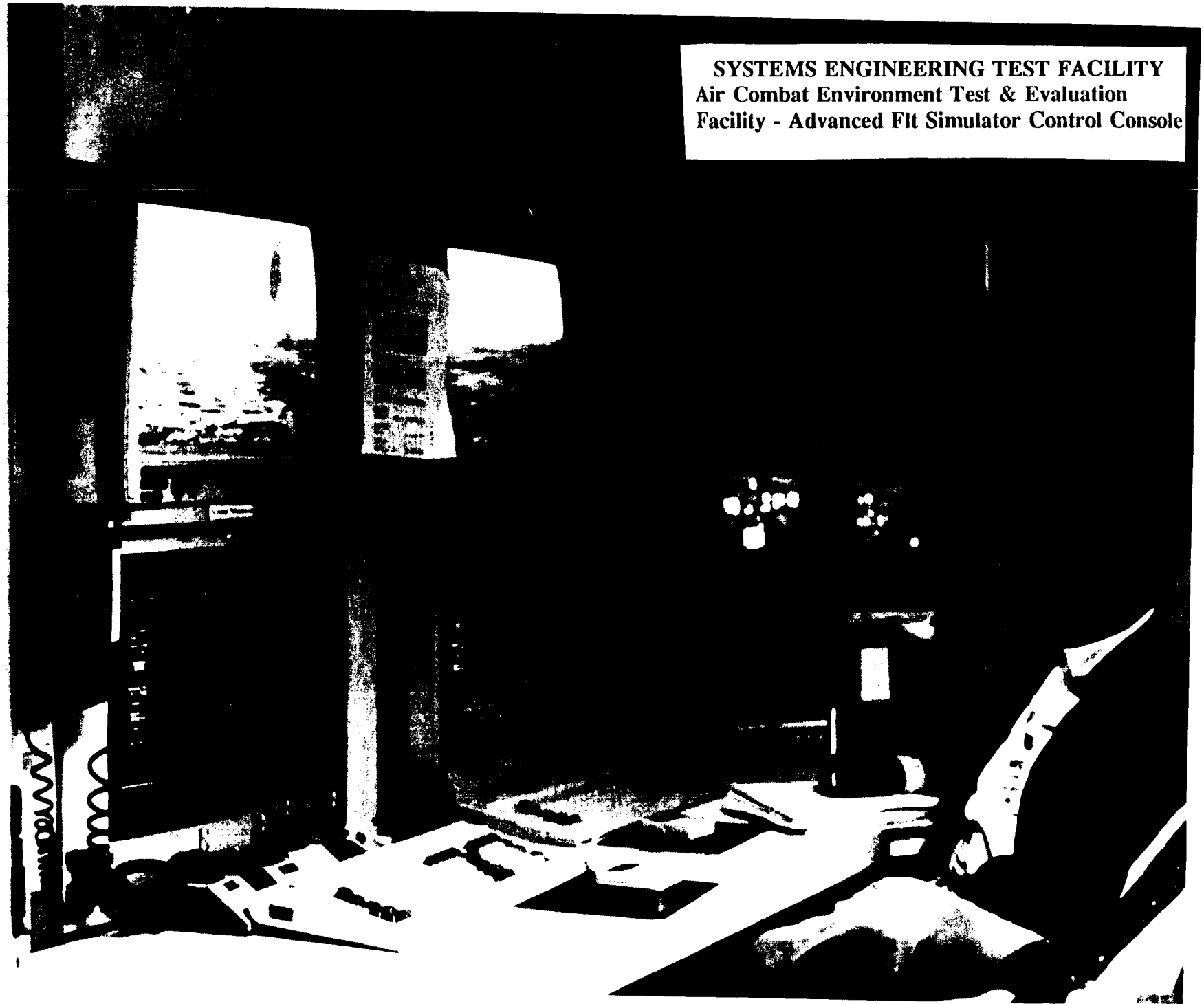
OFFENSIVE SENSORS LABORATORY (OSL)



COMMUNICATIONS NAVIGATION IDENTIFICATION LABORATORY (CNIL)

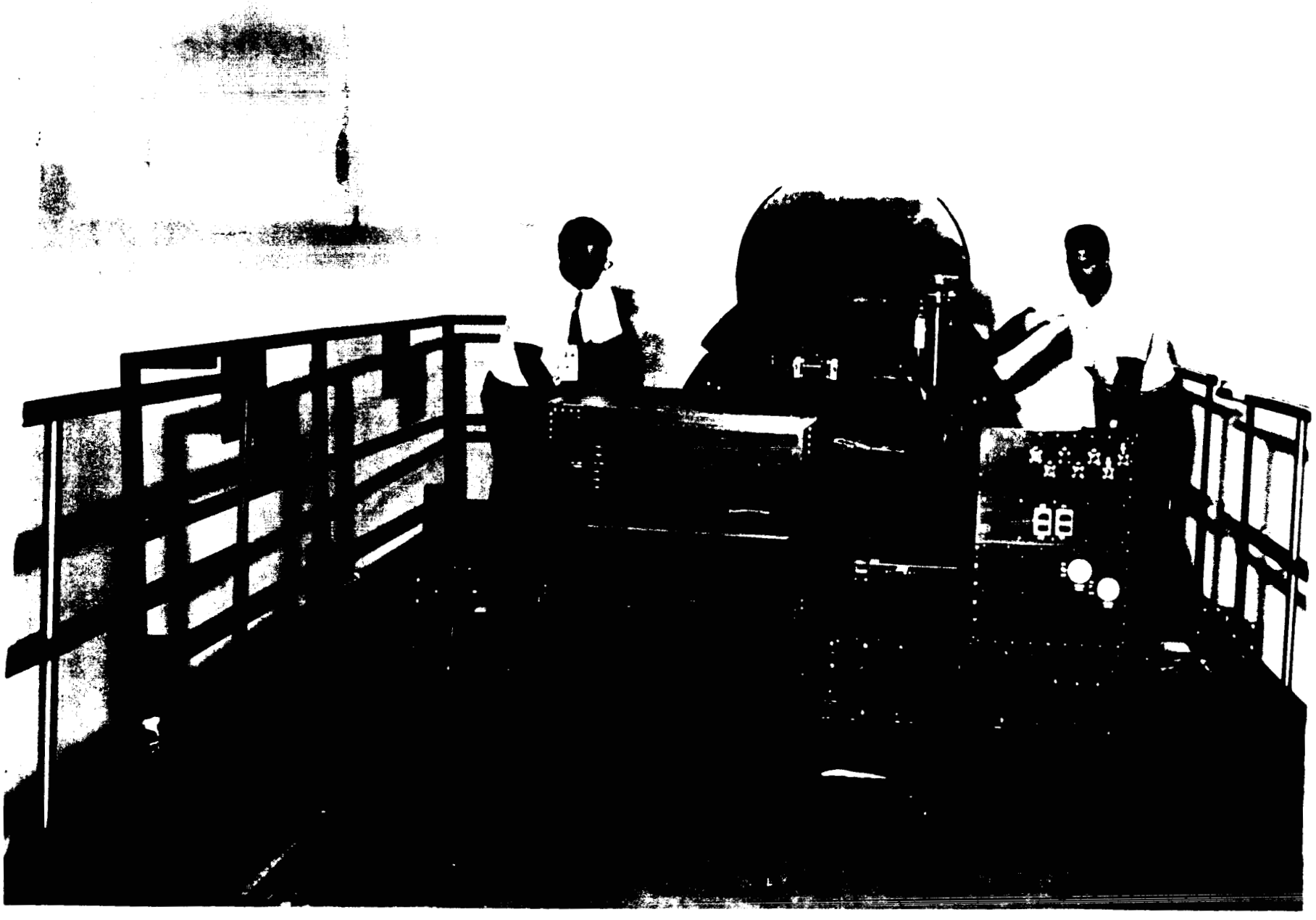


THREAT AIR DEFENSE LABORATORY (TADL)



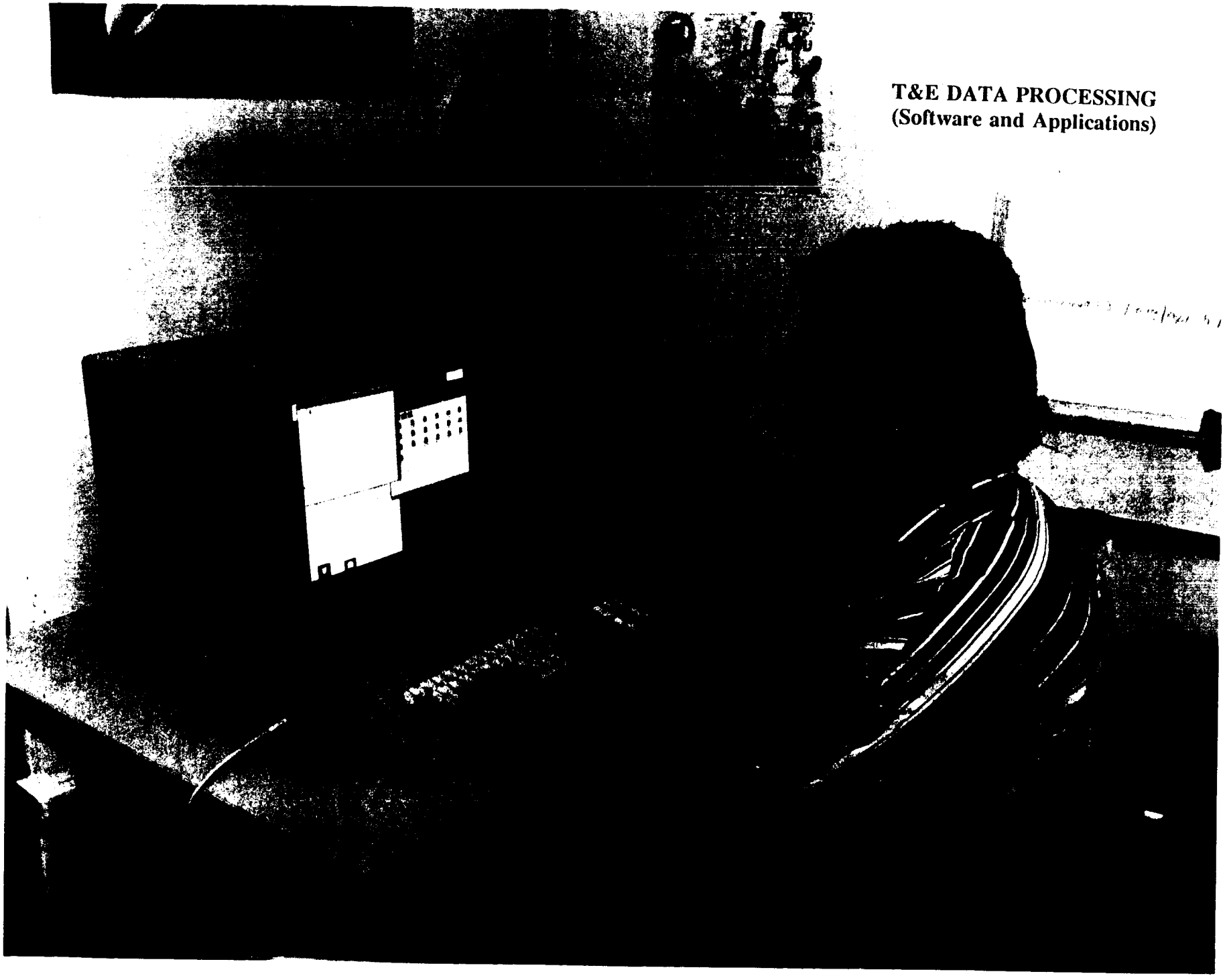
SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation Facility - Advanced Flt Simulator Control Console

SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation
Facility - Advanced Flt Simulator Cockpit Module



ACETEF: NAVAL ELECTROMAGNETIC RADIATION FACILITY (NERF)

T&E DATA PROCESSING
(Software and Applications)



MILITARY VALUE DATA CALL

TECHNICAL CENTERS

Category	Technical Center
Technical Center Site	Naval Air Warfare Center, Aircraft Division
Location/Address	Indianapolis

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TAB A Technical Operations: Functional Support Area - Life Cycle Work Area Form

TAB B Facilities and Equipment: Facilities/Equipment Capability Form

TAB C Range Resources: Range Capability Form

Appendix A Functional Support Areas - Life Cycle Work Areas List

Appendix B Definitions for Functional Support Areas - Life Cycle Work Areas

MILITARY VALUE MEASURES

MISSION

1. **Mission Statement.** State the officially assigned mission of this activity and cite the reference document(s) that assigns the mission.

In accordance with OPNAVNOTE 5450 Ser 09B22/1U510503 of 23 Dec 1991, the mission of the Naval Air Warfare Center (NAWC) Aircraft Division, Indianapolis is as follows:

To conduct research, development, engineering, material acquisition, pilot and limited manufacturing, technical evaluation, depot maintenance and integrated logistics support on assigned airborne electronics (avionics), missile, spaceborne, undersea and surface weapon systems, and related equipment. To perform such other functions and tasks as directed by the commander, Naval Air Warfare Center.

Additional information on the NAWC mission follows: ***NAWC Indianapolis is DOD's only activity that has the capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for Avionics, Electronic Systems, and selected equipment. In addition, we are a totally integrated avionics and electronic systems engineering, acquisition, manufacturing, and supportability activity.***

At NAWC Indianapolis, the following primary functions are utilized to accomplish our mission.

- **Multi-service development/acquisition/life-cycle support of common avionics and electronic systems.**
- **Research and development of avionics and electronic systems**
- **Manufacturing Science and Technology (MS&T) expertise for acquisition support, and for application of dual use and commercial technology transfer**
- **Rapid prototyping and limited production of avionics and electronic systems**
- **Program support/management for acquisition of avionics/electronic systems and components**
- **Modernization and replacement of fielded Fleet avionics and electronic systems**
- **Product and technical evaluations for the development and acceptance of avionics and electronic systems for Fleet use**
- **Integrated logistics support for Fleet electronic systems throughout full life cycle**
- **Maintenance, repair, testing, in-service engineering, and program support for select fielded fleet equipment**

2. **Joint Service Missions.** State any officially assigned joint/lead service assignments missions and cite the document(s) that assigned them.

The execution of the NAWC Indianapolis mission applies this unique capability, facilities and knowledge base to a wide variety of customers within the Navy, other services, and other government agencies. Programs are worked jointly with the Air Force, Army, Marine Corps, and non-military agencies (i.e. NASA, FAA). The following are the Joint Assignments:

MISSION	PARTNER	ASSIGNING DOCUMENT
Joint C/AHRS Program	ASC/SMPA, WPAFB, OH.	PO ASC-4-1115/1250
Solid State Barometric Altimeter Joint Development	OC-ALC/LI, Tinker AFB, OK.	MOA A511-5111/162-F/4W1041-0000
Provide engineering, logistics and program management support to the SCADC Program for the Navy and Air Force.	PMA-209	Fund Doc. No. 94WXA22MA
Joint Primary Aircraft Training System (JPATS) Production Engineering & QA Source Selection	NAVAIR (AIR-5117B)	PO N0001994WXCSJ1R
Provide common and prototype avionics hardware.	National Aeronautics & Space Administration, Dryden Flight Research Ctr (DFRC)	MOU 4-26-94
Investigations of the applicability of USAF developments & designs to Navy missions and environments.	USAF, ASC/SMA, WPAFB, OH US Army, TARDEC	MOA 4-93
Conduct Failure Investigation associated with the HAVE QUICK LCDM Test efforts	ESC/TGX, Hanscom AFB	MIPR FY7620-94-TG-139
Provide Production Engineering support to the EMD phase of the Joint Stand-Off Weapon System	PMA-201	WUA A5401J-94-01
JTIDS equipment and built JTIDS interface box to work with AF Ground Tactical Air Control Sys	Electronic Systems Center (ESC), Hanscom AFB	MIPR FY7620-94-AVT13
Joint Integrated Avionics Working Group (JIAWG) connector testing for Comanche aircraft (RAH-66)	USA ATCOM, SFAE-AV-RAH-)C (Army)	4E-3-A1018
US International Cooperative Research and Development for evaluation of the Joint US-Japan FS-X mission computer	HQ AFMC/STIT (Air Force)	FY3189-93-2006

MISSION	PARTNER	ASSIGNING DOCUMENT
Capabilities used to perform design, simulation, development, prototyping, installation, and modification efforts.	US Air Force Developmental Manufacturing and Modification Facility US Army Tank-Automotive Research Development and Engineering Center	MOA dated 10-93
To share information and collaborate to deploy electronics manufacturing technologies developed by Sandia National Labs.	ONR (Navy Man Tech)	MOA dated 7-21-93
Development of an Advanced Electronics Packaging Center (MCC), Microelectronics and Computer Technology Corp.	Navy/Man Tech/MCC	MOU dated 11-15-91
Develop processes and controls for the case of abrasive blast systems that will support their use for coating removal and rework/repair.	Man Tech/Industry	MOU dated 11-93
To use our technical personnel and organic capabilities as a test bed for process improvement initiatives and/or implementation site for FCIM projects related to electronics engineering and electronics assembly.	JC-FCIM OPNAV 43	Draft MOU dated 4-14-92
To investigate and develop a paperless data driven manufacturing capability used in support of Navy ICP's and DLA. Identify NAVAIR organic activities to participate and implement prototype systems.	Nav Sup Sys Comm C/64 (Logistics & Research Development)	MOA dated 3-19-92
To support NAVSUP 64 in the technical development of a paperless data driven electronics manufacturing cell. Develop requirements and assist in testing of contractor software design efforts. Provide NAVSUP a vision of RAMP from the organic viewpoints.	NAVSUP 64 (Logistics & Research Development)	93WRFA018

MISSION	PARTNER	ASSIGNING DOCUMENT
Support development of MIL-HDBK-59B CALS, DoD CALS Implementation handbook and industry implementation of CALS, JCALS, CALS RIC.	Office of Assistant Sec of Defense (OASD), USAF VOLPE National Transportation Center, Navy	DWAM 20139 MIPRE-40116 AFMC-ENC-92-20
To support the development and technology transfer of DOD Flexible Computer Integrated Manufacturing (FCIM) capabilities in electronics production. NAWC Indianapolis applicable assets include RAMP, HVM, CAD/CAE, and CALS expertise and facilities.	Joint Logistics Commanders (JLC) Initiative on Flexible Computer Integrated Manufacturing (FCIM)	Agreement dated 2-27-92

In addition to joint service programs the NAWC Indianapolis unique capability is also applied to other service programs to provide them with the tools and/or products for effective and successful mission accomplishment:

MISSION	SPONSOR	ASSIGNING DOCUMENT
Provide technical assistance to the DLA Defense Supply Centers (DSCs) in the areas of Value Engineering (VE) and Breakout. Improve supportability on Naval Air systems & contribute to VE/Breakout R&M savings of a ratio greater than 10:1.	Defense Logistics Agency	MOA
Development and Integration of the OV-10 Wake Vortex	NASA	MIPR L31997D
Procurement of VHSIC Processor Modules for AYK-14	USAF	MIPR FY7620-93-SZT01, 02 & 03
Procurement of AN/AYK-14(V) NIM-B Module	USCS Surveillance Support Center, Corpus Christi, TX	MIPR USCS3137CC11
Production support for the Global Positioning System	USAF, SSD, Los Angeles AFB, CA	MIPR No. FY7615-93-05018
Provide modification of the AN/FCC-101(V) software in support of the Digital European Backbone (DEB) Program	ESC/TGX, Hanscom AFB	MIPR No. FY7620-93-TG119/122

MISSION	SPONSOR	ASSIGNING DOCUMENT
Procure APX-100 Identification Friend or Foe (IFF) Systems	US Army Communications-Electronics Cmd, Ft. Monmouth, NJ & ASC/PMKA, WPAFB, OH	MIPR No. W15PT-94-E0039, W15P7T-94-BE606, F17615-94-05166
Development efforts in support of the MCE P3I Program.	ESC/AVTO, Hanscom AFB, MA	MIPR No. FY7620-94-AVT13
Provide Mod Kits, DZZ Boards and KG-40A Front Panel - COMSEC Equipment KG-40	National Security Agency, Ft. Meade, MD	MIPR No. H98230-X6-93-0070 & H98230-X6-94-0029
Provide KG-40A Mod Kits, RGQ-40 Retrofit Kit, ST-31 Retrofit Kit, and E-DZZ Printing Wiring Assy.	AFCSC/FM, San Antonio, TX	MIPR No. FD7030-93-CS802
Provide KG-40 Modification Kits	Defense Security Assistance Agency Programs (SDAF), Pentagon	MIPR No. H91266X92-0029
Provide support to the AN/ALQ-162 Reliability Assurance Program	Aviation Electronic Combat, USAF, St. Louis, MO	MIPR No. 20-4-T4027-20-RF
Flexible Computer Integrated Manufacturing (FCIM) Basic Project Order Agreement (BPOA)	Defense Electronics Supply Center, Dayton, OH	Project Order No. SP0999-94-G-0002
Provide spare & repair parts required by the missions of the U. S. military services.	USAF Air Force Security Assistance Center & USAF Developmental Mfg. & Modification Facility	MOA
Manufacture of spares.	USAF/WR-ALC, Warner Robins Air Logistics Center, Robins AFB, GA	Depot Maintenance Interservice Support Agreement (DMISA) AIRNAD 94-01AFTG
Manufacture, and engrg activities associated.	FAA Aeronautical Center, Oklahoma City, OK	Interagency Support Agreement (ISA) No. AAC-P-47
Development of High Temperature Microwave Package.	Wright Laboratories, WL/AAF, WPAFB, OH	MIPR FY1175-93-N9517
Redesign, manufacture and test NASA Voice Distribution System keysets.	NASA Goddard Space Flight Center	540-69832

MISSION	SPONSOR	ASSIGNING DOCUMENT
A chemical warfare sensor design	Patrick AFB	F62400-94N-0026
Store & distribute AN/AAR-47 systems for the Air Force	Robins AFB	FD2060-90-85460
Prototype HH-60 NVG Formation Lights, Search Lights and Remote Maintenance VORTAC Concentrator (RMVC) units	Wright-Patterson AFB Federal Aviation Administration	N00163-94-MP4D011 Interagency Agreement No DTFA01-94-Z-02022
AN/ARN-147 ILS conversion for the MH-53J helicopter.	Developmental Manufacturing & Modification Facility/ ASC/AM, Wright Patterson AFB, Dayton	FY7615-94-05031
Project management, contract management, engineering, product assurance and fleet support for the AN/PSC-2 System	Primary: Marine Corps Systems Command Participating: Air Force, SPAWAR, Army	FD2040-94-25591 FD3040-93-25752 FD2040-93-27163 FD2040-93-26702 Z93-004
Design, develop and fabricate support equipment recommendation data (SERD) to test B1-B offensive avionics subsystems	OC-ALC/LABLA, Tinker AFB, OK	MOA dated 9-23-93
Develop ECP and develop Technical Requirements for Missile Bit Test Set (MBTS)	US Air Force	FY7621-93-97032 FY7621-94-97017 FY7621-93-97001 FY7621-93-97008
Provide Patriot Single Channel Telemetry Kits	PEO-Miss Def, Patriot Proj Office	MIPR W80FH04D6427
Develop a competitive source for the production of Patriot Single Channel Telemetry Kits	PEO-Miss Def, Patriot Proj Office	MIPR W80FH03D6431
Fabricate new AN/ASM-694 AIS/AISI Test Sets	ASC/YOAS Eglin AFB	MIPR FY7621-94-96025
Design, fabricate and test communication electronic countermeasures (Comm ECM) advanced development models for.	Joint Electronic Warfare Center (JEWC)/SET	MIPR JEWCSE93M3033001
Design and Fabricate HARM Telemetry System	WR-ALC/LKCA Robins AFB	WR & DirCit N0001993WXCLWOY
Talon-Sword TM Support	AFSPACECOM/DOXW, Peterson AFB	WR & DirCit N0001993WXCL05Y

MISSION	SPONSOR	ASSIGNING DOCUMENT
Modernize relocatable sensor system and develop data package for procurement	Air Force Electronic Systems Command	In-process
A systems engineering forum to identify, evaluate, demonstrate, and transition sharp products and services to industry/government.	NAVSUP-4233 and NAVAIR-546	Charter for Standard Hardware Acquisition and Reliability Program(SHARP) Avionics Working Group dated March 1994
Welding support for Halon Text Fixture Program.	ASC/PKMB (Air Force)	FY7615-93-05313
On-site engineering support for F-22 systems Program Office.	ASC/YFP (Air Force)	FY7615-94-05047
Fabricate circuit boards.	ASC/AMPF (Air Force)	FY7615-94-05096 FY7615-94-05093 FY7615-94-05094

TECHNICAL FUNCTIONS

3. **Technical Functions Resource Allocations.** Appendix A provides a list of numbered functional support areas that cover the spectrum of naval warfare and support operations. Additionally, Appendix A provides a list of numbered life-cycle work areas that cover the "cradle to grave" spectrum of Navy systems acquisition. Utilizing the two lists at Appendix A, each activity will break out its entire FY1993 technical program within any applicable intersections of these two defining schemes (for example, functional support area #5.2 - life cycle work area #3 will identify the activity's level of resources allocated to sensors and surveillance systems, radar systems in advanced development). Definitions for each functional support and life cycle work area are provided in Appendix B for reference.

a. Use the form at Tab A of this data call to provide data on work years and expenditures for FY1993 to support each applicable intersection of functional support areas and life cycle work areas. When necessary, estimate data to the best of your ability.

See Tab A

b. Similarly, use the Tab A forms to report separately on your detachments or sites that have not received this data call directly. This data may be consolidated when the detachments or sites perform work in the same area. When necessary, estimate data to the best of your ability.

See Tab A

MANPOWER

4. **Work Breakdown Structure.**

a. Use Table 4.1 (below) to provide data on the general support functions at your activity. Report data as of 31 March 1994. If you are collocated with one of your subordinate base keeper commands (i.e., a NAWS or NAS collocated with a NAWC Division), describe the differences in the functions of each and provide a separate Table 4.1 for the subordinate command. Include this command in the Table 4.1 submission for your Activity.

b. Similarly, use Table 4.2 (below) to provide general support function data for all your detachments or sites that did not receive this data call directly. Consolidate data from all of these detachments into one table (4.2). Provide a list of the detachments whose data is included in Table 4.2. For each identified detachment in this list, include its name, location, UIC, and number of civilian and military personnel onboard.

In addition, if any of your detachments or separate sites not receiving an individual data call have over 50 civilian personnel or own technical facilities, provide separately a description of the site, the functions performed there, photographs showing the facilities and state the reason for that site's existence and the necessity for it to be at that location.

c. Use Table 4.3 (below) to provide estimated data, for your activity only, to reflect the anticipated impact of previous BRAC decisions that have not yet been implemented. This data should provide the deltas from Table 4.1.

NAWC AD Indianapolis anticipates no impact due to prior BRAC decisions

NOTES:

[1] Use the following definitions when providing data for the tables below:

Workyears: Consistent with those used in the preparation of inputs to the President's budget.

Contract Workyears: Actual or estimated workyears performed by support contractors with workyears defined consistent with the definition used in the President's budget.

Civilian Personnel Onboard: Full Time Permanent (FTP) employees.

[2] Any categories of personnel that are employed to support other Activities should be noted with the name of the additional Activity supported.

Table 4.1, General Support Resources for
(Activity: NAWCAD Indianapolis) (UIC: 00163)

Function	Space allocated (Gross SQFT)	Work Years	Civilian Personnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/TD/etc.)	3,900	27	26	0	2	
Comptroller	8,600	59.3	56	0		
Admin	5,300	36.4	35	6.5		
Human Resources	0	-	-	0		
OPERATIONS SUPPORT						
Supply Management	800	5.2	5		3	
Consolidated Computational Computer Support	0	0	0	0		
Information Systems and Communications	18,200	111.3	103	7.7		
Safety/OSH/Environmental	3,300	13.5	13	2.6		
INFRASTRUCTURE						
Physical Security	4,500	45.7	44	.5		
Public Works/Staff Civil Engr	38,800	119.6	115	32.6	1	
Fire Protection	1,100	2.1	2	0		
Medical/Dental	3,500	4.2	4	.3		
Military Support	0	0	0	0		
Air/Waterfront Operations	0	0	0	0		
Other	38,800	29.1	27	0		
TECHNICAL STAFF						
Technical Operations	[redacted]	[redacted]	2414	258	2	9
Totals	126,800 (1)	453.4	2844	308.2	8	9

(1) **This does not include St. Croix, Leased space or Tenant Space.**

Table 4.2, General Support Resources for all Detachments
(Activity: NAWCAD Indianapolis.) (UIC: 00163)

Function	Space allocated (Gross SQFT)	Work Years	Civilian Personnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/ XO/ TD/etc.)						
Comptroller						
Admin						
Human Resources						
OPERATIONS SUPPORT						
Supply Management						
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental						
INFRASTRUCTURE						
Physical Security						
Public Works/Staff Civil Engr						
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other						
TECHNICAL STAFF						
Technical Operations			1			7
Totals	0	0	1			7

(1) **This includes St. Croix, Dalghren, Alameda, Wright Patterson and NAWCAD Indy.**

Table 4.3, Previous BRAC Impact to General Support Resources for (Activity: NAWC AD Indianapolis) (UIC: 00163)

DOES NOT APPLY TO NAWCADIND.

Function	Space allocated (Gross SQFT)	Work Years	Civilian Personnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/ TD/etc.)						
Comptroller						
Admin						
Human Resources						
OPERATIONS SUPPORT						
Supply Management						
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental						
INFRASTRUCTURE						
Physical Security						
Public Works/Staff Civil Engr						
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other						
TECHNICAL STAFF						
Technical Operations						
Totals						

5. Technical Staff Qualifications.

a. Use Table 5.1 (below) to provide data on the civilian personnel allocated to Technical Operations having the educational and experience levels indicated in the table for your activity. Report data as of 31 March 1994. Similarly, use Table 5.2 (below) to provide data for all your separate detachments or sites that did not receive this data call directly. Consolidate data from all of these detachments into one table (5.2). Provide a list of the detachments whose data is included in Table 5.2.

Table 5.1, Technical Staff Education Level for
(Activity: NAWC AD Indianapolis) (UIC: 00163)

Highest Degree Attained	Years of Government and/or Military Service					
	Less than 3 Years	3-10 Years	11-15 Years	16-20 Years	More than 20 Years	Total
Grade School	0	1	19	7	13	40
High School	1	325	310	228	261	1125
B.A./B.S	46	495	292	84	175	1092
M.A./M.S	5	47	29	21	41	143
Ph.D./ M.D.	0	2	5	3	4	14
Total	52	870	655	343	494	2414

Table 5.2, Technical Staff Education Level for all Detachments
(Activity: NAWC AD Indianapolis) (UIC: 00163)

Highest Degree Attained	Years of Government and/or Military Service					
	Less than 3 Years	3-10 Years	11-15 Years	16-20 Years	More than 20 Years	Total
Grade School						
High School						
B.A./B.S		1				1
M.A./M.S						
Ph.D./ M.D.						
Total		1				1

Naval Avionics Center Detachment **595600**
Wright Patterson AFB, OH **(Station Number)**

b. Use Table 5.3 (below) to provide data on the number of civilian personnel allocated to Technical Operations with graduate degrees and at least three years of applicable experience that have their highest degree in the fields indicated. Report data as of 31 March 1994. Similarly, use Table 5.4 (below) to provide data for all your separate detachments or sites that did not receive this data call directly. Consolidate data from all of these detachments into one table (5.4). Provide a list of the detachments whose data is included in Table 5.4

Table 5.3, Technical Staff Academic Fields for
(Activity: NAWC AD Indianapolis (UIC: 00163)

Academic field	Number
Physics	23
Chemistry	4
Biology	1
Mathematics/Statistics/ Operations Research	9
Engineering	76
Medical	0
Dental	0
Computer Science	6
Social Science	2
Other Science	2
Non-Science	38
Total	161*

* Excludes Bachelor Degrees.

Table 5.4, Technical Staff Academic Fields for all Detachments
(Parent Activity: NAWC AD Indianapolis) (UIC: 00163)

Academic field	Number
Physics	
Chemistry	
Biology	
Mathematics/Statistics/ Operations Research	
Engineering	
Medical	
Dental	
Computer Science	
Social Science	
Other Science	
Non-Science	
Total	0

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6. TITLE: "Recommended Practices"
AUTHORS: M. Dorsett
PUBS: Proceedings, IEEE, Standard for Future Bus+, 93

7. TITLE: "Standard for Conformance Test Requirements for Future Bus+"
AUTHORS: J. Lear, P. Smith
PUBS: Proceedings, IEEE, Standard for Future Bus+, 93

8. TITLE: "Standard for Future Bus+, Profile M (Military)"
AUTHORS: M. Dorsett, J. Lear, P. Smith
PUBS: Proceedings, IEEE Future Bus+, 93

9. TITLE: "Standard for Future Bus+, Profile M (Military), Errata, Correction, and Clarifications"
AUTHORS: J.Lear
PUBS: Proceedings, IEEE, Future Bus+, 93

10. TITLE: "Fault Tolerant Extensions for Future Bus+"
AUTHORS: M. Dorsett, J.Lear
PUBS: Proceedings, IEEE, Future Bus+, 94

11. TITLE: "Ambient Noise Data Logger Buoy"
AUTHORS: D. Hollinberger
PUBS: IEEE Journal of Ocean Engineering, 90

12. TITLE: "The Growth of <100> Textured Diamond Films on Polycrystalline Ceramic Substrates"
AUTHORS: J. Sosniak
PUBS: Applied Physics Letters, 94

13. TITLE: "Nucleation of Diamond Films on Foreign Substrates"
AUTHORS: J. Sosniak
PUBS: Journal of Materials Research, 94

14. TITLE: "MCC and EMPF Form Advanced Electronics Packaging Facility"
AUTHORS: D. Lubben
PUBS: Article, Circuits Assembly

15. TITLE: "Environmental Performance Evaluation of Advanced Composite Materials for use in Military Electronics"
AUTHORS: S. Wagner, M. Hook, E. Perkoski
PUBS: Proceedings, ElectreCon, 93

c. Are there unique aspects of the activity's location that help or hinder in the hiring of qualified personnel?

This Activity is located in a large metropolitan area that has a highly educated and highly skilled local workforce from which to recruit and has several major technical universities in close proximity that supply us with many of our professional and engineering personnel (e.g., Purdue University, Rose Hulman Institute, Indiana University), that enable new employees to pursue advanced degrees/continued education.

d. List all articles written by the in-house technical staff that were published or accepted for publication in refereed journals since 1 January 1990.

1. TITLE: "Applications of a Poled Electro-Optic Thin Film In An Evanescent Coupler"
AUTHORS: J.M. MacKenzie, R.E. Morgan, S.L. Ehlers, K.J. Jones
PUBS: Proceedings, Organic Thin Films for Photonic Applications, 7 Oct 93

2. TITLE: "An Active Evanescent Coupler for Smart Processing"
AUTHORS: R.E. Morgan, S.L. Ehlers, J.M. MAcKenzie, K.J. Jones
PUBS: Proceedings, SPIE, Smart Sensing, Processing & Instrumentation Vol 1918, 4 Feb 93

3. TITLE: "Composite-Embedded Fiber Optic Data Links and Related Material/Connector Issues"
AUTHORS: R.E. Morgan, S.L. Ehlers, K.J. Jones
PUBS: Proceedings, Active Material & Adaptive Structures, 4 Nov 91

4. TITLE: "Composite-Embedded Fiber Optic Data Links"
AUTHORS: R.E. Morgan, S.L. Ehlers, K.J. Jones
PUBS: SPIE Proceedings, Fiber Optic Smart Structures & Skins IV 6 Sept 91

5. TITLE: "Composite-Embedded Fiber Optic Data Links in Avionics Packaging"
AUTHORS: S.L. Ehlers, K.J. Jones, R.E. Morgan, J. Hixson
PUBS: Proceedings, Optic Fiber, Sensor-Based Smart Material and Structures 4 April 91

6. TITLE: "Composite-Embedded Fiber Optic Data Links in Avionics Packaging"
AUTHORS: S.L. Ehlers, K.J. Jones, J. Hixson
PUBS: Proceedings, Fiber Optic Material Research Program, 6 Feb 91

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c. Are there unique aspects of the activity's location that help or hinder in the hiring of qualified personnel?

This Activity is located in a large metropolitan area that has a highly educated and highly skilled local workforce from which to recruit and has several major technical universities in close proximity that supply us with many of our professional and engineering personnel (e.g., Purdue University, Rose Hulman Institute, Indiana University), that enable new employees to pursue advanced degrees/continued education.

d. List all articles written by the in-house technical staff that were published or accepted for publication in refereed journals since 1 January 1990.

The following publications are listed in the 1991 ULRICH's International Publications Directory. This is the most recent copy available. R

1. TITLE: "Composite-Embedded Fiber Optic Data Links"
AUTHORS: R.E. Morgan, S.L. Ehlers, K.J. Jones
PUBS: SPIE Proceedings, Fiber Optic Smart Structures & Skins IV
6 Sept 91

2. TITLE: "Composite-Embedded Fiber Optic Data Links in Standard Electronic Modules"
AUTHORS: S.L. Ehlers, K.J. Jones, R.E. Morgan, J. Hixson
PUBS: Proceedings, SPIE Fiber Optic Smart Structures and Skin III
19 Sept 90

3. TITLE: "Logical Protocol, Errata, Correction, and Clarifications"
AUTHORS: J. Lear
PUBS: Proceedings, IEEE, Standard for Future Bus+ 93

4. TITLE: "Physical Layer and Profile Specification"
AUTHORS: P.Smith
PUBS: Proceedings, IEEE Standard for Future Bus+, 91

5. TITLE: "Physical Layer and Profile Specification, Errata, Correction, and Clarifications"
AUTHORS: J. Lear
PUBS: Proceedings, IEEE, Standard for Future Bus+, 93

7. TITLE: "Composite-Embedded Fiber Optic Data Links in Standard Electronic Modules"
AUTHORS: S.L. Ehlers, K.J. Jones, R.E. Morgan, J. Hixson
PUBS: Proceedings, SPIE Fiber Optic Smart Structures and Skin III
19 Sept 90

8. TITLE: "Composite-Embedded Optical Fibers for Communications Links in SAMPE"
AUTHORS: R.E. Morgan, V.V. Mitkus, K.J. Jones
PUBS: Proceedings, Electronic Materials and Processes, 20 June 90

9. TITLE: "High Resolution Optical Patter Generation"
AUTHORS: B. Hodgson
PUBS: Proceedings, ASNE Product Engineering, 1 Sept 92

10. TITLE: "Organized Wire, Integrated Board, and Mass Termination Techniques"
AUTHORS: R. Brown
PUBS: Proceedings, ASNE Product Engineering, 1 Sept 92

11. TITLE: "Ribbonized, Organized, Integrated Wiring System"
AUTHORS: R. McMahon
PUBS: Proceedings, ASNE Product Engineering, 1 Sept 92

12. TITLE: "Sterolithography for Rapid Prototyping"
AUTHORS: T. Stahlhut
PUBS: Proceedings, ASNE Product Engineering, 1 Sept 92

13. TITLE: "VHSIC Hardware Description Language"
AUTHORS: W. Krug
PUBS: Proceedings, ASNE Product Engineering, 1 Sept 92

14. TITLE: "Rapid Prototyping Techniques"
AUTHORS: D. Kuchler
PUBS: Proceedings, ASNE Product Engineering, 1 Sept 9

15. TITLE: "Advanced Microelectronics Facility Capabilities"
AUTHORS: W. Krug
PUBS: Proceedings, ASNE Product Engineering, 1 Sep 92

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16. TITLE: "MIL-STD-1553/1773 Conversion"
AUTHORS: R. Johnson
PUBS: Proceedings, ASNE Product Engineering, 1 Sept 92

17. TITLE: "A JIAWG Common Module Software Interface"
AUTHORS: J.R. Newport
PUBS: Proceedings, NAECON, 1990

18. TITLE: "A New Development in Embedded Computer Performance Measurement"
AUTHORS: J.R. Newport
PUBS: Proceedings, NAECON 1991

19. TITLE: "Additional Developments in Embedded Computer Performance Measurements"
AUTHORS: J.R. Newport
PUBS: Proceedings, NAECON 1992

20. TITLE: "Developments in Multiprocessor Embedded Computer Performance"
AUTHORS: J.R. Newport
PUBS: Proceedings, GOMAC `1992

21. TITLE: "Embedded Computer Design Choices and Solutions"
AUTHORS: J.R. Newport
PUBS: Proceedings, NAECON 1993

22. TITLE: "Dynamic Reconfiguration Demonstration System"
AUTHORS: J.R. Newport
PUBS: Proceedings, NAECON 1993

23. TITLE: "A Proposed Real-Time ADA Test"
AUTHORS: J.R. Newport
PUBS: J.R. Newport

24. TITLE: "Standard Embedded Software Communications Interface"
AUTHORS: J.R. Newport
PUBS: Proceedings, Software Technology, 1994

25. TITLE: "An Open Systems Approach to Technology Insertion"
AUTHORS: J.R. Newport
PUBS: Proceedings, ASNE, 1994

Revised pg

(THIS PAGE INTENTIONALLY LEFT BLANK DUE TO EXTRACTION OF DATA)

26. TITLE: "Combined Unloaded and Loaded Board Testing"
AUTHORS: P.G. Robison, M.S. Dean
PUBS: Proceedings, IEEE Automatic Testing Sept 199

27. TITLE: "What is WAT? Wrap Around Test, Maximizing Avionics BIT Utilization to Minimize Flight Line Armament Systems Test Equipment Requirements"
AUTHORS: C. Williams
PUBS: Transactions, AEROTECH Sept 91

28. TITLE: "Technology Transfer Characteristics for a new Model for Implementing
Strategic Information Systems"
AUTHORS: P. Hiestrand
PUBS: Proceedings, International Federation for Information Processing, Oct 93

29. TITLE: "Diffraction Losses in Optical Resonators"
AUTHORS: J.S. Marsh, J.I. Luker
PUBS: Proceedings, AIP/APS/AAPT , Jan 91

30. TITLE: "Logical Protocol, Errata, Correction, and Clarifications"
AUTHORS: J. Lear
PUBS: Proceedings, IEEE, Standard for Future Bus+ 93

31. TITLE: "Physical Layer and Profile Specification"
AUTHORS: P.Smith
PUBS: Proceedings, IEEE Standard for Future Bus+, 91

32. TITLE: "Physical Layer and Profile Specification, Errata, Correction, and Clarifications"
AUTHORS: J. Lear
PUBS: Proceedings, IEEE, Standard for Future Bus+, 93

33. TITLE: "Recommended Practices"
AUTHORS: M. Dorsett
PUBS: Proceedings, IEEE, Standard for Future Bus+, 93

34. TITLE: "Standard for Conformance Test Requirements for Future Bus+"
AUTHORS: J. Lear, P. Smith
PUBS: Proceedings, IEEE, Standard for Future Bus+, 93

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35. TITLE: "Standard for Future Bus+, Profile M (Military)"
AUTHORS: M. Dorsett, J. Lear, P. Smith
PUBS: Proceedings, IEEE Future Bus+, 93

36. TITLE: "Standard for Future Bus+, Profile M (Military), Errata, Correction, and Clarifications"
AUTHORS: J.Lear
PUBS: Proceedings, IEEE, Future Bus+, 93

37. TITLE: "Fault Tolerant Extensions for Future Bus+"
AUTHORS: M. Dorsett, J.Lear
PUBS: Proceedings, IEEE, Future Bus+, 94

38. TITLE: "Ambient Noise Data Logger Buoy"
AUTHORS: D. Hollinberger
PUBS: IEEE Journal of Ocean Engineering, 90

39. TITLE: "Multiple Processor Computer Performance Measurement"
AUTHORS: D. Kohalmi, C. Roark, D. Paul, D. Struble
PUBS: Proceedings, Test Technology Transfer, 93

40. TITLE: "Pooled Spares and Dynamic Reconfiguration"
AUTHORS: D. Kohalma, J. Newport, C. Roark, D. Paul, D. Struble
PUBS: Proceedings, National Aerospace and Electronics, 93

41. TITLE: "Multiple Processor Embedded Computer Performance"
AUTHORS: D. Kohalmi, J. Newport, C. Roark, D. Paul, D. Struble
PUBS: Proceedings, Government Microcircuit Applications 92

42. TITLE: "Environmental Stress Screening Guidelines for Assemblies"
AUTHORS: G. Miller
PUBS: Institute of Environmental Sciences, 90

43. TITLE: "TriService Environmental Stress Screening Guidelines"
AUTHORS: G. Miller
PUBS: Institute of Environmental Sciences, 93

44. TITLE: "Active and Passive Thermal Management"
AUTHORS: R.E. Morgan
PUBS: Proceedings, Interagency Advanced Power Group, 94

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53. TITLE: "Applications of Advanced Composites to Electronics Enclosures"
AUTHORS: J. Glatz, R.E. Morgan
PUBS: Proceedings, Low Observables Materials, 92

54. TITLE: "Applications of Composite Material Systems to Avionics Systems Packaging"
AUTHORS: R.E. Morgan
PUBS: Proceedings, Society for Advancement of Material and Process engineering,

1991

55. TITLE: "Application of Resin and Metal Matrix Composites to Advanced Avionics Enclosures"
AUTHORS: R.E. Morgan, J. Glatz
PUBS: Proceedings, Society for Advancement of Material and Process engineering, 1991

56. TITLE: "Applications of Advanced Composites in a 3/4 ATR Transportable Rack"
AUTHORS: R.E. Morgan, J.Glatz
PUBS: Proceedings, Society for Advancement of Material and Process Engineering, 1990

57. TITLE: "The Growth of <100> Textured Diamond Films on Polycrystalline Ceramic Substrates"
AUTHORS: J. Sosniak
PUBS: Applied Physics Letters, 94

58. TITLE: "Nucleation of Diamond Films on Foreign Substrates"
AUTHORS: J. Sosniak
PUBS: Journal of Materials Research, 94

59. TITLE: "Common Avionics, Today and Tomorrow"
AUTHORS: L. Clines
PUBS: Proceedings, Joint Services Data Exchange, 92

60. TITLE: "Evolution and Assessment of Inertial Navigation Systems (INS) for Carrier Based Aircraft"
AUTHORS: D. Brienza
PUBS: Proceedings, Joint Services Data Exchange, 92

61. TITLE: "Common Avionics Solution for US Navy Embedded GPS/INS Systems"
AUTHORS: D. Brienza
PUBS: Proceedings, National Avionics Technical Assoc. ,92

62. TITLE: "Avionics System Architecture"
AUTHORS: W. Stiffler
PUBS: Proceedings, National Avionics Technical Assoc., 92

63. TITLE: "MCC and EMPF Form Advanced Electronics Packaging Facility"
AUTHORS: D. Lubben
PUBS: Article, Circuits Assembly

64. TITLE: "Applications of Composite Solder Principles"
AUTHORS: W. Vuono
PUBS: Proceedings, NEPCON West, 93

65. TITLE: "Evaluations of Solder Alternatives for Surface Mount Technology"
AUTHORS: J. Greaves
PUBS: Proceedings, NEPCON West, 94

66. TITLE: "Fine Pitch Rework Process Modeling"
AUTHORS: J. Mearig
PUBS: Proceedings, INDYCON 93

67. TITLE: "Fine Pitch Rework Process Modeling"
AUTHORS: J. Mearig
PUBS: Proceedings, Defense Mfg. Conf, 94

68. TITLE: "Improved Solderability Testing Using Wetting Balance Standard"
AUTHORS: T. Pruitt, et al
PUBS: Proceedings, IPC, 92

69. TITLE: "Microstructure Phenomenon in Fine Pitch"
AUTHORS: J. Guy

70. TITLE: "Non-Wetting Defect Detection Using Two Wetting Balance Techniques"
AUTHORS: T. Pruitt, et al

71. TITLE: "A Reliability Assessment of No-Clean and Water Soluble Fluxes in Cable Assembly Applications"
AUTHORS: M. Frederickson
PUBS: Proceedings, China Lake Soldering Seminar, 93

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72. TITLE: "A Search for CFC Alternatives is Over?"
AUTHORS: T. Crawford
UBS: Proceedings, Aerospace Environmental Tech Conf, 94

73. TITLE: "Stencil Printing Fine Pitch Applications"
AUTHORS: J. Mearig
PUBS: Proceedings, Surface Mount International, 93

74. TITLE: "Stencil Printing Fine Pitch Applications"
AUTHORS: J. Mearig
PUBS: Proceedings, NEPCON East, 93

75. TITLE: "Surface Coatings: A Comparative Study of Impact On Solderability"
AUTHORS: J. Mearig
PUBS: Proceedings, ELECTRECON, 93

76. TITLE: "Surface Coatings: A Comparative Study of Impact On Solderability"
AUTHORS: J. Measig
PUBS: Proceedings, NEPCON West, 93

77. TITLE: "Ultrasonic Cleaning on Fine Pitch Components- Establishing a New Standard"
AUTHORS: M. Frederickson, et al
PUBS: Proceedings, NEPCON West, 93

78. TITLE: "Variables That Influence Today's Cleanliness Test Equipment"
AUTHORS: T. Crawford
PUBS: Proceedings, NEPCON East, 93

79. TITLE: "Advancements in Reflow Process Development"
AUTHORS: J. Guy
PUBS: Proceedings, NEPCON West, 90

80. TITLE: "Solderability Concerns in Surface Mount Technology"
AUTHORS: M. Frederickson
PUBS: Proceedings, NEPCON West, 90

81. TITLE: "Cleaning Processes in Surface Mount Technology"
AUTHORS: T. Crawford
PUBS: Proceedings, NEPCON West, 90

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(THIS PAGE INTENTIONALLY LEFT BLANK DUE TO EXTRACTION OF DATA)

82. TITLE: "Process Controls in SMT Rework"
AUTHORS: J. Mearig
PUBS: Proceedings, NEPCON West, 90

83. TITLE: "Alternative Applications of Automated Laser Inspection"
AUTHORS: J. Mearig
PUBS: Proceedings, NEPCON West, 91

84. TITLE: "Ultrasonic Cleaning of Military PWA's"
AUTHORS: T. Crawford, W. Vuono
PUBS: Proceedings, NEPCON West, 91

85. TITLE: "Heat Transfer Effect on Solderability for Tinning Processes"
Authors: V. Kuo, et al
PUBS: Proceedings, International SAMPE Conf, 92

86. TITLE: "Fine Pitch Placement-Lessons Learned"
AUTHORS: S. Gwinn
PUBS: Proceedings, INDYCON, 93

87. TITLE: "Infrared Reflow Processes with Fine Pitch Assemblies"
AUTHORS: J. Guy
PUBS: Proceedings, INDYCON, 93

88. TITLE: "Cleaning Fine Pitch Assemblies with CFC Alternatives"
AUTHORS: T. Pruitt
PUBS: Proceedings, INDYCON, 93

89. TITLE: "Semi-Aqueous Cleaning for Fine Pitch Surface Mount Technology"
AUTHORS: T. Pruitt
PUBS: Proceedings, ISHM, 93

90. TITLE: "Ultrasonic Failures with Fine Pitch Components"
AUTHORS: M. Frederickson
PUBS: Proceedings, INDYCON, 93

91. TITLE: "Fine Pitch Solder Joint Microstructure Phenomena"
AUTHORS: J. Guy, et al
PUBS: Proceedings, INDYCON, 93

92. TITLE: "Stencil Design & Volume Control for Fine Pitch Applications"
AUTHORS: J. Mearig
PUBS: Proceedings, INDYCON, 93

93. TITLE: "Solder Bumping for Fine Pitch Applications"
AUTHORS: J. Mearig
PUBS: Proceedings, INDYCON, 93

94. TITLE: "Manufacturing Electronics Using CFC Alternatives"
AUTHORS: W. Vuono
PUBS: Proceedings, Assembly Technology Expo, 93

95. TITLE: "Alternatives to Lead-Based Solders"
AUTHORS: J. Greaves
PUBS: Proceedings, Assembly Technology Expo, 93

96. TITLE: "Rework & Repair of Fine Pitch SMT"
AUTHORS: J. Mearig
PUBS: Proceedings, Assembly Technology Expo, 93

97. TITLE: "Microstructure Phenomena in Fine Pitch Solder Joints"
AUTHORS: J. Guy
PUBS: Proceedings, Assembly Technology Expo, 93

98. TITLE: "Solder Paste SPC via RF Impedance Measurements"
AUTHORS: M. Frederickson
PUBS: Proceedings, Assembly Technology Expo, 93

99. TITLE: "Conformal Coating Adhesion Over No-Clean Fluxes"
AUTHORS: W. Vuono
PUBS: Proceedings, Assembly Technology Expo, 93

100. TITLE: "Conformal Coating Adhesion over No-Clean Fluxes"
AUTHORS: T. Crawford
PUBS: Proceedings, Georgia Tech Flux Conf, 94

101. TITLE: "Do We Need "How To" Manufacturing"
AUTHORS: M. Scott
PUBS: Proceedings, Surface Mount International, 93

102. TITLE: "Stencil Printing Fine-Pitch Applications"
AUTHORS: J. Mearig
PUBS: Tech Pub/Book, 5/93

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(THIS PAGE INTENTIONALLY LEFT BLANK DUE TO EXTRACTION OF DATA)

103. TITLE: "Computer Thermal Modeling of a Convective IR Reflow Oven"
AUTHORS: J. Guy
PUBS: Tech Pub/Book, 11/92

104. TITLE: "The Convective Infrared Reflow Process with Fine-Pitch Assemblies"
AUTHORS: J. Guy
PUBS: Tech Pub/Book, 3/93

105. TITLE: "Solder Joint Volume Calculation Using a Spreadsheet"
AUTHORS: J. Mearig
PUBS: Tech Pub/Book, 6/93

106. TITLE: "Effects of Tip Cleaning Devices and Heater Technology on Manual Soldering Processes"
AUTHORS: M. Frederickson
PUBS: Tech Pub/Book, 3/90

107. TITLE: "Phase II Testing of Hughes Reactive Aqueous Defluxing System (RADS)"
AUTHORS: T. Crawford
PUBS: Tech Pub/Book, 5/92

108. TITLE: "Phase II Testing of International Specialty Products Micropure CDF"
AUTHORS: T. Crawford
PUBS: Tech Pubs/Book, 8/92

109. TITLE: "Phase II Testing of Bioact EC7R"
AUTHORS: T. Crawford
PUBS: Tech Pub/Book, 8/92

110. TITLE: "Semi-Aqueous Cleaning: Process Controls for 20-mil Pitch Technology"
AUTHORS: T. Pruitt
PUBS: Tech Pub/Book, 8/92

111. TITLE: "Phase II Testing of Alpha Metals 2110 Saponifier"
AUTHORS: T. Crawford
PUBS: Tech Pubs/Book, 10/92

112. TITLE: "Phase II Testing of Exxon Actrel ED 11 & Actrel ES"
AUTHORS: T. Crawford

113. TITLE: "Phase II Testing of Envirosolv KNI-2000"

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(THIS PAGE INTENTIONALLY LEFT BLANK DUE TO EXTRACTION OF DATA)

AUTHORS: T. Crawford
PUBS: Tech Pubs/Book, 2/93

114. TITLE: "Phase II Testing of Church & Dwight Armakleen E-2001"
AUTHORS: T. Crawford
PUBS: Tech Pub/Book

115. TITLE: "An In-Depth Look at Ionic Cleanliness Testing"
AUTHORS: T. Crawford
PUBS: Tech Pub/Book

116. TITLE: "Phase II Testing of Prozone"
AUTHORS: T. Crawford
PUBS: Tech Pub/Book, 9/93

117. TITLE: "Phase II Testing of Petroferm Bioact EC-Ultra"
AUTHORS: T. Crawford
PUBS: Tech Pubs/Book, 12/93

118. TITLE: "No CFC's, Now What Do I Do"
AUTHORS: W. Vuono
PUBS: Tech Pubs/Book, 11/90

119. TITLE: "Ultrasonic Cleaning of Military PWAs"
AUTHORS: W. Vuono, T. Crawford
PUBS: Tech Pub/Book, 4/91

120. TITLE: "Cleaning Military Electronics in the Future"
AUTHORS: T. Crawford
PUBS: Tech Pub/Book, 3/90

121. TITLE: "Testing of Bioact EC7 as an Alternative to CFCs"
AUTHORS: T. Crawford
PUBS: Tech Pub/Book, 6/90

122. TITLE: "Logic of Visual Inspection"
AUTHORS: J. Mearig, et al
PUBS: Tech Pub/Book, 3/90

123. TITLE: "Alternative Applications of Automated Laser Inspection"
AUTHORS: J. Mearig
PUBS: Tech Pub/Book, 7/90

124. TITLE: "Solder Joint Rework Simulation Analysis"

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(THIS PAGE INTENTIONALLY LEFT BLANK DUE TO EXTRACTION OF DATA)

AUTHORS: J. Guy
PUBS: Tech Pub/Book, 9/90

125. TITLE: "Process Controls in SMT Rework".
AUTHORS: J. Mearig
PUBS: Tech Pub/Book

126. TITLE: "Component Solderability Workshop Proceedings"
AUTHORS: T. Pruitt
PUBS: Tech Pubs/Book

127. TITLE: "Solderability, Phase II, Part 1; Parametric Effect"
AUTHORS: T. Pruitt
PUBS: Tech Pub/Book, 8/92

128. TITLE: "Impact of Flux Type on Wetting Balance Testing in the Scanning Mode"
AUTHORS: T. Pruitt
PUBS: Tech Pub/Book, 5/92

129. TITLE: "Surface Coatings: A Comparative Study of Impacts on Solderability"
AUTHORS: J. Mearig
PUBS: Tech Pub/Book, 7/93

130. TITLE: "Analysis of Oxidation Arrest Paper"
AUTHORS: T. Crawford
PUBS: Tech Pub/Book, 4/90

131. TITLE: "Solderability Concerns in Surface Mount Technology"
AUTHORS: M. Frederickson
PUBS: Tech Pub/Book, 3/90

132. TITLE: "Material Solderability; 1960s-1990"
AUTHORS: J. Guy
PUBS: Tech Pub/Book, 4/91

133. TITLE: "Heat Transfer Effect on Solderability Tinning Process"
AUTHORS: V. Kuo
PUBS: Tech Pub/Book, 11/90

134. TITLE: "Thermal Analysis of Printed Wiring Boards Using SINDA"
AUTHORS: T. Kertis
PUBS: Tech Pub/Book, 2/90

135. TITLE: "Thermal Fatigue Analysis Software for Leadless Chip Carriers"
AUTHORS: J. Huang
PUBS: Tech Pub/Book, 4/90

136. TITLE: "Quicker Queries"
AUTHORS: D. Miller
PUBS: International Tandem Users Group Journal, Best Paper 93

137. TITLE: "The Programmer's New Clothes---A Skeptic's View of Object-Oriented Programming"
AUTHORS: D. Miller
PUBS: International Tanden Users Journal, 93

138. TITLE: "Carrier Aircraft Inertial Navigation System/Global Positioning System Performance"
AUTHORS: B. Spicer
PUBS: Proceedings, Joint Services Data Exchange For Guidance, and Control, 92

139. TITLE: "Carrier Alignment of CAINS II Using GPS as Reference Data"
AUTHORS: J. Brentlinger
PUBS: Proceedings, Joint Services Data Exchange For Guidance, and Control, 92

140. TITLE: "Loss Prevention Initiative Wins Award"
AUTHORS: W. Younger
PUBS: Periodical, SENTRY, 92

141. TITLE: "Environmental Performance Evaluation of Advanced Composite Materials for use in Military Electronics"
AUTHORS: S. Wagner, M. Hook, E. Perkoski
PUBS: Proceedings, ElectreCon, 93

142. TITLE: "IPC Phase 3 Testing- Water Soluble Fluxes- Status Report"
AUTHORS: M. Hook, D. Pauls
PUBS: Proceedings, CFC Alternatives Conf, 91

143. TITLE: "Immersion/Two Phase Cooling"
AUTHORS: J. Jones, E. Perkoski
PUBS: Journal, NATO, AGARD Advisory Group for AEROSPACE R&D, 94

e. List all technical books and/or chapters written by the in-house technical staff that were published or accepted for publication since 1 January 1990.

Mil-HDBK-59B
Co-Author: Steve Scanlon

Book: Navy/Marine Corps Desktop Guide for CALS Implementation
Co-Author: Steve Scanlon

Chapter: Water Environment Federation Manual - Operator's Guide to Hazardous Waste
Co-Author: Dr. Roger Hlavek

Chapter: Wastewater Source Control Program Manual
Author: Dr. Roger Hlavek

f. Identify any Nobel laureates employed at this activity.

None

g. List all non-governmental awards for research or technical excellence given to members of your technical staff since 1 January 1990.

Award:	**National Society of Professional Engineers, Professional Engineers in Government (NSPE-PEG) NAVAIR Engineer of the Year**
Recipient:	**David Heisler**
Award:	**Institute for Environmental Sciences Maurice Simpson Technical Editors Award**
Recipient:	**Robin Sellers**
Award:	**Institute for Interconnecting and Packaging Electronic Circuits (IPC) President's Award**
Recipient:	**Robin Sellers**
Award:	**The International Society of Hybrid Microelectronics Best Paper of Session**
Recipient:	**Tim Pruitt**

h. List all governmental awards for research or technical excellence given to members of your technical staff since 1 January 1990.

Award: **The United Stated Environmental Protection Agency's 1990 Stratospheric Ozone Protection Award**
Recipient: **Robin Sellers**

Award: **The United Stated Environmental Protection Agency's 1993 Stratospheric Ozone Protection Award**
Recipient: **Tim Crawford**

i. List all patents awarded to the in-house technical staff members of this activity since 1 January 1990.

None

j. List all patents applied for by the in-house technical staff members of this activity since 1 January 1990.

1990

TITLE: Optical Fiber Splice
S&E(S): Vito Mitkus and Sandy Ehlers

TITLE: Digital Filter Software
S&E(S): D. Strange

TITLE: Active Evanescent Coupling With Optical Switching
S&E(S): Katherine Jones
TITLE: Composite-Embedded Optical Interconnect
S&E(S): Katherine Jones

TITLE: Tool Crib Tracking Inventory System
S&E(S): Marc Nolting

TITLE: Matching Network for Sleeve Antennae
S&E(S): James Daniel

TITLE: 1553/1773 Convertor
S&E(S): Miles Austin and Brian Hardman

TITLE: Thermal Conductivity Testing for Structural Integrity

S&E(S): Larry Broch

TITLE: Planetary Roller Friction Drive
S&E(S): Gordon Craig

TITLE: Higher Yield Method for Creating Greyscales
S&E(S): Bruce Hodgson

TITLE: LIST Chip Coprocessor
S&E(S): John Seal and Steve Schroeder

TITLE: Digital Logic Level Translator
S&E(S): Chuck Ember

TITLE: High Voltage Monitor/Safety Gloves
S&E(S): Check Ember

1991

TITLE: Insertable Contact & Socket Assembly
S&E(S): Ron Brown, 932

TITLE: Adaptive Long Term Path Integrating Signal Processing Algorithm for Air-to-Air Pulse Doppler Radar
S&E(S): Bill Maxwell

TITLE: Reconfigurable/Redundant Fault Tolerant Interconnections for Composite Imbedded Fiber Optic Data Links
S&E(S): Katherine Jones

TITLE: Intra-concatenated Connector Arrays for Composite Embedded Optical Fibers
S&E(S): Katherine Jones

1992

TITLE: Thermal Clamp
S&E(S): David Howard

TITLE: Process for Gold Plating Center Conductor of a TNC Connector
S&E(S): Andrew Lamm

TITLE: Oil and Water Separator
S&E(S): Jack Fentz

TITLE: Measurement of Length or Distance Using One-Way Sonic Wave Transmission
S&E(S): James W. HoltKamp

TITLE: Selective Chemical Processing of Plated-through Holes
S&E(S): Wendell L. Conner

TITLE: Cable Assembly Tool
S&E(S): Curt Stahl

TITLE: Smart Seismic Detection
S&E(S): Catherine Jones

TITLE: Trigger Housing Safety
NAWC #: IN92-020
S&E(S): Charles Robinson

1993

TITLE: Resistance Rocker Switch Network Array
S&E(S): Ed Marshall

TITLE: Integration Optics and Wavelength Discrimination for Cockpit Avionics Control Panels
S&E(S): Chuck Ember

TITLE: Thermally Enhanced Imaging System for Augmenting the Human Operator
S&E(S): Chuck Ember,

TITLE: Multiwavelength Laser Fabrication System
S&E(S): Katherine Jones

TITLE: Pyramidal Axicon
S&E(S): Katherine Jones

TITLE: Manual Solder Monitor
S&E(S): EMPF/IUPUI

TITLE: High Power Voltage Monitor
S&E(S): Charles Rohrer

TITLE: Data Recorder Synchronizer
S&E(S): Bob Stoffel and Stan Curts

TITLE: Child Guard
S&E(S): Michael Ray

TITLE: Telephone Call Screen
S&E(S): Michael Ray

TITLE: Simultaneous Dual Transmission, Multiple Receiver Assembly
S&E(S): Linda Miner

TITLE: Electrical Connector Assembly
S&E(S): Mel Brown

TITLE: Surface Thermal Profiling Feature
S&E(S): Mike Frederickson, EMPF & IUPUI

TITLE: Slow Drop Delivery System
S&E(S): Dave Hollinberger

TITLE: Leaflet Delivery Buoy
S&E(S): Dave Hollinberger

TITLE: High Current Storage and Release Circuit
S&E(S): Shawn Martin, John Ogborn, and Hugh Griffith

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k. Identify any in-house staff that are members of the National Academy of Engineering.

None **R**

l. Identify any in-house staff that are members of the National Academy of Sciences.

None **R**

m. How many Cooperative Research and Development Agreements (CRDAs) have been signed by the activity since 1 January 1990?

AGREEMENT NUMBER: NCRADA-NAWCADI-90-001
AGREEMENT TITLE: Electronics Manufacturing Productivity Facility (EMPF)
GOVERNMENT PARTNER(S): NAWCAD Indianapolis/NSWC Crane
NON-GOVERNMENT PARTNER(S): Indiana University and Purdue University of Indianapolis (IUPUI)
CRADA TYPE: Handbook

AGREEMENT NUMBER: NCRADA-NAWCADI-92-002
AGREEMENT TITLE: PDES
GOVERNMENT PARTNER(S): NAWCAD Indianapolis
NON-GOVERNMENT PARTNER(S): PDES Corporation
CRADA TYPE: Handbook

The following Cooperative Research and Development Agreements(CRDAs) will be completed in FY94:

AGREEMENT NUMBER: NCRADA-NAWCADI-93-002
AGREEMENT TITLE: SEM-E Packaging of the 80960MX MCM
GOVERNMENT PARTNER(S): NAWCAD Indianapolis
NON-GOVERNMENT PARTNER(S): Alliant TechSystems Inc
CRADA TYPE: Standard

k. Identify any in-house staff that are members of the National Academy of Engineering.

Scott Mixer
Jim Haynes

l. Identify any in-house staff that are members of the National Academy of Sciences.

Clarence Brooks
Scott Mixer
Jim Haynes

m. How many Cooperative Research and Development Agreements (CRDAs) have been signed by the activity since 1 January 1990?

AGREEMENT NUMBER: NCRADA-NAWCADI-90-001
AGREEMENT TITLE: Electronics Manufacturing Productivity Facility (EMPF)
GOVERNMENT PARTNER(S): NAWCAD Indianapolis/NSWC Crane
NON-GOVERNMENT PARTNER(S): Indiana University and Purdue University of Indianapolis (IUPUI)
CRADA TYPE: Handbook

AGREEMENT NUMBER: NCRADA-NAWCADI-92-002
AGREEMENT TITLE: PDES
GOVERNMENT PARTNER(S): NAWCAD Indianapolis
NON-GOVERNMENT PARTNER(S): PDES Corporation
CRADA TYPE: Handbook

The following Cooperative Research and Development Agreements(CRDAs) will be completed in FY94:

AGREEMENT NUMBER: NCRADA-NAWCADI-93-002
AGREEMENT TITLE: SEM-E Packaging of the 80960MX MCM
GOVERNMENT PARTNER(S): NAWCAD Indianapolis
NON-GOVERNMENT PARTNER(S): Alliant TechSystems Inc
CRADA TYPE: Standard

AGREEMENT NUMBER: NCRADA-NAWCADI-94-004
AGREEMENT TITLE: SPC Solder Tool Development
GOVERNMENT PARTNER(S): NAWCAD Indianapolis/NSWC Crane
NON-GOVERNMENT PARTNER(S): Rockwell Collins, Eaton Corp, Marquette University
CRADA TYPE: Supplemental to NCRADA-NAWCADI-90-001.

AGREEMENT NUMBER: NCRADA-NAWCADI-94-005
AGREEMENT TITLE: SEM-E Packaging of the 270 VDC Input, 2.1 VDC at 20 Amperes Output Power Supply Module
GOVERNMENT PARTNER(S): NAWCAD Indianapolis
NON-GOVERNMENT PARTNER(S): St Keltech Inc.
CRADA TYPE: Standard

AGREEMENT NUMBER: NCRADA-NAWCADI-94-006
AGREEMENT TITLE: SEM-E Packaging of the 270 VDC Input, 2.1 VDC at 20 Amperes Output Power Supply Module
GOVERNMENT PARTNER(S): NAWCAD Indianapolis
NON-GOVERNMENT PARTNER(S): Wilorco Inc.
CRADA TYPE: Standard

n. What has been the activity's annual royalty income from CRDAs and patent licenses for each year since 1 January 1990?

None

o. List and describe any major end item prototypes, either product or process technology, developed in-house by the activity that are currently in production and/or are currently in use by the U.S. Armed Forces or by industry. Cite a published reference that documents the work.

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
CAINS Reference System	Design and prototype of reference system for alignment of CAINS where SINS is not available and portable CAINS.	1674AS100 and 3125AS100
APQ-156 BNCB A1 Assy & SCU A2 Assy	Design and prototype of circuit boards within the APQ-156 Radar System for the A6 aircraft. This effort is a result of obsolescence problems in the APQ-156.	BNCB - 3425AS100 and SCU - 3426AS100
E-2C Refractometer AN/AHM-3	Design and prototype of microwave refractometer to provide direct indications of RF transmission.	1272AS100
AN/SQS-26CX/53A Digital Scan Converter (DSC)	Design and prototype of the 26CX/53A Sonar System digital scan converter.	5019001
AN/SQS-53 EC-16	Design & prototype of submarine detection and tracking sensor for the early Ticonderoga Class Aegis Cruisers and the Kidd Class guided missile destroyers. EC-16 replaces obsolete, electronics with state of the art digital electronics & software systems.	5019700
AN/SMQ-6	Design and prototype of the meteorological data receiver/recorder sets (6B (895AS100), 6C & 6D (896AS100)) which constitute the ground equipment used to receive and reproduce signals from weather satellites.	895AS100 896AS100

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
AN/SMQ-11	Design & prototype of the SMQ-11 to provide the Navy with secure, hi-resolution direct readout of visual & infrared satellite imagery. Missions supported include Tactical Air Ops, Anti-submarine Warfare, Minesweeping, as well as Gen. Purpose Meteorology.	1217AS100 1217AS1500-1-2
Vertical/Short Take-off and Landing Optical Landing System (V/STOL OLS)	Design and prototype of optical landing aid systems for landing amphibious assault ships to provide pilots of VSTOL aircraft the necessary optical glide slope cues to land safely under day/night, all weather conditions.	3113AS100
CV HELO	Design and prototype of dual white/infrared search lights and lighting control panel, Satcom integration, and vision compatible formation lights for HH-60H helicoper and KYY-13 control panels for SH-60.	3411AS 3385AS 3225 AS 3382AS
Beartrap CNO K-416	Design and prototype of AN/AQH-10 acoustic signal acquisition/detection system, INS-VME interface, P-3C update III CHEX Channelization recorder, and the Acoustic Signal Acquisition set (Reggie III)	3102AS1000 3102AS1180 3102AS1200 3102AS1230
LAMPS MK III	Design and prototype of mission data loader rack and cable.	Not Yet Assigned
Acoustic Intercept System	Design and prototype of the tape synchronizer which synchronizes fleet tape recorders to allow greater channel capacity on record/playback.	None Assigned
MH-53E Mission Planning System (MPS)	Design and prototype of MPS flight planning system utilizing GPS navigation & post-mission analysis for performance over minefield. System consists of field-portable, COTS computer, high-resolution monitor, color & B/W printer, & scanner.	3428AS100

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
ES-3A/EP-3E	Design and prototype upgrade to EP-3E/ES-3A common mission avionics suites.	1569AS 1085AS
EP-3E	Design and prototype of complete EP-3E mission avionics suite (1600 WRAs).	1569AS 1085AS
ES-3A	Design and prototype of complete ES-3A mission avionics suite (400 WRAs).	1569AS 1882AS
AN/PSC-2(X)//Digital Automated Communications Terminal (DACT)	Design and prototype of DACT, a follow-on product improvement program to the expanded memory digital communication terminal (EMDCT). It shall provide the user with enhanced processing, display, data entry, supportability capabilities.	PSC2X-DACT
Tactical Remote Sensor System (TRSS)	Design and prototype suite of intelligence gathering sensors, sensor monitoring and relaying electronic equipment for USMC.	87001
AN/USM-482	Design and prototype of a test set to perform RF testing on communication, radar and EW lines and waveguides on all Navy aircraft.	1324AS100
AN/USM-482A	Design and prototype of an upgraded test set with extended frequency and additional modulation and sweep control to perform retesting on communication, radar and EW lines and waveguides on all Navy aircraft.	1324AS100-2

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
ON-303(V)1/USM-482	Design and prototype of an interconnecting set to connect AN/USM-482 test set to P3/KC-130 aircraft.	1324AS300
ON-303(V)2/USM-482	Design and prototype of an interconnecting set to connect AN/USM-482 to meet TACAIR aircraft.	1324AS310
ON-303(V)3/USM-482	Design and prototype of the accessory set with disk drive and antennas for AN/USM-482A.	1324AS320
AN/USM-402A	Design and prototype of the original Navy test set to perform insertion loss and return loss testing on tramission lines in all Navy aircraft.	466AS100-2
New Aircraft Data Interface Device (NADID)	Design and prototype of a data interface between F-14 and F/A-18 data sotrage units (DSU's) and a maintenance processing computer.	
Aircraft Wiring Support Equipment (SE)	Design and prototype of an O-level aircraft wiring tool set.	3101AS100
Weapon Control Support Equipment AN/AWM-92	Design and prototype of the AN/AWM-92, a weapon release and control test set for Harm, Maverick, & Walleye on the A-6E, EA-6B, A-4M, AV-8B and F/A-18A/B/C/D.	1328AS

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
Weapon Control Support Equipment A/E24T-220	Design and prototype of the A/E24T-220. This unit is designed to check the signal interface between the F-14 and the TACTS pod prior to pod loading at O-level, shore based TACTS ranges.	3301AS
Weapon Control Support Equipment AN/ASM-149D	Design and prototype of the AN/ASM-149D - weapon control support equipment.	1017AS
Weapon Control Support Equipment AN/ASM-464B	Design and prototype of the AN/ASM-464B - weapon control support equipment.	1058AS
Weapon Control Support Equipment AN/AWM-96A	Design and prototype of the AN/AWM-96A - weapon control support equipment.	1574AS
Weapon Control Support Equipment AN/AWM-54	Design and prototype of the AN/AWM-54 - weapon control support equipment.	178AS
Weapon Control Support Equipment AN/AWM-42A	Design and prototype of the AN/AWM-42A - weapon control support equipment.	207AS
Weapon Control Support Equipment AN/AWM-38	Design and prototype of the AN/AWM-38- weapon control support equipment	67A47F1

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
Weapon Control Support Equipment MK III R/L	Design and prototype of the MK III R/L Tester - weapon control support equipment.	11554090-2
Weapon Control Support Equipment MK 432 Mod 4	Design and prototype of the MK 432 Mod 4 - weapon control support equipment.	6098911
Weapon Control Support Equipment ON-32X/U	Design and prototype of the ON-32X/U Interconnecting group for weapon control support equipment.	1836AS
Weapon Control Support Equipment A/E37T-35	Design and prototype of the A/E37T-35 CRALTS I-level SE for testing bomb racks, missile launchers, pylons, & other weapons carriage devices.	3260AS
Weapon Control Support Equipment AN/AWM-90C	Design and prototype of the AN/AWM-90C is an I-level microprocessor-controlled stimuli, load and measurement system which has been programmed to test launchers.	1271AS
Weapon Control Support Equipment AN/AWM-94	Design and prototype of the AN/AWM-94 is I-level microprocessor-controlled stimuli, load & measurement system which has been programmed to test racks and wing pylons & Sidewinder/Sparrow adapter.	1532AS
AN/AWW-13 Guided Weapon Control-Monitor Set	Design and prototype of AWW-13 Guided Weapon Control Monitor Set to provide capability to receive targeting video from&transmit command signals to prec guided weapons(eg SLAM,WALLEYE)after launch.	1342AS100

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
AN/ASQ-188A Armament Control Set	Design & prototype Armament Control Set to provide prelaunch status display, ctrl, & mode sel. for airborne torpedoes on H-2 & H-3 series aircraft. Modified the mode sel. set for MK-50 torpedo as interim capability until ship fire ctrl sys. are modified.	1461AS1000 1461AS5000
AN/AWB-3A(V) Aircraft Armament Control Monitor Set (AMAC)	Design and prototype of monitor and control set for safe/prearm status for airborne nuclear weapons on F/A-18 aircraft.	1344AS100
AN/AWB-2A(V) Aircraft Armament Control Monitor Set (AMAC)	Design and prototype monitor and control set for safe/prearm status for airborne nuclear weapons on S-3A aircraft.	185AS2000 185AS5000
Missile Test & Readiness Equip (MTRE) MK7 Tape Reader	Design and prototype of Microprocessor based test program execution device. Used aboard C3/C4 SSBN's to run weapon system readiness testing.	3089000
D5 Guidance Installation Fixture (Trident)	Design and prototype of Guidance Installation Fixture to provide installation/removal of D5 equipment section packages including IMU, EA, flight controls, and missile battery.	G53419
D5 IMU/Battery Dolly (Trident)	Design and prototype of Battery Dolly to provide support for installation/removal of D5 IMU and battery while missile is on SSBN.	G53401
Digital Scene Matching Area Correlator (DSMAC) (Tomahawk)	Design and prototype of Digital Scene Matching Area Correlator to provide precision navigation updates to Tomahawk Cruise Missile Guidance Set.	1149AS3500-2

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
Tomahawk Mission Planning Center (TMPC)-DSMAC	Mission planning function. NAWC developed the original algorithms used to prepare & predict the performance of the DSMAC ref maps.	NONE
MXU (Auxiliary Fuel Tank Rack)	The product functions as a holder and jettison release mechanism for auxiliary fuel tanks on the F-14. Product was redesigned to correct safety and maintainability deficiencies that existed in the original Grumman design.	1907AS100 2032AS100
Tactical Air Reconnaissance Pod (TARPS)	The pod functions as a reconnaissance collection platform on F-14 aircraft. The product was improved by using ROI wiring approaches during redesign efforts.	3290AS100
Phoenix Weapons Rail (MTU-100/A)	The rail was designed to function as an F-14 aircraft interface to Phoenix missile launcher. The weapons rail was improved for F-14D+ production via designs that included organized-integrated wiring approaches.	1906AS100
ADU-703A/A	Equipment designed to function as an adapter between the Phoenix Weapons Rail and a BRU-32 bomb rack on F-14 aircraft. The adapter gives the F-14 the capability to deliver air-to-ground ordnance.	3114AS500
AIM-9 Missile Loss Resolution	Design and prototype of the LAU-7 Series Launchers - a reusable rail launchers which provide a complete launching system for the AIM-9 Series Sidewinder air-to-air guided missiles. The LAU-7 provides power and coolant to the missile prior to flight.	58A164D810
LAU-115 Guided Missile Launcher, In-Service Engineering	Design and prototype of the LAU-115 Launcher Series - a reusable launcher that completes the F/A-18 rail suspension and launching system for the AIM-7 Sparrow missile.	74A730351

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
SLAM Weapon Data Link	Design and prototype of the Data Link. This unit provided 2 way command and control information between the SLAM weapon and the pilot of the launch aircraft. Design transitioned to industry for production, SLAM currently in production by McDonnal Douglas.	1868AS100
AN/PSC-2//W-1 Switch connector	Design and prototype of the W-1 switch connector, providing the Fleet user the capability to perform 6 different cable functions using one cable type and one W-1.	11888-00-01
AN/PSC-2A//Expanded Memory Digital Communications Terminal (EMDCT)	Design & prototype of terminal providing operator with a lightweight handheld message processor to conduct point-to-point & netted commun. over a variety of military radios. The operator can transmit & recv both data & graphic messages in digital bursts.	214500-110
Aircraft Wiring Support Equipment (SE)	Design and prototype of O-level aircraft wiring repair tool set.	1879AS100
Aircraft Wiring Support Equipment (SE)	Design and prototype of O-level aircraft repair tool set.	3100AS100
Aircraft Wiring Support Equipment (SE)	Design and prototype of O-level aircraft repair tool set.	1942AS100
AN/DSM-77	Design and prototype of Walleye Weapon optical test set, used at I and O level for weapon maintenance.	64A16D2000

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
ES-3A GPS/MAR	Design and prototype of GPS/MAR Integration entailed hardware and software enhancements to the ES-3A navigation suite to meet the GPS/MAR requirements mandated by SPAWAR.	1882AS100
AN/ALQ-170(V) Simulator, Countermeasures	Design and prototype of simulator to provide functional simulation of enemy anti-ship missiles.	1310AS100
Production Sonobuoy	Design of Sonobuoy launch container downloading tool.	None Assigned
LAMPS MK III	Design of MK 50/46 torpedo umbilical harness cable and E-1 engine harness cable.	1573AS200 3189AS100 3190AS100
Communication Commodity	Design of J-4707/AWW - Intermediate level WRA tester for the AN/AWW-13 advanced data link pod.	1342AS1000
Communication Commodity	Design of AN/DSM-92D - Performs ship/shore all-up testing of AN/AWW-13 advanced data link pod.	1008AS500
Communication Commodity	Design of SG-1539 - Intermediate level test set for the AN/AWW-13 advanced data link pod.	1342AS1602

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
Communication Commodity	Design of J-3425D - Intermediate level WRA test set for the AN/AWW-9B and AN/AWW-12 pods.	1036AS4000
Aircraft Wiring Support Equipment (SE)	Design of O-level aircraft repair tool sets for various aircraft.	3202AS100
AN/DSM-96-OQ-169	Design of Walleye Weapon all up round test set, used at I level for weapon maintenance.	130AS300
AN/DSM-139	Design of Walleye Weapon weapon test set, used at O level for weapon maintenance.	1098AS1000
Walleye Practice Guided Weapon (PGW)	Design of Walleye Weapon Practice Guided Weapon, Used for training weapon system operation in the fleet.	905AS100 905AS300
Missile Launcher, LAU-7	Design of the LAU-7 Series Launchers, providing a complete launching system for the AIM-9 Series Sidewinder air-to-air guided missiles. The LAU-7 provides power and coolant to the missile prior to flight.	3384400-120
AN/DKT-27C UHF Telemeter	Design and prototype of UHF Telemeter for the Standard Missile Program.	5017424

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
AN/DKT-34C UHF Telemeter	Design and prototype of UHF Telemeter for the Standard Missile Program.	5016181
AN/DKT-42B UHF Telemeter	Design and prototype of UHF Telemeter for the Standard Missile Program.	5015939
AN/SKQ-3 Telemetric Receiving & Recording Systems	Design and prototype of unit to receive and record the telemetry data from various missiles during test/training exercises.	3008180
AN/SKQ-9 Telemetric Receiving & Recording Systems	Design and prototype of unit to receive and record the telemetry data from various missiles during test/training exercises.	5016886
AN/SKQ-10 Telemetric Receiving & Recording Systems	Design and prototype of unit to receive and record the telemetry data from various missiles during test/training exercises.	5016600
MK557 Telemetric Test System	Design and prototype of unit to test the telemetry units from various missiles.	5016770
AN/SKM-11 Telemetric Test System	Design and prototype of unit to test the telemetry units from various missiles.	3006120

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
AN/ASN-139 Carrier Aircraft Inertial Navigation System (CAINS II)	Software design of the AN/ASN-139 CAINS II, the standard primary inertial navigation system used in most Navy aircraft. Provides accurate position locations, velocities and accelerations to the aircraft and aircraft systems.	Software Design only - not applicable
EP-3E	Prototype of CV4109/A 1569AS1700 radar scan converter. Converts radar synchro outputs to video for display.	1569AS1700
AN/BQS-15, EC-17	Prototype of active sonar system used for mine detection, under ice navigation, ASW targeting and intelligence gathering.	MA000001
F-18 Voice Activated Microphone System	Prototype of voice activated system to allow hands-off ICS control	3400AS110, C-12378A
NAVAIR Spares	Data package validation and retrofit engrg and manufacturing. Provide H-3 modification kits and modification 466 change kits.	Find. Doc. No. 94-PX-A85ZA & YA
AN/ALT-40(V) Airborne Jammer Simulator	Prototype simulator to provide high power standoff jamming covering EW frequency bands of A-J.	78EGN1000
P-3 Radar Upgrade CDU Program	Prototype of modular radar set based on Westinghouse's APG-66 Radar that is common to USAF's F-16 and USCS Citation Radars. This advanced variant APG-66(V) will fill current void in air-to-air target recognition and be installed in less than eight hours.	3430AS100

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
Maintenance Data Processing System Computer Resource Suite	Design and prototype of maintenance data collecting system for F-14, F-18, V-22 aircraft.	3229AS
Recorder Reproducer (RR) RD608/ASH-37	Prototype of flight data download device.	RD608
Enhanced Compreshensive Asset Management System (ECAMS) Data Station AN/UYQ-60(V)	Prototype of a ruggedized portable version of ECAMS for deployment to hostile environments. The AN/UYQ-53(V) is a rack mounted non-ruggedized version.	52001000000-009
P-3 Maverick Interface Box	Design and prototype of interface box to allow the P-3 aircraft to fire Maverick missiles.	2010100
S-3 Missile Fire Control System	Design and prototype of control system allows the S-3 or the P-3 aircraft to fire Maverick or SLAM missiles.	3399AS1000
Video Conversion System	Prototype of video conversion system to allow the P-3 or S-3 aircraft to record video from FLIR, weapon, or other sources.	NOT ASSIGNED YET
CP-1001A/AWG, CP-1001B/AWG Command Launch Computer	Prototype of computer to provide prelaunch control and target identification/prioritization for HARM missile on F/A-18 and A-6 aircraft.	704AS12334

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
SKIPPER (AGM-123)	Prototype of retrofit kit to enhance capability of GBU-16 Laser Guided Bomb. 300 kits NAWC built; 2,500 NAWC procured (1982-1990).	1393AS179 1393AS178
Trident II (D5) Muzzle Access Platform	Prototype of access to third stage nose fairing and bus for D5 onload/offload operations.	G53135 G53136 G53137
Trident II (D5) Muzzle Seal	Prototype of an airtight environmental seal for the D5 missile during onload/offload operations.	G56022
BRU-41	Prototype of the BRU-4, designed to accommodate three various stores up to 16.1 inches in diameter and 119 inches in length. The gross store weight is 1000 lbs per ejector and 14 inch lugs and sway bracing conforming to MIL-STD-8591.	1348AS100
Army Spares	Provide reverse engineering, redesign, data validation and pilot manufacture circuit card assemblies for the HAWK missile.	MIPR 91550
Army Spares	Provide pilot/emergency production, reverse engrg, redesign engrg, and data validation for power supplies SM-F-936014.	SM-F-936014
NAVAIR Spares	Provide pilot/emergency manufacture, fleet support, power supplies, circuit cards, cables, other SRA, and WRAs. Provide small quantity manufacturing, including FMS reqmts, circuit cards, cables, test sets, reverse engineering and update documentation.	Numerous, dependent upon orders received

PROGRAM	DESIGN/PROTOTYPE DESCRIPTION	PUBLISHED REFERENCE (TECHNICAL DATA PACKAGE)
Air Force Spares	Provide reverse/re-engineering for hard to obtain, obsolete parts. Provide documentation and data validation with pilot/emergency manufacturing.	Depot Maint. Interservice Spt Agreement AIRNAD 94-01 AFTG of 12 Jan 94
DLA Spares	Provide reverse/re-engineering for circuit cards, pilot manufacture, first article, and engineering support for hard to procure items. Provide reverse engineering and emeregency manufacturing for circuit card assemblies.	DLA DESC ltr DESC PRPA of 11 Jan 94 (Basic Project Order Agreement)
DLA Spares	Provide reverse engineering, data package, and emergency production for cables, LTV system.	MIPRs 91520, 91521, 91522
DLA Spares	Provide design packages for 3 interface cables. Reverse engineer and document. Provide emergency manufacture for 20 hard to buy cables.	Memorandum of Agreement between DCSC & NAWCADI of 8 Feb 93
FAA Spares	Provide reverse engineering, data packages and emergency production on hard to obtain items. Circuit cards and adapters. Typically 10-50 parts per item requested.	FAA Contract No. DTFA-02-92-A-92509

FACILITIES AND EQUIPMENT

6. **Special Facilities/Equipment Resources.** Include a copy of the form provided at Tab B of this data call for each facility and "major" piece of equipment located at this activity. Include information on separate detachments. The following definitions will apply:

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of $500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plant equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some Class 2 Installed Equipment, such as Main-frame computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other Class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

See Tab B.

7. **General Facilities.**

a. Is there any cash revenue generated by this activity? Example: Electricity generated at this activity and sold to the local community. If yes, describe.

No

b. What MILCON projects are currently programmed to be completed by the end of FY1995? For each project provide:

(1) A description of the proposed facility with title and project number. Be sure to include the trailing alpha designator for BRACs-88, 91 and 93 realignment projects, i.e., P-xxxR, P-xxxS, P-xxxT .

MILCON P-046 Sonobuoy Quality Assurance Lab will be completed this year with a new facility of 5400 sq. ft.

(2) The functional support area(s) that the new facility will support. Refer to Appendix A.

5.5 Ocean Surveillance

(3) Identify installed equipment to be provided based on the threshold guidance of paragraph 6, page 12, of this data call.

None, no mission in Facility

(4) The additional square footage that this project will provide to the functional support area(s).

5400 sq. ft.

(5) The current working estimate (CWE) & planned beneficial occupancy date (BOD) of the project.

CWE = $3M BOD = 5/94

c. What MILCON projects are currently programmed to be executed/completed after FY1995? For each project provide:

(1) A description of the proposed facility with title and project number.

(2) The functional support area(s) the new facility will support.

(3) The identified installed equipment to be provided based on the threshold guidance of paragraph 6, page 12, of this data call.

(4) The additional square footage this project will provide to the functional support area(s).

(5) CWE & planned BOD.

The MILCON projects currently programmed to be executed/completed after FY1995 are as follows:

A. 1) P-028, Chemical Processing Building

2) Functional Support Areas are 1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components and 10.9 Activity Mission and Function Support.

3) This project includes $4.5 M of plating tanks and support equipment.

4) 46,000 SF

5) $10.7 M, Dec '99

B. 1) P-035, Air Conditioning Plant Renovations

2) Not applicable.

3) Not applicable.

4) Not applicable

5) $3.3 M, Jan '99

C. 1) P-032, Sprinkler System Building 1000

2) Not applicable.

3) Not applicable.

4) Not applicable

5) $5.5 M, Jun '99

d. What is the distance (in miles) to the nearest military airfield and/or pier not located at your site? Describe. Assume all previous BRAC closures have been executed.

Grissom Air Force Base is 65 miles north of NAWC AD Indianapolis. The base is home to the 434th wing of the USAF Reserve with 20 KC135R Refuelers. Facilities include a 12,500 foot runway and 6 nose docks.

e. How many certified magazines, used for the storage of explosives, does this activity own or control? **None** What is the total explosive weight storage capacity? **Not applicable**

LOCATION

8. **Geographic Location.**

a. Is there an imperative in facility, function or synergy that requires the installation/base/facility to be in its present location? If yes, describe.

NAWC Indianapolis' functional expertise is enhanced by a number of geographically oriented attributes which include proximity to Army and Air Force avionics centers of excellence; a unique local work force environment; and integral operation with the Rapid Acquisition of Manufactured Parts (RAMP) and the Electronics Manufacturing Productivity Facilities (EMPF).

NAWC Indianapolis is located approximately midway between the centers of avionics expertise for the Army and the Air Force. The Army's aviation and avionics expertise is predominantly located at the Aviation and Troop Command, St Louis, MO. Wright Patterson Air Force Base, in Dayton OH, serves a similar function for the Air Force. This proximity supports and encourages joint opportunities through the sharing of information and generates synergism between the three Services.

Indianapolis offers the advantages of a major urban area without the attendant problems. The favorable cost of living and high quality of life provides for a stable work force and allows NAWC Indianapolis to provide lower cost products to its customers. In addition, due to the low turnover rate, it is not unusual for a core program team to stay together throughout the entire life cycle of long programs further reducing program costs.

The EMPF's basic mission is to advance the state-of-the-art in electronics and increase the domestic productivity in electronics manufacturing. It is one of only four Navy Centers of Excellence that have been established. The EMPF, through a Cooperative Research And Development Agreement (CRADA) with Purdue University, Indiana University-Purdue University at Indianapolis (IUPUI), private industry, and the Navy, provides the mechanism to identify, develop, transfer, and implement innovative electronics manufacturing technologies, processes, and practices for domestic firms. At the same time, training is provided to University students to provide them with the multidisciplinary skills necessary to improve their job opportunities. This electronic manufacturing technology initiative is geographically linked to the Indianapolis area and the Navy.

The Rapid Acquisition of Manufactured Parts (RAMP) cell is a DoD prototype facility supporting a digital-data-driven printed wiring board assembly manufacturing enterprise. RAMP has as its objective to transfer the prototype RAMP concept within the three services and ultimately industry. The RAMP facility is not amenable to movement

FEATURES AND CAPABILITIES

9. **Computational Facilities.**

a. Describe the general and special computational capabilities at this site. Include super computing, parallel computing, distributed computing and networking. Include high-speed data transfer, fiber optic links, microwave links, network interconnectivity and video teleconferencing capabilities. Do not discuss desktops and laptops except as they relate to networking.

DISTRIBUTED COMPUTING - Distributed computing at NAWC AD Indianapolis consists of mulitple computers sharing resources internally via the NAWC AD Indianapolis network and externally via the Internet and Naval Air Systems Team Wide Area Network (NAVWAN) links. This enables users to utilize computing resources at multiple locations to access project and business data. Our general and special computational facilities support the NAWC AD Indianapolis distributed computing environment.

NETWORK - NAWC AD Indianapolis initiated data and video network capabilities in the 1980's which have evolved into essential parts of its operations. The data network currently interconnects all NAWC AD Indianapolis users located at three sites through a common distribution system that facilitates communications and resource-sharing between employees, customers, sponsors and others.

Network Infrastructure - Access to the 13 main ethernet backbones is provided through 60 eight segment multiport repeaters and 13 multimedia wiring hubs capable of accommodating all major communications media. The main backbones are interconnected by 4 bridge/routers which also provide a high-speed fiber optic link to an ethernet at the Electronics Manufacturing Productivity Facility (EMPF), a fractional T1 link to a small remote office, a link to the Naval Air Systems Team Wide Area Network (NAVWAN), and connectivity for several direct projects including one to the Internet via the Defense Logistics Agency (DLA) network. The data network is a multiprotocol, multivendor network interconnecting PC's, MAC's, printers, terminals, workstations, computer integrated manufacturing (CIM) work cells, numerically controlled manufacturing equipment, file servers, minicomputers and mainframes for approximately 3000 users. It implements industry standard protocols such as TCP/IP, DECnet, XNS, IPX/SPX, OSI, Appletalk and Netbeui. Future plans for the data network include moving to an infrastructure comprised of a high-speed fiber optic backbone operating at gigabit per second speeds. This improvement will allow NAWC AD Indianapolis to take full advantage of emerging ATM and FDDI technologies. Other enhancements include a new digital telephone switch, an improved modem pool and implementation of a centralized network management and planning system.

because of its unique installation requirements. It is integrally associated with NAWC Indianapolis' development and prototyping/fabrication of avionic and electronic printed wiring assemblies and is additionally tied to NAWC Indianapolis' manufacturing data bases and material handling operations. The RAMP cell has been customized by extensive development of software linkages to specific databases and incorporation of special utilities It is therefore an unlikely candidate for relocation.

b. What is the importance of the present location relative to customers supported?

The NAWC Indianapolis customer base is spread throughout the entire globe. The continental U.S. has concentrations of NAWC customers on both the east coast and west coast. Atlantic and Pacific Fleet operational units supported by NAWC Indianapolis are located throughout the world. Being centrally located in the continental U.S. and being associated with the hub of a number of outstanding transportation systems, enables the internationally located as well as domestic customers to be easily and equally served.

Two airports serve Indianapolis, including Indianapolis International. There are 15 major airlines and commuter airline services operating out of Indianapolis. There are two major air cargo transport hubs located at Indianapolis International; Federal Express and the U.S. Postal Service. Other major air cargo services, such as United Parcel Service, also operate facilities here. Indianapolis International is the location for a U.S. Air mini-hub and a United Airlines maintenance hub for its 737 aircraft. The military QUICKTRANS aircraft has scheduled stops in Indianapolis. Four major Interstate Highway Networks converge at Indianapolis (I-65, I-69, I-70, and I-74). This convergence makes Indianapolis a major trucking locus for the nation. East-West and North-South rail lines intersect here also. NAWC Indianapolis can respond quickly to customer on-site support needs by rail, truck, or airplane. Small to extremely large shipments can be accommodated in an expeditious manner.

Shipments can be provided to the Atlantic Fleet or Pacific Fleet within near equal times and usually in less than 24 hours. The Center is within 3-5 hours of travel to NAWC activities on the west coast (such as China Lake) and the east coast (Pax River). NAWC Indianapolis' mission of engineering, development, and in-service engineering for avionics and electronic systems involves working with both platforms/aircraft systems at the Aircraft Division (AD) and weapons/weapon system integration at the Weapons Division (WD).

Local Area Network - The LAN portion of the data network consists of 15 PC based file servers running Novell's Netware network operating system which allows users to share standardized software packages (eg. Microsoft Office) and some project specific applications. NAWC AD Indianapolis is currently working to upgrade to Novell's Netware 4.0 operating system in order to benefit from its distributed, object-oriented directory services and enhanced management capabilities. These servers also support NAWC AD Indianapolis's efforts to convert from a minicomputer based e-mail system to LAN based Microsoft Mail. This migration is being facilitated by an X.400 mail system which also links the older minicomputer system to the Internet. Digital Equipment Corporation's Pathworks/Teamlinks LAN, running on 2 VAX 4000 model 300's, is also accessed by DOS and MAC clients in support of the V-22, GPS and MDPS projects. A DEC Mailbus package links NAWC AD Indianapolis's internal messaging systems to the rest of the Naval Air Systems Team providing seamless text and binary mail transfer and automatically synchronized directory services. Upgrades to the mail system will move NAWC AD Indianapolis into full X.400/X.500 compliance and participation in the Defense Messaging System (DMS).

Electronics Manufacturing Productivity Facility (EMPF) Network - The EMPF data network consists of a Novell server supporting approximately 50 PC and MAC clients and their printing needs via a twisted pair ethernet. Users access all applications via the local server and have connectivity to the Internet and other NAWC AD Indianapolis hosts via the fiber optic link.

Video Network - The video network is comprised of a high-split broadband backbone that distributes educational video and NAWC AD Indianapolis originated programming to employees. A terrestrial microwave link provides access to programming from the Indiana Higher Education Telecommunications System (IHETS). A satellite down-link provides access to additional channels from the National Technological University (NTU). The video network provides continual live and prerecorded programming and state of the art training to all NAWC AD Indianapolis employees. Future plans for the video network include expanding its coverage over the facility, instituting a video public address system and exploring very small-aperture satellite reception to provide access to strategic, commercial programming such as CNN and C-SPAN.

<u>MATERIAL MANAGEMENT</u> - The Material Information Tracking System (MITS) and the Automated Storage, Kitting, and Retrieval System (ASKARS) perform the bulk of NAWC AD Indianapolis's material management information processing. Together, they provide an integrated material management capability consisting of requisition, procurement, receiving/inspection, inventory tracking and storage, and the issuance of material from stores for delivery to the manufacturing floor. An average of 200 interactive users generate over 12,000 inventory and procurement transactions daily through MITS and ASKARS.

These systems run on two networked Tandem TXP fault-tolerant parallel multiprocessor computers, each consisting of eight central processing units (CPUs). Hardware redundancy enables the systems to tolerate most hardware failures, including disk crashes, without interruption or loss of data. The systems can also survive power failures of several hours' duration.

MITS and ASKARS exploit the parallel architecture of the Tandem computers to increase the performance of on-line transaction processing, by distributing the transaction workload across multiple processors and permitting concurrent access to multiple disk drives and communication devices. Batch reporting programs also take advantage of parallelism by dividing sort processes into multiple subsorts, achieving dramatic performance increases over single-process sorting.

The systems provide an aggregate throughput of approximately 30 million instructions per second (MIPS), with typical processor utilization ranging from 60 to 85 per cent. The systems have a total memory capacity of 176 megabytes and a total of 10 gigabytes of mirrored (fully fault-tolerant) disk storage. The MITS Tandem archives transaction history data to an optical disk drive having a current capacity of an additional 10 gigabytes, with a maximum capacity of over 60 gigabytes.

The Tandem cluster is connected to the Navy Logistics Network via a 56K baud V.35 communication interface. NAWC AD Indianapolis's Rapid Acquisition of Manufactured Parts (RAMP) facility will use this connection for the electronic data interchange of orders and specifications with other networked Navy sites, reducing manufacturing cycle times.

The Tandem cluster is being upgraded in FY-94 to a Tandem Cylcone/R 6-CPU reduced instruction set computer (RISC) system having over 16 gigabytes of mirrored disk storage. This upgrade will increase the speed and reliability of the material management systems, while reducing maintenance and operational costs by over 60%. The new system is planned to become operational by 31 July 1994.

DISTRIBUTED CORPORATE COMPUTING FACILITY (DCCF) - The DCCF provides service to over 1300 daily users, handling more than 400 concurrent interactive sessions. The DCCF consists of general purpose and specialized computing resources in support of NAWC AD Indianapolis projects, computer aided design and manufacturing; and general information system applications such as funding, cost accounting, budget development and tracking, material tracking, accounts payable, disbursing, labor tracking and general accounting data. The DCCF includes in its hardware suite a four node VAX cluster (two VAX 8820s, two VAX 6510s, and three HSC95 Hierarchical Disk Controllers), seven standalone satellite VAX computers, two Epoch1 Optical Disk Jukebox, one SI 3480 Automated Tape Librarian, and remote access to off site systems via the Internet Defense Data Network (DDN). Besides these major computing assets, the DCCF has a large array of peripherals that support these systems and an installed base of over 36 different layered

software products with more than 74 specific production systems and user applications. The VAX 8820s are capable of a sustained performance of 12 MIPS as is each of the VAX 6510 machines. Since these machines are parallel Symmetric Multi-Processors (SMP) their computational performance can be expanded by incorporating additional processors (up to 6 per machine). The HSC95 Hierarchical Disk Controllers provide user access to an 80 gigabyte disk farm.

Each of the seven VAX satellite computers is an 8550 series machine with a 6 MIPS processor and 64 Mbytes memory. The specialized use of these machines includes DDN host, application development, simulation and testing in the Integrated Avionics Laboratory for programs, computer aided design and manufacturing and analog to digital conversion.

The SI 3480 Automated Tape Librarian is a carousel based system that is capable of automatic storage and retrieval of up to 120 gigabytes of information and is upgradable to 1.2 terabytes. It allows for the automatic execution of production systems, backups, and user requests for file restoration to be completed without operator intervention.

The Epoch1 Optical Disk Jukebox system accommodates archival storage and retrieval of corporate data. The Epoch1a has a 20 gigabyte rewriteable optical disk jukebox while the Epoch1b is a 30 gigabyte optical disk system with a 30 gigabyte Write Once Read Many (WORM) drive. Both of these machines run BSD UNIX 4.3 and act as file servers to client host systems. The clients include VAXs, PC's, UNIX workstations, or any host using TCP/IP Network File Services (NFS).

The DCCF VAX computers are accessible in unclassified mode via the Defense Data Network (DDN) through a 56K baud communication interface.

Remote dial back connection is also available for users who do not have access to the Internet or have special considerations.

<u>OFFICE AUTOMATION</u> - The Office Automation (OA) cluster provides electronic mail, word processing, scheduling, spreadsheet, and data base capabilities to 2547 customers at NAWC AD Indianapolis. The cluster consists of five Data General MV10000 and three MV20000 computers, running AOS/VS and Comprehensive Electronic Office software. The systems also run X.400 software which allows communication with other systems at NAWC AD Indianapolis and at other sites.

The systems provide an aggregate throughput of 37 million instructions per second (MIPS), with typical processor utilization averaging 80%. The systems have a total memory capacity of 288 megabytes and a total of 10.7 gigabytes of mirrored (fully fault-tolerant) disk storage. Mirror disks enable the systems to survive disk crashes with no loss of data or interruption of service.

The OA systems can be easily upgraded to more powerful AOS/VS-based machines to increase memory, processing, and storage capacity. The entire cluster can also be upgraded to Data General UNIX-based machines running the same Data General Comprehensive Electronic Office software.

VIDEO TELECONFERENCING (VTC) FACILITY - NAWC AD Indianapolis operates a fully equipped Video Teleconferencing Facility which is used extensively to promote communication across the DOD and contractors without incurring the expense and inconvenience of travel. A second VTC is scheduled to be operational within the year.

INTEGRATED AVIONICS LAB (IAL) COMPUTATIONAL FACILITIES - The Integrated Avionics Lab provides real-time computer simulation, dynamic signal stimulation and associated test equipment for approximately 30 projects performing avionic systems development. The computers perform real-time flight dynamics calculations, avionics sub-system simulations and electrical signal generation and near real-time graphics displays. This can involve several computers working on one simulation simultaneously with graphics output going to several locations within the building. The computers also perform high-level system state charting and analysis, gate-level hardware simulations, microprocessor debugging and software development. The computers involved (not including the flyable embedded computers, deployable support equipment, or personal-use computers) include five VAX 4000, two VAX 3800, two Vax 8550, one VAX 8600, five VAX Workstations, one VAX 11/785, five MicroVax II, two Silicon Graphics Workstations, three 68030-based VME systems, two Applied Dynamics RTS, six Sun Workstations, two Hewlett-Packard 9000, and other workstations. The total disk storage is approximately 40 gigabytes. All standard media types (for software loading and backups) are available including 4mm DAT, 8mm tape, Compac tape, 9-track tape, CD, and CD-ROM. Two high-speed band printers, 4 laserjet, 1 Versatek, and 1 Kodak color printer are available for output.

Most of these systems are connected to the NAWC AD Indianapolis network via an ethernet connection for file sharing, printing and backups. Some of the real-time computer resources (including VAX's, RTS, and Silicon Graphics computers) are connected with a high-speed fiber-optic reflective memory called Scram-Net. Several computers are connected with MIL-STD-1553 network interfaces which is routed throughout the lab and is easily re-configurable via patch panels. A fiber-optic interface for FDDI and high-speed databus access is also routed throughout the lab and can be configured as a star or ring network. Each Applied Dynamics RTS is a parallel computer with six 68040 microprocessors controlling 800 signals in real-time while connected to a Vax 4000.

INTEGRATION TEST FACILITY - The Integration Test Facility contains 2 VAX 11/780's (1 MIP), a VAX 4000/200 (5 MIPs), and a PDP 11/60. The VAX computers are networked together and currently support 65 users. The total disk space is about 4 gigabytes. These computers are used to support the full-scale mock-ups of the Mission Avionics Suite (MAS) for each of the EP-3E and ES-3A platforms. They are used primarily along with the computer in the VQ SSA Facility to support the Software Support Activity (SSA) functions for both platforms. Other programs utilize these computational capabilities; they include Sensor System Improvement Program (SSIP), Classic Aerie (CA), Ground Support System (GSS), GSS Migration System, VQ trainer, Viper, Portable Ground Processing Unit (PGPU), and Whipporwill.

VQ SSA FACILITY - The VQ SSA Facility contains a VAX 6420 whose performance rating is 13 MIPs with 12 gigabytes of disk space and which supports 90 users about 60 hrs a week, a VAX 8350 whose performance rating is 3 MIPs with 1.5 gigabytes of disk space and which supports 30 users, and a MicroVAX 3800 with a performance rating of 3.5 MIPs. In addition, when the facility receives its security clearance, a MicroVAX II will be moved from the SSO's SCIF into the facility. All the VAXs are networked together with no current connections to other facilities. All the terminals are star-coupled connected to this VAX network. The VAX 6420 can be expanded to a VAX 6660 with a 156 MIPs rating. This facility contains the software development stations for both the EP-3E and ES-3A, which include the core data processing mission avionics (i.e., the AN/AYK-14s, MEUs, AN/USH-26s, IP-1515 and IP-1616 displays) as well as other mission equipment which is especially software intensive. Besides the EP-3E and the ES-3A SSAs, these computing facilities support the Sensor System Improvement Program(SSIP), Classic Aerie (CA), Ground Support System (GSS), GSS Migration System, VQ trainer, Viper, Portable Ground Processing Unit (PGPU), ASuW Improvement Program (AIP), and Whipporwill.

DIGITAL SCENE MATCHING AREA CORRELATOR (DSMAC) COMPUTATIONAL FACILITIES - The DSMAC Conventional Strike Support Center (DCSSC) contains a VAX 8550 (4 VUPs), MicroVAX, SGI 4D-35 Workstation (33 MIPs), Sun Workstation, HP 9000 computer, and 5 PC workstations. All computers are networked together and network software allows for a fair amount of shared disk space between machines. This system supports 20 users who use the facilities 100% of the 40 hour work week. There is a total of 173 megabytes of memory used in the computing resources. There is 11.1 gigabytes of on line disk storage. There is an additional 60 gigabytes of near-line archive storage and 30 gigabytes of long-term archive storage being used in the lab. The network used to connect all the machines is a 10 megabit/sec thin wire ethernet supporting the DECNet, NFS, and TCP/IP network protocols. Special Peripherals include two RCI Trapix Image Processing Workstations, Eikonix Line Scanning Digitizer, Vexcel Color Frame Scanning Digitizer, a Video Printing Network, consisting of: photographic quality sublimation printer, high-speed thermal video printer, Postscript graphics interface, and network interface controllers to all workstations and a STU III secure phone system. The DCSSC

is a secure facility, and therefore has limited and controlled access to the outside world. However, the lab provides secure voice and data communications. The facility supports Tomahawk/DSMAC mission planning development and upgrades, DSMAC flight software development, Advanced Optical Sensor research, the Tomahawk Baseline Improvement Program, Tomahawk Block III IV&V efforts, SKYNET efforts, TACAIR Pod development, the Walleye weapon system, and EMPF quality control efforts.

COMPUTER AIDED DESIGN/COMPUTER AIDED ENGINEERING (CAD/CAE) - The CAD/CAE Design Support Center operates the major computing resources for Electrical and Mechanical design and analysis. The center provides support to all NAWC AD Indianapolis users. The CAE/CAD center provides the tools necessary for electrical and mechanical engineers and technicians. The CAD/CAE center includes in its hardware suite: forty-five 80286 and 80386 AT based Electrical Engineering Workstations, six SUN Sparcstation , fifteen Apollo DN4500 Workstations, two VAX 11/785 VAXclusters, thirteen VAXII computers, nine VAX3000 computers, forty-seven BRAVO Workstations, one VMS Vaxstation 4000, two Silicon Graphics workstations, and three Hybrid Engineer workstations. Seventy additional 80386 and 80486 PC's are used primarily for PC based engineering design applications. All the workstations are connected to the NAWC AD Indianapolis network via ethernet. In addition to the hardware suite mentioned, the CAD/CAE design center has a large collection of peripherals that support the workstations such as plotters and printers. These are very high quality, high resolution plotters for plotting engineering data. These plotters are shared by PC, workstation, and mainframe based software tools and applications. Other Peripherals include CD-ROM drives, 150M tape drives, and 8mm tape drives.

The CAD/CAE group supports approximately 400 users center wide. The following is a brief list of projects supported by CAD/CAE design support center: JTIDS Interface Box, EP3E Technical Support, Maverick, AMRAAM, Tomahawk Data Link, Key Manager, UAV/IFF Development, CLONE, BQS-15, AWW-13 POD, AWW-14 POD, TRSS, VSTOL, EC-16, ALQ-170 and RRT.

RAPID ACQUISITION OF MANUFACTURED PARTS (RAMP) - The Rapid Acquisition of Manufactured Parts (RAMP) Printed Wiring Assembly (PWA) manufacturing system is a fully digital data driven manufacturing operation. All aspects of the operation, such as the Site Interface, Manufacturing Engineering, Production and Inventory Control, Manufacturing Cell Controller, Shop Floor, Information Management System, RAMP Order Manager, and Command Status Services, create, manage or use digital data. RAMP computational facilities are linked via ethernet and are connected to the NAWC AD Indianpolis network.

Manufacturing Engineering utilizes four Sun SPARC II workstations running the UNIX operating system with various Computer Vision Computer Aided Design packages installed. They each have 32 megabytes of memory installed and share 8 gigabytes of disk space. These systems support manufacturing engineers and are used to format digital data,

create control data, operator instructions and for test engineering. A Symbolics 3620 Lisp Processor is used as an expert system for the automated creation of Macro Routings, requisitions and input for micro process planning.

The Site Interface, Production and Inventory Control, Manufacturing Cell Controller and Information Management System applications reside on three MicroVax 3400's. These systems run under the VMS operating system and have 96 megabytes of memory installed and 12 gigabytes of disk space.

Twelve shop floor workstations are used to interface with the operator and the shop floor equipment. They are 486 based PC's running the QNX operating system with 12 Megabytes of Memory and 120 Megabyte disk drives. They are networked together using ethernet running ARCNET.

The front end engineering system being used to provide data for the RAMP Manufacturing System is called the RAMP Product data Translation System (RPTS). This system utilizes four Intergraph Computer Aided Engineering systems. These systems run the UNIX operating system and have the C400 RISC processor. There are three 6000 Series workstations and one 6000 series server. The server has 96 Megabytes of memory and the workstations have 56 Megabytes of memory each. The systems share 8.5 gigabytes of disk space. These systems are used by engineers to convert paper data packages into a digital format in the CALS standards formats.

ELECTRONIC WARFARE (EW) COMPUTING SYSTEM - The EW Computing System is used to conduct classified research and development work in various EW and other related areas. It is also used to develop and maintain the various geographic libraries of radar parameters (Emitter Identification Libraries) used in the AN/ALR-76 radar warning receiver on the S-3B, ES-3A, and the EP-3E. The EW Computing System contains a VAX 11/780-5 computer with a performance rating of 1.5 MIPs, a UNISYS Advanced Personal Workstation, and a Zenith PC. The system supports 9 terminals. The system transmits data between NAWC AD Indianapolis and the Electronic Warfare Operational Programming Center (EWOPFAC), Chesapeake, VA via the PCs and a STU-III secure phone.

MECHANICAL RAPID PROTOTYPING PROCESS - The Stereolithography Apparatus (SLA) utilizes a UV laser, PC controller, VAXstation 3100 and graphic workstation to selectively solidify a liquid photopolymer. The SLA enables the creation of accurate plastic prototypes directly from computer solid models. The Digital VAXstation 3100 with 24 Megabytes of memory and 1 gigabyte of disk is used to run ProEngineer for solid modeling. The Silicon Graphic Indigo workstation running at 150 MHz with 2 gigabyte hard disk space is used to run the SLA based QuickCast software and the SLA workstation software which are used for preparing parts for building. The SLA is connected to the NAWC AD

Indianapolis network and utilized the DCCF and EPOCH1 for data storage. The Internet and NAVWAN links are also utilized for transfer of data to other sites. Programs supported by the SLA include: TRSS, Cluster Ranger, Skynet, and BQN-13A. NAWC AD Indianapolis has performed SLA prototyping for other DoD sites.

MAINTENANCE DATA PROCESSING SYSTEM COMPUTING FACILITIES - The system is made up a series of PCs running the UNIX operating system. The system uses a combination of the NAWC AD Indianapolis network and modem connections to provide access to software developers (at NAWC AD Indianapolis, contractors in Indianapolis, In. and Arlington, Va.), configuration management personnel, software quality assurance personnel, IV&V personnel in Warminster, Pa. and management. Two 60 megahertz Intel 80486 based computers with 32 megabytes of RAM (which can be expanded to 64 megabytes) and 4.1 gigabytes total of disk space, form the core of the system with a third being added with additional 1.7 gigabytes. The core systems connect to high speed parallel and MIL-STD-1553 devices. At the maximum use of the system, there were 48 users at four different sites. Presently there are 41 users; each user has either a DOS or UNIX computer to connect to the network. The system is used to develop software, maintain configuration management of the software, and provide electronic data exchange. The software developed is POSIX compliant using the MOTIF window manager. The system supports the MDPS development , MDP commodity, V-22 MDPS, and F-18 E/F MDPS. Additional projects are being added which include foreign applications.

MICROWAVE/RF - The computers in this lab consists of a Sun SparcStation that is running Hewlett-Packard's Microwave Design System (MDS) microwave design and analysis software. The MDS helps in the design of microwave devices by allowing the users to do simulations of the circuit before committing to hardware and thus reducing the cycle time. There are 12 users on this system. The system has 32 MB of memory, 200 megabytes of disk space, and has a 40 MHz SPARC processor. The system is connected to the NAWC AD Indianapolis network via ethernet and utilizes resources throughout the Center as well as other resources available on then Internet. This system has been used for various microwave projects including SMQ-11, Tomahawk Missile and other programs.

FIELD PROGRAMMABLE GATE ARRAY (FPGA) DESIGN SYSTEM - The FPGA design system consists of a Sun SparcClassic LX workstation running Xilinx FPGA design software. FPGAs can replace many digital components with a single IC and thus reduce the size and weight of our products. There are 5 users on the system. The system has 48 MB of memory, 424 MB of disk space, and a 60 MHz SPARC processor. The system is connected to the NAWC AD Indianapolis network and utilizes resources throughout the Center as well as other resources available on the Internet. This system has been used for the DSMAC II, AWW-13 and other programs.

N-CUBED PARALLEL PROCESSOR - The SHARP program is benchmarking two Microlithics Parallel processor modules each of which contains 8 N-cubed, 64-bit Processors, scaleable to 1024 processors. It is a hypercube, Multi-Instruction Multi-Data (MIMD) architecture. It operates at 120 Million Instructions Per Second (MIPS) or 33 Million Floating Point Operations Per Second (Mega FLOPS). It features 128 M D-RAM. This parallel processor will be used for software development.

HP APOLLO COMPUTING RESOURCES - The HP Apollo networked computer resources includ an avionic databus simulation system and the Radio Frequency (RF) Systems Analysis Computer System. The system is connected to the NAWC AD Indianapolis network via ethernet. The HP Apollo resources are used to perform research, design, analysis and evaluation of production, developmental and advanced conceptual avionic databuses, as well as radars and other Electronic Warfare (EW) systems.

The HP Apollo networked computer resources consists of two (2) Model 755 computers which operate at 124 MIPs, 40 MFLOPS, with 128 MB memory and 2.6 GB primary storage, one Model 433s which operates at 29 MIPs, one Model 425 and one DN5500 which both operate at 22 MIPs, a DN3550 and a DN3000, and a Hydra Quad TI TMS320C40 VME Base Digital Signal Process. This is compliant with the following standards: C2-Secure, POSIX, X11R5, OSF/MOTIF, COSE/CDE, and NCS/NIDL.

PHOTOTOOL GENERATION SYSTEM (PGS) - The PGS system is used to transform digital engineering data into artwork used in the manufacturing of printed wiring boards. The PGS utilizes a DEC MicroVax II with a 400 megabyte disk drive running at 1 MIPS. Data manipulation is acheived utilizing 2 Sun Spark design stations. The system is connected to the NAWC AD Indianapolis network backbone via an ethernet connection, allowing data to be transferred internally between engineering designers and the PGS system's 6 users. External data transfer is accomplished by utilizing Internet and Naval Air Systems Team Wide Area Network links.

COMPUTER AIDED MANUFACTURING (CAM) - The CAM system is comprised of twenty one (21) high end 486 based Pcs, 3 engineering workstations and a Computervision mainframe Computer Aided Design system using CGOS operating system running Computervision CADDS 4x and Personal Designer software. The CAM system supports Numerical Controlled programming, production test equipment development, tool and fixturing design, and facility design functions, supporting over 40 users. The system is connected to the NAWC AD Indianapolis network via ethernet connections using TCP/IP protocol. External data transfer is accomplished via Internet and Naval Air Systems Team Wide Area Network (NAVWAN) links. The CAM system utilizes the DCCF as a file server for data storage, allowing the digital data to be shared by both engineering and manufacturing personnel. Long term data storage is accomplishing by utilizing the Epoch archiving and storage system.

INTEGRATED PRODUCT AND PROCESS DEVELOPMENT SUPPORT CENTER (IPPD SC) - The IPPD SC is currently under development. When the system comes on line in December 1994, it will be used as a testing, demonstration and training facility. Special emphasis will be placed on modeling, simulation, and virtual manufacturing. Significant process improvements are expected in areas of design, manufacturing, acquisition, cost estimating, producibility and maintainability by allowing the simulation of systems before any hardware is built. The IPPD SC is also an integral part of partnering ventures between NAWC AD Indianapolis, other government agencies and private industry and acedemia. The IPPD SC will use 10 RISC based engineering workstations to run mechanical and electrical design and simulation software. A multiprocessing computer will also be utilized for running real time shop floor simulation. All equipment will be connected to the NAWC AD Indianapolis network and also to the Internet and Naval Air Systems Team Wide Area Network (NAVWAN) links for internal and external networking capability. The IPPD SC will also utilize multimedia display technology to allow for a wide range of demonstration and training capabilities. By operating as a lab and training facility, the IPPD SC will support 15 full time users and litterally hundreds of part-time users.

10. **Mobilization Responsibility and Capability.**

a. Describe any mobilization responsibility officially assigned to this site. Cite the document assigning the responsibility.

In the event of a major regional conflict, NAWCAD Indianapolis, based on the requirements of DODI 4005.3M, Draft DODI 4005.1, DODI 5000.2, and SECNAVINST 1001.35 would be called upon to execute the following assignments:

- Emergency manufacture of critical electronic systems and electro-mechanical systems

- Acquisition or production of critical obsolescent and/or unavailable parts.

- Assist in the expansion of the industrial base.

- Provide critical equipment for which there is no commercial source.

- Provide emergency manufacture of modification kits to remedy systems shortcomings or to counter emergent threats.

(1) What functional support areas(s) does this responsibility support? Refer to Appendix A for the list of functional support areas?

Functional areas supported during mobilization include: (1) Weapon Systems, (2) Combat Systems Integration, (3) Special Operations Support, (4) Sensors and Surveillance, (5) C4I, and (6) General Mission Support.

(2) What portion of the work years and dollars, as reported in each applicable functional support area reported in Tab A, are spent solely on maintaining your activity's readiness to execute the mobilization responsibilities?

Normal workload provides this activity with the tasking and funds needed to retain required skill levels and proficiencies and maintain equipment capability to support mobilization capability. There are no dedicated or unique costs or activities associated with the retention of mobilization capability. This applies equally to all applicable functional support areas.

(3) How many additional personnel (military & civilian) would be assigned to your activity as part of the mobilization responsibility? Include separately any contractor assets that would be added.

Six additional Navy officers and nine senior non-commissioned officers will be assigned in the event of mobilization. Additional civilians (including recent retirees) would be added to the workforce as required.

b. Does your activity have adequate facilities to support your mobilization responsibilities? (yes/no)

Yes. NAWCAD Indianapolis is equipped and facilitized to support mobilization responsibilities. Recent completion and start-up of the Rapid Acquisition of Manufactured Parts (RAMP) facility has enhanced our capability.

(1) If yes, is any space assigned for the sole purpose of maintaining mobilization readiness? (yes/no) If yes, list the square footage assigned.

No. NAWCAD Indianapolis has recently completed a comprehensive effort to streamline our machining, fabrication and assembly operations. No separate floor space is dedicated for maintaining mobilization readiness.

(2) If no, what repairs, renovations and/or additions are required to provide adequate facilities? What is the estimated cost of this work?

No repair, renovation or additions are required. Our facilities are adequate for current and anticipated mobilization requirements.

(3) Are there any restrictions that would prevent work (noted in paragraph 10b(2) above) from taking place (i.e., AICUZ, environmental constraints, HERO, etc.)? If yes, describe.

No.

c. Describe any production facilities that would be activated in case of a future contingency.

In the event of a future contingency only current production facilities would be used. Additional shifts or overtime will be used to increase output.

d. Is your activity used as a Reserve Unit mobilization and/or training site?

Yes. A reserve unit drills at NAWCAD Indianapolis monthly and will be activated here if mobilized.

11. **Range Resources.** Include a copy of the form provided at Tab C of this data call for each range located at this activity or operated by this activity. Also, report ranges at detachments and sites not receiving a separate data call. The following definition of a range will apply:

Range - An instrumented or non-instrumented area that utilizes air, land, and/or water space to support test and evaluation, measurements, training and data collection functions, but is not enclosed within a building.

Not Applicable

QUALITY OF LIFE

12. **Military Housing**

(a) Family Housing:

(1) Do you have mandatory assignment to on-base housing? (circle) (yes) no

(2) For military family housing in your locale provide the following information:

Type of Quarters	Number of Bedrooms	Total number of units	Number Adequate	Number Substandard	Number Inadequate
Officer	4+	3	3		
Officer	3	2	2		
Officer	1 or 2	0	0		
Enlisted	4+	0	0		
Enlisted	3	0	0		
Enlisted	1 or 2	0	0		
Mobile Homes		0	0		
Mobile Home lots		0	0		

(3) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

Facility type/code:
What makes it inadequate?
What use is being made of the facility?
What is the cost to upgrade the facility to substandard?
What other use could be made of the facility and at what cost?
Current improvement plans and programmed funding:
Has this facility condition resulted in C3 or C4 designation on your BASEREP?

(4) Complete the following table for the military housing waiting list.

Pay Grade	Number of Bedrooms	Number on List[1]	Average Wait
O-6/7/8/9	1		
	2		
	3		
	4+		
O-4/5	1		
	2		
	3		
	4+		
O-1/2/3/CWO	1		
	2		
	3		
	4+		
E7-E9	1		
	2		
	3		
	4+		
E1-E6	1		
	2		
	3		
	4+		

There is no one waiting for housing

[1] As of 31 March 1994.

(5) What do you consider to be the top five factors driving the demand for base housing? Does it vary by grade category? If so provide details.

	Top Five Factors Driving the Demand for Base Housing
1	Convenience of housing on base.
2	Quality of quarters/well maintained.
3	Military community support/camaraderie.
4	Economic Value.
5	Location is close to shopping, recreation, etc.

These factors do not vary by grade category.

(6) What percent of your family housing units have all the amenities required by "The Facility Planning & Design Guide" (Military Handbook 1190 & Military Handbook 1035-Family Housing)?

100%

(7) Provide the utilization rate for family housing for FY 1993.

Type of Quarters	Utilization Rate
Adequate	99.72%
Substandard	
Inadequate	

(8) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 98% (or vacancy over 2%), is there a reason?

No.

(b) BEQ:

(1) Provide the utilization rate for BEQs for FY 1993.

Type of Quarters	Utilization Rate
Adequate	
Substandard	
Inadequate	

Not Applicable. There are no BEQ facilities on base. Nearby Fort Benjamin Harrison has BEQ facilities

(2) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 95% (or vacancy over 5%), is there a reason?

Not Applicable.

(3) Calculate the Average on Board (AOB) for geographic bachelors as follows:

$$\text{AOB} = \frac{\text{(\# Geographic Bachelors x average number of days in barracks)}}{365}$$

AOB =0

(4) Indicate in the following chart the percentage of geographic bachelors (GB) by category of reasons for family separation. Provide comments as necessary.

Reason for Separation from Family	Number of GB	Percent of GB	Comments
Family Commitments (children in school, financial, etc.)	0		
Spouse Employment (non-military)	0		
Other	0		
TOTAL	**0**		

(5) How many geographic bachelors do not live on base?

Not applicable.

(c) BOQ:

(1) Provide the utilization rate for BOQs for FY 1993.

Type of Quarters	Utilization Rate
Adequate	
Substandard	
Inadequate	

Not Applicable. There are no BOQ facilities on base. Nearby Fort Benjamin Harrison has BOQ facilities.

(2) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 95% (or vacancy over 5%), is there a reason?

Not Applicable

(3) Calculate the Average on Board (AOB) for geographic bachelors as follows:

$$\text{AOB} = \frac{\text{(\# Geographic Bachelors x average number of days in barracks)}}{365}$$

AOB = 0

(4) Indicate in the following chart the percentage of geographic bachelors (GB) by category of reasons for family separation. Provide comments as necessary.

Reason for Separation from Family	Number of GB	Percent of GB	Comments
Family Commitments (children in school, financial, etc.)	0		
Spouse Employment (non-military)	0		
Other	0		
TOTAL	**0**		

(5) How many geographic bachelors do not live on base?

Not applicable.

(d) BOQ/BEQ Housing and Messing.

Not Applicable. There are no BOQ/BEQ housing and messing facilities on base. Nearby Fort Benjamin Harrison has BOQ/BEQ facilities.

(1) Provide data on the BOQs and BEQs assigned to your current plant account. The desired unit of measure for this capacity is people housed. Use CCN to differentiate between pay grades, i.e., E1-E4, E5-E6, E7-E9, CWO-O2, O3 and above.

Not Applicable

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft

(2) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

(3) Provide data on the BOQs and BEQs projected to be assigned to your plant account in FY 1997. The desired unit of measure for this capacity is people housed. Use CCN to differentiate between pay grades, i.e., E1-E4, E5-E6, E7-E9, CWO-O2, O3 and above.

Not Applicable

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft

(4) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

(5) Provide data on the messing facilities assigned to your current plant account.

Not Applicable

Facility Type, CC and Bldg. #	Total Sq. Ft.	Adequate		Substandard		Inadequate		Avg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	

(6) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

(7) Provide data on the messing facilities projected to be assigned to your plant account in FY 1997.

Not Applicable

Facility Type, CC and Bldg. #	Total Sq. Ft.	Adequate		Substandard		Inadequate		Avg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	

(8) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

13. **MWR Facilities**. For on-base MWR facilities[1] available, complete the following table for each separate location. For off-base government owned or leased recreation facilities indicate distance from base. If there are any facilities not listed, include them at the bottom of the table.

LOCATION **NAWC AD Indianapolis** **DISTANCE** **On-Site**

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Auto Hobby	Indoor Bays	0	N/A
	Outdoor Bays	0	N/A
Arts/Crafts	SF	0	N/A
Wood Hobby	SF	0	N/A
Bowling	Lanes	0	N/A
Enlisted Club	SF	0	N/A
Officer's Club	SF	0	N/A
Library	SF	165	N/A
Library	Books	360	N/A
Theater	Seats	0	N/A
ITT	SF	70	N/A
Museum/Memorial	SF	0	N/A
Pool (indoor)	Lanes	0	N/A
Pool (outdoor)	Lanes	0	N/A
Beach	LF	0	N/A

[1] Spaces designed for a particular use. A single building might contain several facilities, each of which should be listed separately.

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Swimming Ponds	Each	0	N/A
Tennis CT	Each	1	N/A
Volleyball CT (outdoor)	Each	6	N/A
Basketball CT (outdoor)	Each	1	N/A
Racquetball CT	Each	0	N/A
Golf Course	Holes	0	N/A
Driving Range	Tee Boxes	0	N/A
Gymnasium	SF	0	N/A
Fitness Center	SF	0	N/A
Marina	Berths	0	N/A
Stables	Stalls	0	N/A
Softball Fld	Each	3	N/A
Football Fld	Each	0	N/A
Soccer Fld	Each	0	N/A
Youth Center	SF	0	N/A

LOCATION **Ft. Harrison** **DISTANCE** **7 Miles**

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Auto Hobby	Indoor Bays	13	N/A
	Outdoor Bays	0	N/A
Arts/Crafts	SF	12,288	N
Wood Hobby	SF	5,228	N
Bowling	Lanes	24	Y
Enlisted Club	SF	20,527	Y
Officer's Club	SF	22,667	N
Library	SF	25,511	N/A
Library	Books	90,000	N/A
Theater	Seats	470	Y
ITT	SF	500	Y
Museum/Memorial	SF	6200	N/A
Pool (indoor)	Lanes	8	N/A
Pool (outdoor)	Lanes	1	N/A
Beach	LF	0	N/A
Swimming Ponds	Each	0	N/A
Tennis CT	Each	9	N/A
Volleyball CT (outdoor)	Each	4	N/A

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Basketball CT (outdoor)	Each	6	N/A
Racquetball CT	Each	5	N/A
Golf Course	Holes	18	Y
Driving Range	Tee Boxes	6	Y
Gymnasium	SF	16,549	N/A
Fitness Center	SF	26,636	N/A
Marina	Berths	0	N/A
Stables	Stalls	20	Y
Softball Fld	Each	7	N/A
Football Fld	Each	2	N/A
Soccer Fld	Each	5	N/A
Youth Center	SF	5818	N

(a) Is your library part of a regional interlibrary loan program?

Yes.

14. **Base Family Support Facilities and Programs.**

a. Complete the following table on the availability of child care in a child care center on your base. **This command does not meet the requirements for an on-site Child Care Center due to the small number of military personnel assigned.**

Age Category	Capacity (Children)	SF			Number on Wait List	Average Wait (Days)
		Adequate	Substandard	Inadequate		
0-6 Mos						
6-12 Mos						
12-24 Mos						
24-36 Mos						
3-5 Yrs						

b. In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means." For all the categories above where inadequate facilities are identified provide the following information:

Not Applicable

Facility type/code:
What makes it inadequate?
What use is being made of the facility?
What is the cost to upgrade the facility to substandard?
What other use could be made of the facility and at what cost?
Current improvement plans and programmed funding:
Has this facility condition resulted in C3 or C4 designation on your BASEREP?

c. If you have a waiting list, describe what programs or facilities other than those sponsored by your command are available to accommodate those on the list.

There are over 800 child care spaces provided by site Licensed Child Care Centers (LCCCs) within the NAWCADI 46219 zip code. Within Marion county, which includes the entire Indianapolis metropolitan area, there are 12,000 Child Care spaces provided by 100 LCCCs.

d. How many "certified home care providers" are registered at your base? **None**

e. Are there other military child care facilities within 30 minutes of the base? State owner and capacity (i.e., 60 children, 0-5 yrs).
Yes.

A Child Development Center is located approximately 20 minutes driving time from this command at Fort Benjamin Harrison. Their capacity is 13 children, 0 - 6 months; 8 children, 6-12 months; 165 children , 12 months - 5 yrs.

f. Complete the following table for services available on your base. If you have any services not listed, include them at the bottom.

Service	Unit of Measure	Qty
Exchange	SF	0
Gas Station	SF	0
Auto Repair	SF	0
Auto Parts Store	SF	0
Commissary	SF	0
Mini-Mart	SF	0
Package Store	SF	0
Fast Food Restaurants	Each	0
Bank/Credit Union	Each	1
Family Service Center	SF	0
Laundromat	SF	0
Dry Cleaners	Each	0
ARC	PN	0
Chapel	PN	0
FSC Classrm/Auditorium	PN	0

15. **Proximity of Closest Major Metropolitan Areas** (provide at least three):

City	Distance (Miles)
Indianapolis, IN	0 - Within City Limits
Chicago, IL	181
Cincinnati, OH	100
Louisville, KY	110

16. **Standard Rate VHA Data for Cost of Living:**

Paygrade	With Dependents	Without Dependents
E1	66.18	37.03
E2	66.18	41.62
E3	51.05	37.62
E4	58.96	41.15
E5	72.63	50.71
E6	76.27	51.92
E7	88.21	61.27
E8	107.09	80.96
E9	131.52	99.84
W1	142.38	108.13
W2	101.45	79.57
W3	77.41	62.93
W4	63.57	56.36
O1E	84.22	62.47
O2E	88.45	70.52
O3E	79.79	67.50
O1	64.13	47.26
O2	75.77	59.22
O3	132.26	111.36
O4	61.28	53.29
O5	113.29	93.69
O6	83.89	69.44
O7	11.25	9.14

17. **Off-base Housing Rental and Purchase**

(a) Fill in the following table for average rental costs in the area for the period 1 April 1993 through 31 March 1994.

Type Rental	Average Monthly Rent		Average Monthly Utilities Cost
	Annual High	Annual Low	
Efficiency	595	*	101
Apartment (1-2 Bedroom)	402 - 503	*	131
Apartment (3+ Bedroom)	635	*	145
Single Family Home (3 Bedroom)	375	*	158
Single Family Home (4+ Bedroom)	575	*	170
Town House (2 Bedroom)	425	*	138
Town House (3+ Bedroom)	625	*	140
Condominium (2 Bedroom)	425	*	138
Condominium (3+ Bedroom)	625	*	140

*** Numbers in Annual High column represent the year round average rental costs. Seasonal rates do not apply in Indianapolis.**

(b) What was the rental occupancy rate in the community as of 31 March 1994?

Type Rental	Percent Occupancy Rate
Efficiency	90.0
Apartment (1-2 Bedroom)	91.0
Apartment (3+ Bedroom)	94.0
Single Family Home (3 Bedroom)	97.3
Single Family Home (4+ Bedroom)	97.3
Town House (2 Bedroom)	98.0
Town House (3+ Bedroom)	94.0
Condominium (2 Bedroom)	94.0
Condominium (3+ Bedroom)	94.0

(c) What are the median costs for homes in the area?

Type of Home	Median Cost
Single Family Home (3 Bedroom)	86,644
Single Family Home (4+ Bedroom)	154,212
Town House (2 Bedroom)	69,423
Town House (3+ Bedroom)	71,710
Condominium (2 Bedroom)	79,796
Condominium (3+ Bedroom)	118,604

(d) For calendar year 1993, from the local MLS listings provide the number of 2, 3, and 4 bedroom homes available for purchase. Use only homes for which monthly payments would be within 90 to 110 percent of the E5 BAQ and VHA for your area.

Month	Number of Bedrooms		
	2	3	4+
January	1016	3956	2716
February	1041	3670	2712
March	1122	3840	2822
April	1193	3901	2768
May	1264	3724	2719
June	1325	3890	2721
July	1220	3668	2590
August	1139	3692	2587
September	1052	3392	2435
October	921	3027	2237
November	772	2581	1949
December	639	2056	1702

(e) Describe the principle housing cost drivers in your local area.

Housing costs in Indianapolis are among the lowest of all major metropolitan areas due to significant land availability and low land prices. Land is easy to develop due to reasonable local government regulations and there are no major physical barriers to development. In addition, the metropolitan area offers an ample selection of all varieties of housing for lease or purchase.. A 1993 ranking of 70 U.S. metropolitan markets placed Indianapolis 17th lowest in terms of single family home costs and rental rates as a percent of disposable median household income.

18. **For the top five sea intensive ratings in the principle warfare community your base supports, provide the following:**

Rating	Number Sea Billets in the Local Area	Number of Shore billets in the Local Area
AT	0	8
AE	0	1
CTI	0	2

19. **Complete the following table for the average one-way commute for the five largest concentrations of military and civilian personnel living off-base.**

Location	% Employees	Distance (mi)	Time(min)
Northeast Marion Co.	40.8	5	7
Inner Hancock/Hamilton Co.	16.5	15	20
Southeast Marion Co.	11.3	7	10
West Marion Co.	9.8	15	20
Inner Shelby/Johnson Co.	7.9	20	30

20. **Complete the tables below to indicate the civilian educational opportunities available to service members stationed at the installation (to include any outlying sites) and their dependents:**

(a) List the local educational institutions which offer programs available to dependent children. Indicate the school type (e.g. DODDS, private, public, parochial, etc.), grade level (e.g. pre-school, primary, secondary, etc.), what students with special needs the institution is equipped to handle, cost of enrollment, and for high schools only, the average SAT score of the class that graduated in 1993, and the number of students in that class who enrolled in college in the fall of 1994.

Institution	Type	Grade Level(s)	Special Education Available	Annual Enrollment Cost per Student	1993 Avg SAT/ACT Score	% HS Grad to Higher Educ	Source o Info
Little Flower	Parochial	Pre-school & KG-8	No	$1,800 - $1,970	N/A	N/A	School Admin.
Holy Spirit	Parochial	Primary (KG-8)	No	$2,132- $2,730	N/A	N/A	School Admin.
St. Simon School	Parochial	Primary (KG-8)	Yes	$2,200- $3,000	N/A	N/A	School Admin.
Scecina High School	Parochial	Secondary (9-12)	Yes	$2,300- $4.200	Verbal-433 Math-469	75%	School Admin.
Cathedral High School	Parochial	Secondary (9-12)	Yes	$4,500	Verbal-451 Math-491	98%	School Admin.
Brebuef Preparatory	Parochial & Inter-denomina tional	Secondary (9-12)	Yes	$5,700	Not Available	99%	School Admin.
Indianapolis Public Schools*	Public	Primary & Secondary	Yes	None	Various	Various	Indpls. Public Schools
Other Private Schools*	Private	Primary & Secondary	Yes	Various	Various	Various	Indpls. Econ. Dev. Corp.

*** Indianapolis Public School (IPS) operate under a select Schools Plan where students and parents have a choice in what Public schools students will attend. NAWC Indianapolis is located in Region 3 of the IPS District. Elementary and Middle school students who live in base housing may select from schools located in region 3 and receive transportation. If a**

Region 1 or 2 school is selected at the Elementary or Middle school level; transportation must be provided by parents. High School students may select from any of the 7 IPS High Schools and receive transportation throughout the district. Region 3 encompasses 22 Elementary schools and 5 Middle schools. SAT scores for the 7 IPS high schools range from a low of 345 verbal and 365 math, to a high of 431 verbal and 471 math.

**** The Indianapolis Metropolitan Area has over 60 accredited private schools for children in grades kindergarten through 12. These schools are a combination of parochial schools and specialized schools such as the Indiana School for the Blind, and the Indiana School for the Deaf.**

(b) List the educational institutions within 30 miles which offer programs off-base available to service members and their adult dependents. Indicate the extent of their programs by placing a "Yes" or "No" in all boxes as applies.

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
Indiana University-Purdue University Indpls	Day	No	Yes	No	Yes	Yes
	Night	No	Yes	No	Yes	Yes
Butler University	Day	No	No	No	Yes	Yes
	Night	No	No	No	Yes	Yes
Marian College	Day	No	No	No	Yes	No
	Night	No	No	No	Yes	No
University of Indianapolis	Day	No	No	No	Yes	Yes
	Night	No	No	No	Yes	Yes
Martin University	Day	No			Yes	No
	Night	No	No	No	Yes	No
Indiana Vocational Technical College	Day	Yes	Yes		Yes	No
	Night	Yes	Yes	No	Yes	No
Indianapolis Business College	Day	Yes			Yes	

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
	Night	Yes	No	No	Yes	No
ITT Technical Institute	Day	Yes	Yes	No	Yes	No
	Night	Yes	Yes	No	Yes	No
Vincennes University (at Ft. Harrison)	Day	Yes	No	No	Yes	No
	Night	Yes	No	No	Yes	No
Walker Career Center	Day	Yes	Yes	Yes	No	No
	Night	Yes	Yes	Yes	No	No
Central Nine Vocational School	Day	Yes	Yes	Yes	No	No
	Night	Yes	Yes	Yes	No	No
Indianapolis Career Vocational Ctr./Tech H.S.	Day	Yes	Yes	Yes	No	No
	Night	Yes	Yes	Yes	No	No
Lincoln Technical Institute	Day	Yes	Yes	No	Yes	No
	Night	Yes	Yes	No	Yes	No
J. Everett Light Career Ctr.	Day	Yes	Yes	Yes	No	No
	Night	Yes	Yes	Yes	No	No

(c) List the educational institutions which offer programs on-base available to service members and their adult dependents. Indicate the extent of their programs by placing a "Yes" or "No" in all boxes as applies.

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
Purdue	Day	No	No	X *	X *	X *
University	Night	No	No	No	No	No
	Corres-pondence	No	No	No	No	No
Indiana	Day	No	No	No	No	No
University	Night	No	No	No	No	No
	Corres-pondence	Yes	No	Yes	No	Yes
IUPUI	Day	No	No	Yes	Yes	Yes
	Night	No	No	Yes	No	No
	Corres-pondence	No	No	No	No	No
Ball	Day	No	No	Yes	No	Yes
State	Night	No	No	Yes	No	No
	Day	No	No	Yes	Yes	
NTU **	Day	No	No	No	No	Yes
	Night	No	No	No	No	No
	Corres-pondence	No	No	No	No	No
Parks	Day	No	No	No	No	No
College	Night	No	No	Yes	No	No
	Corres-pondence	No	No	No	No	No
Ivy	Day	No	Yes	No	No	No
Tech	Night	No	Yes	No	No	No
	Corres-pondence	No	No	No	No	No

* = Satellite Courses - (on-site)
** = Examples of Universities that "originate" courses for our employees include:

Arizona State University
University of Florida
University of Maryland
University of Minnesota
University of Idaho
University of Michigan
University of South Carolina
University of Arizona
University of Alabama
Georgia Institute of Technology (Georgia Tech)

21. **Spousal Employment Opportunities.**

Provide the following data on spousal employment opportunities.

Skill Level	Number of Military Spouses Serviced by Family Service Center Spouse Employment Assistance*			Local Community Unemployment Rate
	1991	1992	1993	
Professional	0	0	0	0.7%
Manufacturing	0	0	0	1.8%
Clerical	0	0	0	0.9%
Service	0	0	0	0.5%
Other	0	0	0	0.6%

***This command does not offer this service**

22. **Medical/Dental.**

a. Do your active duty personnel have any difficulty with access to medical or dental care, in either the military or civilian health care system? Develop the why of your response.

No. This command has an on site sickbay accessible to both active duty and their dependents manned by family practice/occupational medicine physician and a staff that includes two registered nurses, an X-ray technician and two medical technicians. Equipment includes an audiometer and booth, X-ray machine and film processor, electrocardiogram, ECG treadmill stress-testing machine, a spirometer, and a vision tester. Additionally, the Hawley US Army Health Clinic located at Fort Benjamin Harrison provides military sick call, a Family Practice Clinic, a Family Practice(CHAMPUS) a Pediatrics and Well-Baby Clinic, Acute Care Services, an Immunization Clinic, Community Mental Health, an Optometry Clinic, and Physical Exams. Additionally, Wright Patterson Air Force Base, Ohio, (120 miles away) has the 645th Medical Group that provides complete outpatient and inpatient medical facilities. At Fort Knox,

Kentucky, (165 miles away) is the Ireland Army Hospital which also provides complete outpatient and inpatient medical facilities.

b. Do your military dependents have any difficulty with access to medical or dental care, in either the military or civilian health care system? Develop the why of your response.

No. Although our command does not have on site facilities to provide dental care for active duty or their dependents, there are dental facilities located at Fort Benjamin Harrison, Wright Patterson Air Force Base, Ohio, and Fort Knox, Kentucky. Additionally, the dependents have the option to utilize the DELTA Dental Plan.

23. **Crime Rate**. Complete the table below to indicate the crime rate for your air station for the last three fiscal years. The source for case category definitions to be used in responding to this question are found in NCIS - Manual dated 23 February 1989, at Appendix A, entitled "Case Category Definitions." Note: the crimes reported in this table should include 1) all reported criminal activity which occurred on base regardless of whether the subject or the victim of that activity was assigned to or worked at the base; and 2) all reported criminal activity off base.

On-Base Criminal Activity

Crime Definitions	FY 1991	FY 1992	FY 1993
1. Arson (6A)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
2. Blackmarket (6C)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
3. Counterfeiting (6G)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
4. Postal (6L)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
5. Customs (6M)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
6. Burglary (6N)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
7. Larceny - Ordnance (6R)			
Base Personnel - military	0	0	0

Crime Definitions	FY 1991	FY 1992	FY 1993
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
8. Larceny - Government (6S)			
Base Personnel - military	0	0	0
Base Personnel - civilian	18	34	21
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
9. Larceny - Personal (6T)			
Base Personnel - military	0	0	0
Base Personnel - civilian	22	33	9
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
10. Wrongful Destruction (6U)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	1	1	0
11. Larceny - Vehicle (6V)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
12. Bomb Threat (7B)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
13. Extortion (7E)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
14. Assault (7G)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
15. Death (7H)			
Base Personnel - military	0	0	0

Crime Definitions	FY 1991	FY 1992	FY 1993
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
16. Kidnapping (7K)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
18. Narcotics (7N)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	3	7
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
19. Perjury (7P)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
20. Robbery (7R)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
21. Traffic Accident (7T)			
Base Personnel - military	0	0	0
Base Personnel - civilian	10	13	11
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
22. Sex Abuse - Child (8B)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
23. Indecent Assault (8D)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
24. Rape (8F)			
Base Personnel - military	0	0	0

Crime Definitions	FY 1991	FY 1992	FY 1993
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
25. Sodomy (8G)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0

Crime Rate - Marion County, Indiana *

Crime Definitions	FY 1991	FY 1992	FY 1993 **
1. Arson	336	379	-
2. Blackmarket	-	-	-
3. Counterfeiting	4	4	-
4. Postal (no code)	-	-	-
5. Customs (no code)	-	-	-
6. Burglary	13,333	12,759	-
10. Wrongful Destruction	4,544	4,118	-
11. Larceny - All	33,984	34,687	-
12. Bomb Threat	-	-	-
13. Extortion (no code)	-	-	-
14. Assault	6,317	6,515	-
15. Death	313	446	-
16. Kidnapping	14	7	-
18. Narcotics	557	668	-
19. Perjury	0	0	-
20. Robbery	2,357	2,636	-
21. Traffic Accident	133,904	150,061	-
22. Sex Abuse - Child	1,107	1,254	-
23. Indecent Assault (no code)	-	-	-
24. Rape	707	707	-
25. Sodomy	50	20	-

* Data represents best available numbers from the Indianapolis Police Department and the Marion County Sheriff's office. Data does not refer to NAWC Indianapolis employees, only the population of Marion County. Indianapolis has the 48th lowest crime rate of the 50 largest cities in America.

** FY-93 numbers not yet available.

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REQUESTS FOR CLARIFICATION
From the Base Structure Analysis Team (BSAT)

Control #: 001 Date sent: 8
September 1994

To: CAPT Doug Cook Activity: NAVAIR
Fax: (703) 604-1859 Voice: (703) 604-1857

CLARIFICATION/CORRECTION REQUESTED for Data Call #5. Question #23
To clarify ambiguities in responses to the above question, please provide the CRIME RATES for your surrounding community or county/township/parrish/city in these three categories: Violent Crime Rate
Property Crime Rate
Drug Crime Rate

Disregard previous format in question #23.
Specify the rate per 100,000 population.
Crime rates are expected to be obtainable from appropriate law enforcement offices.
Data is needed for the activities listed on page 2.

LT Christina May
(703) 681-0481

NOTE: This information is needed urgently. Request you respond with clarification comments (below) or corrected page(s) within 24 hours after receipt at the activity. FAX a preliminary response directly to the BSAT at (703)756-2174. Then , send your official response, properly certified, through your chain of command for certification and further forwarding to the BSAT. Official documentation must be retained to support your response and be available for validation by the Naval Audit Service.

Reply: For Indianapolis' Metropolitan area: Violent Crime Rate = 703.3 per 100,000. Property Crime Rate = 5,284.3 per 100,000. Source is FBI uniform crime data for 1992 (most recent data issued). Drug Crime Rate is not an FBI category. Indianapolis 1993 Police data showed a total of 361.6 arrests for narcotics per 100,000. No other drug data is available.

Michael Sargent	032	(317) 353-7032	9/12/94
Name	Code	Commercial Phone #	Date

TAB A

TECHNICAL OPERATIONS

FUNCTIONAL SUPPORT AREA - LIFE CYCLE WORK AREA FORM

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 1. PLATFORMS
1.2 AIRCRAFT

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	8.7	$888	$450	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	2.4	$171	$0	$0	
8. Acceptance Testing					
9. Modernization					
10. Program Support	1.4	$128	$0	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering	0.7	$136	$0	$0	
15. Program Support	1.9	$828	$55	$0	
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 1. PLATFORMS
1.5 GROUND VEHICLES

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	4.1	$361	$20	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization					
10. Program Support					
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 2. WPN SYSTEMS
2.1 GUN SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	2.4	$112	$0	$200	
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization	2.9	$93	$0	$0	
10. Program Support					
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 2. WPN SYSTEMS
2.2 GUIDED MISSILES

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	7.4	$911	$0	$0	
5. RDT&E Management Support					
6. Operational Systems Development	3.0	$317	$45	$0	
ACQUISITION					
7. Production	6.9	$656	$116	$0	
8. Acceptance Testing					
9. Modernization	83.8	$6,750	$255	$0	
10. Program Support	4.7	$820	$192	$0	
LIFE TIME SUPPORT					
11. Maintenance	7.0	$824	$0	$0	
12. Repair					
13. Testing					
14. In-Service Engineering	1.0	$85	$0	$0	
15. Program Support	50.0	$5,341	$84	$0	
16. Retirement					
GENERAL					
17. Training/Operational Support	0.4	$41	$9	$0	
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 2. WPN SYSTEMS
2.4 TORPEDOES

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	0.1	$18	$0	$0	
8. Acceptance Testing					
9. Modernization					
10. Program Support	0.9	$96	$0	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 2. WPN SYSTEMS
2.8 LAUNCHERS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development	0.7	$58	$0	$0	
ACQUISITION					
7. Production					
8. Acceptance Testing	0.9	$55	$0	$1,499	
9. Modernization	60.3	$5,872	$153	$358	
10. Program Support	45.4	$5,200	$1,268	$7,909	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering	14.7	$1,441	$0	$0	
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 2. WPN SYSTEMS
2.9 FIRE CONTROL

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	0.7	$44	$0	$0	
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization	25.0	$2,025	$0	$0	
10. Program Support	4.6	$297	$0	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering	0.9	$55	$0	$0	
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 2. WPN SYSTEMS
2.10 WEAPONS DATA LINK

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	157.8	$21,153	$458	$0	
8. Acceptance Testing					
9. Modernization	33.4	$3,399	$0	$0	
10. Program Support	1.6	$184	$0	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support	11.6	$971	$6	$0	
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 3. COMBAT SYS INTEGRATION
3.2 AIR

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	26.8	$3,284	$883	$0	
4. Eng. & Mfg. Development	64.1	$6,116	$2,832	$0	
5. RDT&E Management Support					
6. Operational Systems Development	3.1	$313	$0	$0	
ACQUISITION					
7. Production	22.6	$1,977	$93	$0	
8. Acceptance Testing					
9. Modernization	4.1	$229	$0	$0	
10. Program Support	82.7	$7,785	$227	$3,441	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support	12.1	$2,272	$0	$180	
16. Retirement					
GENERAL					
17. Training/Operational Support	.3	$75	$0	$70	
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 4. SPECIAL OPER. SUPPORT
4.2 COASTAL/SPECIAL WARFARE SUPPORT

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	10.7	$1,241	$29	$0	
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	138.6	$17,762	$1,117	$63	
8. Acceptance Testing					
9. Modernization					
10. Program Support	42.1	$4,056	$0	$4,165	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 5. SENSORS & SURVEILLANCE SYS., 5.1 SONAR SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	3.1	$431	$0	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization	104.5	$14,380	$6,268	$3,145	
10. Program Support					
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 5. SENSORS & SURVEILLANCE SYS., 5.2 RADAR SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	12.3	$38	$20	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	1.4	$171	$0	$333	
8. Acceptance Testing					
9. Modernization	2.7	$157	$0	$0	
10. Program Support	8.9	$1,318	$206	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering	4.0	$257	$0	$0	
15. Program Support	2.7	$338	$0	$0	
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 5. SENSORS & SURVEILLANCE SYS.
5.3 SPECIAL SENSORS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	41.6	$3,899	$317	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	5.4	$502	$1,002	$195	
8. Acceptance Testing					
9. Modernization	107.2	$10,001	$5,531	$195	
10. Program Support	15.9	$1,410	$0	$0	
LIFE TIME SUPPORT					
11. Maintenance	1.3	$95	$42	$0	
12. Repair					
13. Testing					
14. In-Service Engineering	2.3	$201	$0	$0	
15. Program Support	33.8	$3,611	$309	$223	
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 5. SENSORS & SURVEILLANCE SYS.
5.5 OCEAN SURVEILLANCE

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	13.0	$1,372	$0	$0	
4. Eng. & Mfg. Development	6.0	$687	$230	$742	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization	7.3	$1,420	$235	$8,200	
10. Program Support	28.0	$2,877	$2,320	$59,808	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering	.1	$18	$0	$0	
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 6. NAVIGATION
6.1 SUBMARINE NAVIGATION SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization					
10. Program Support	2.6	$326	$65	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 6. NAVIGATION
6.2 AIRCRAFT NAVIGATION SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	51.1	$5,011	$514	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	10.7	$1,128	$16	$60,760	
8. Acceptance Testing					
9. Modernization	9.1	$1,354	$0	$0	
10. Program Support	24.0	$2,300	$101	$1,833	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 7. COMMAND, CONTROL, COMMUN. & INTELLIGENCE
7.2 AIRBORNE

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	2.1	$1,257	$0	$0	
4. Eng. & Mfg. Development	30.3	$3,006	$93	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	63.5	$6,183	$2,213	$70,886	
8. Acceptance Testing	5.6	$466	$0	$0	
9. Modernization	3.4	$218	$0	$0	
10. Program Support	47.8	$4,655	$49	$8,879	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

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TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 7. COMMAND, CONTROL, COMMUN. & INTELLIGENCE
7.3 SHIPBOARD

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	2.4	$282	$0	$0	
4. Eng. & Mfg. Development	0.1	$41	$0	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	118.1	$12,057	$0	$0	
8. Acceptance Testing					
9. Modernization	6.4	$604	$0	$0	
10. Program Support	9.9	$1,087	$0	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair	0.9	$84	$0	$0	
13. Testing					
14. In-Service Engineering	10.3	$1,024	$0	$0	
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support	9.4	$837	$0	$0	
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 7. COMMAND, CONTROL, COMMUN. & INTELLIGENCE
7.4 LAND BASED

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization					
10. Program Support	26.2	$2,178	$1	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 7. COMMAND, CONTROL, COMMUN. & INTELLIGENCE
7.7 AIR TRAFFIC CONTROL SYS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	12.0	$1,298	$2	$0	
4. Eng. & Mfg. Development	0.4	$50	$3	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization	4.3	$398	$7	$0	
10. Program Support					
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 8. DEFENSE SYS.
8.3 ELECTRONIC WARFARE SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	5.1	$477	$1	$0	
4. Eng. & Mfg. Development	22.0	$2,357	$46	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	5.7	$613	$3	$0	
8. Acceptance Testing					
9. Modernization	45.5	$4,511	$688	$0	
10. Program Support	14.6	$1,669	$208	$0	
LIFE TIME SUPPORT					
11. Maintenance	0.7	$66	$502	$0	
12. Repair	0.4	$47	$0	$0	
13. Testing					
14. In-Service Engineering	15.3	$1,532	$63	$0	
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support	13.7	$1,268	$127	$0	
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 9. STRATEGIC PROGRAMS
9.1 NAVY STRATEGIC SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	1.9	$171	$0	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization	27.7	$2,404	$5	$0	
10. Program Support	8.4	$1,083	$22	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering	3.0	$260	$0	$0	
15. Program Support	16.4	$1,856	$0	$0	
16. Retirement	6.4	$360			
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 10. GENERAL MISSION SUPPORT
10.1.2 AIRCRAFT-RELATED TRAINING SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	1.3	$130	$0	$0	
8. Acceptance Testing					
9. Modernization	12.9	$1,657	$735	$71	
10. Program Support	2.4	$268	$0	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support	0.3	$30	$0	$0	
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 10. GENERAL MISSION SUPPORT
10.1.4 WEAPONS-RELATED TRAINING SYSTEMS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization	1.7	$200	$0	$0	
10. Program Support					
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support	4.9	$386	$13	$0	
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 10. GENERAL MISSION SUPPORT
10.2 LOGISTICS PLANNING & IMPLEMENTATION

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	2.0	$55	$0	$0	
4. Eng. & Mfg. Development	18.1	$1,239	$12	$6,701	
5. RDT&E Management Support	1.6	$113	$0	$2,690	
6. Operational Systems Development					
ACQUISITION					
7. Production	77.0	$7,334	$0	$0	
8. Acceptance Testing					
9. Modernization	35.6	$3,286	$2,495	$0	
10. Program Support	62.3	$4,999	$1,568	$770	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair	45.0	$19,975	$919	$0	
13. Testing					
14. In-Service Engineering					
15. Program Support	27.0	$2,861	$911	$0	
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis	3.1	$288	$25	$0	

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 10. GENERAL MISSION SUPPORT
10.3 FACILITIES ENGINEERING

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	9.1	$960	$40	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	3.9	$133	$0	$0	
8. Acceptance Testing					
9. Modernization	0.7	$74	$27	$0	
10. Program Support					
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 10. GENERAL MISSION SUPPORT
10.6.2 AIRCRAFT

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	2.3	$87	$0	$0	
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	34.1	$3,309	$40	$0	
8. Acceptance Testing					
9. Modernization					
10. Program Support	2.6	$230	$13	$0	
LIFE TIME SUPPORT					
11. Maintenance	0.6	$127	$25	$0	
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 10. GENERAL MISSION SUPPORT
10.8 OTHER SUBSIDIARY

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development	0.1	$15	$0	$0	
5. RDT&E Management Support	1.1	$121	$0	$0	
6. Operational Systems Development					
ACQUISITION					
7. Production	8.6	$824	$96	$10	
8. Acceptance Testing					
9. Modernization	1.4	$247	$0	$1,632	
10. Program Support	12.3	$1,610	$2	$0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering	0.1	$149	$0	$0	
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD INDIANAPOLIS (UIC N00163)

FUNCTIONAL SUPPORT AREA: 10. GENERAL MISSION SUPPORT
10.9 ACTIVITY MISSION & FUNCTION SUPPORT

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development	0.7	$78	$0	$0	
4. Eng. & Mfg. Development	6.4	$1,037	$82	$0	
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production	97.2	$13,603	$1,349	$0	
8. Acceptance Testing					
9. Modernization	46.0	$4,457	$52	$1,190	
10. Program Support	96.2	$8,254	$437	$5,698	
LIFE TIME SUPPORT					
11. Maintenance	0.9	$133	$0	$0	
12. Repair					
13. Testing					
14. In-Service Engineering	4.9	$688	$0	$1,156	
15. Program Support	10.0	$931	$120	$44	
16. Retirement					
GENERAL					
17. Training/Operational Support	0.3	$93	$0	$0	
18. Simulation, Modeling & Analysis	3.7	$383	$94	$0	

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: DAHLGREN DET. (UIC 48576)

FUNCTIONAL SUPPORT AREA: 5. SENSORS & SURVEILLANCE SYSTEMS
5.3 SPECIAL SENSORS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization					
10. Program Support	1.0	0	0	0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: NAWC AD NAG (UIC 47796)

FUNCTIONAL SUPPORT AREA: 5. SENSORS & SURVEILLANCE SYSTEMS
5.3 SPECIAL SENSORS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization					
10. Program Support	2.0	0	0	0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: ALAMEDA (UIC 48865)

FUNCTIONAL SUPPORT AREA: 5. SENSORS & SURVEILLANCE SYSTEMS
5.3 SPECIAL SENSORS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization					
10. Program Support	4.0	0	0	0	
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TECHNICAL FUNCTION
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

TECHNICAL CENTER SITE: WRIGHT PATTERSON AFB (STATION NO. 595600)

FUNCTIONAL SUPPORT AREA: 5. SENSORS & SURVEILLANCE SYSTEMS
5.3 SPECIAL SENSORS

LIFE CYCLE WORK AREA	IN-HOUSE WYs	IN-HOUSE EXPEND ($K)	OUT-OF-HOUSE EXPEND ($K)	DIRECT CITE ($K)	COMMENTS
RDT&E					
1. Basic Research					
2. Exploratory Development					
3. Advanced Development					
4. Eng. & Mfg. Development					
5. RDT&E Management Support					
6. Operational Systems Development					
ACQUISITION					
7. Production					
8. Acceptance Testing					
9. Modernization	1.0	$119,580	0	0	
10. Program Support					
LIFE TIME SUPPORT					
11. Maintenance					
12. Repair					
13. Testing					
14. In-Service Engineering					
15. Program Support					
16. Retirement					
GENERAL					
17. Training/Operational Support					
18. Simulation, Modeling & Analysis					

(NAWC Form)

TAB B

SPECIAL FACILITIES AND EQUIPMENT

FACILITIES/EQUIPMENT CAPABILITY FORM

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Advanced Electronics Facility

1. State the primary purpose(s) of the facility/equipment.

The Advanced Electronics Facility is a microelectronics facility that provides a broad spectrum of microelectronics design, development and evaluation capabilities which supports avionics and electronic system projects from concept to final production implementation. The application of microelectronics design results in: obsolescence problem solutions; board area, layer and power reductions; decreases in life cycle costs; and reliability, maintainability and producibility improvements. Automated assembly techniques are utilized to package production quality microelectronic circuits suitable for Fleet operational use.

The Advanced Electronics Facility provides the capability of designing, fabricating, and testing: thick film hybrid microcircuits, thin film microcircuits, Surface Acoustic Wave (SAW) devices and Microwave Integrated Circuit (MIC) stripline devices. This facility also provides the capability of designing, packaging, and testing Application Specifics Integrated Circuits (ASIC) and Monolithic Microwave Integrated Circuits (MMIC).

Other major capabilities of this facility include: Laser Control Pattern Generator; Sputter, Ion Mill, Electron Beam Thin Film Deposition with the capacity to fabricate resistor and capacitor networks; thick film print and fire capability to fabricate conductors, resistors, and multi-layer circuit panels; automated laser trim and scribe; manual and automated aluminum and gold wire bonding; manual and automatic component pick and place; hermetic sealing with final and gross leak testing; and automatic digital and analog testing.

The Advanced Electronics Facility provides Large Scale Integration (LSI). Capabilities include: testing silicon wafers; separating and placing chips in a dual-in-line package (DIP); wire bonding; and hermetically sealing. Some of the products supported include: Walleye, AWW-13, SMQ-11, ARBS, HARM, NASA, DKT-25, Tomahawk, Trident, ALR-67, AIC-14, MK-47, MK-48, ARC-182, P-3 Harps, GPS.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$8.7 M

4. Provide the gross weight and cube of the facility/equipment.

67,000 lbs., 180 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include liquid nitrogen storage and distribution, hydrogen gas, de-ionized water, compressed air, distributed vacuum, 208 Volt three phase power, and water and drains.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include static dissipative raised flooring, a hazardous/flammable gas monitoring and alarm system, humidity controlled within 40 to 60% RH, temperature controlled to 70 +/- 4 degrees Fahrenheit, air filtration sufficient to maintain class 10,000 cleanliness requirements and class 100 conditions in some parts of the facility, ventilation/exhaust for the ovens and workstation hoods, a separate exhaust system for handling cyanide gas, a separate room including all required safety features for operation of a class 4 laser, air showers, a special foundation for the laser system and pattern generation system, and an oxygen deficiency monitoring and alarm system. The facility must also be physically secure due to the use of precious metals and hazardous materials.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental control requirements include temperature, humidity, and air cleanliness.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Advanced Electronics Facility would be very costly to move and replicate due to the extensive equipment and the over $8M replacement cost. The 12,000 sq. ft. clean room is critical for the development of advanced electronics and will become more important for future advanced electronic technologies of smaller, finer pitch circuitry. Since there is no other DON site with the production capabilities of this size, Navy customers would no longer have a government site to depend upon for advanced electronic development, emergency fabrication, or design verification whenever support through normal acquisition processes or commercial industrial sources is not otherwise available.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed inside the main building complex in 1978.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 5.1 Sonar Systems, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**40**	**40**	**40**	**40**	**40**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are between 10 to 50 craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Advanced Electronics Facility

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	ALQ-170 Lab

1. State the primary purpose(s) of the facility/equipment.

The ALQ-170 Lab is used for ALQ-170 Countermeasure-Simulator set system testing and WRA integration. Hardware and software modifications are evaluated through the specially designed no-lead window angled outward to deflect radiation and elevated for a clear field of view with no physical obstructions.

The ALQ-170 equipment under test is a large pod mounted radar system over 17 feet long and 30 inches wide. The system with cart weighs over 2500 pounds. The capacity of the floor must accommodate this weight.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable; however, the interconnecting cabling is somewhat extensive and relocation would be more labor intensive than for "normal" class 3 equipment.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$ 0.9 M

4. Provide the gross weight and cube of the facility/equipment.

2,400 lbs., 47 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include conditioned power, 400 hertz power, and compressed air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include floor load bearing capacity able to support a 2500 pound pod mounted on a cart, elevation to a minimum of 35 feet above ground level, a freight elevator capable of holding a 17 foot long pod, a 4 foot by 12 foot window specially designed to pass RF radiation (the glass must contain no lead) and angled outward to deflect radiation, a clear field of view through the window for target tracking, and physical security adequate for handling secret level material.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Temperature and humidity controls are required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This lab does have some unique requirements that will make it difficult to find another location as mentioned in item 6. Because of the nature of the ALQ-170 Countermeasure-Simulator set project work, this lab needs to be at the same location as the Electronic Warfare Lab. The impact to the Department of the Navy if this lab were lost would be that the depot support for the ALQ-170 would be seriously impaired to the point that the Navy ships would eventually lose their ability to go through anti-ship missile countermeasure training, which is a CINCPAC and CINCALT requirement/directive for ships.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed in 1980.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

8.3 Electronic Warfare (EW) Systems

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**60**	**56**	**52**	**48**	**44**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**44**	**44**	**44**	**44**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 8 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Audio Lab

1. State the primary purpose(s) of the facility/equipment.

The Audio Lab provides test and evaluation of audio communication components. This lab is used for qualification, first article, production lot and component verification/evaluation testing. The lab has the capability of low and very high level noise testing. Some of the items that can be tested in the Audio Lab include: earphones, microphones, cable assemblies, handsets, Active Noise Reduction (ANR) units and microphone preamplifiers.

The Audio Lab consists of a doubled walled sound chamber and an audio room control center. The sound chamber is a dual purpose semi-reverberant chamber and a sound absorbent chamber. The sound chamber will also allow the reproduction of the noise existing in and around the rotary wing and fixed wing aircraft.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The acoustic isolation chamber itself is a fixed asset. The equipment used in conjunction with the chamber is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$ 0.1 M

4. Provide the gross weight and cube of the facility/equipment.

1,600 lbs., 6 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No special utilities are required.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include a double walled chamber with the inner wall isolated from the outer wall, a floating floor on rubber vibration isolators, silencers built into the supply and return air ducts, inner chamber construction of sound absorbent materials, and the environmental controls mentioned below.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Temperature controlled to 63 degrees +/- 5 degrees Fahrenheit and humidity controlled to 50% +/- 20% RH.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Audio Lab is part of a totally integrated capability for the development and prototyping/manufacturing of audio communication components. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for audio communication components to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The lab was constructed inside the main building complex in 1993.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

3.2 Air.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**N/A**	**N/A**	**N/A**	**40**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

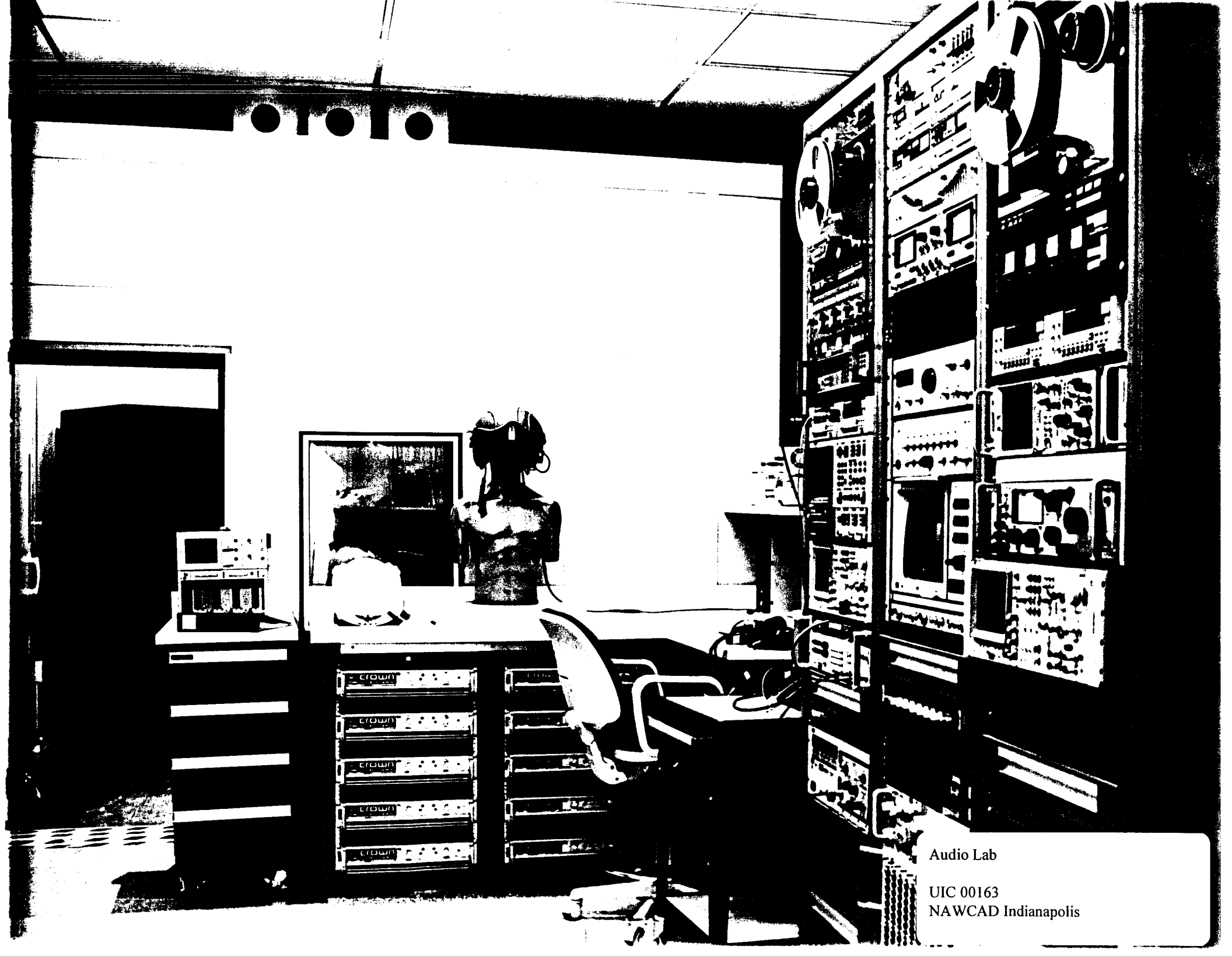
There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 2 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Audio Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Avionics/Electronics Development Lab

1. State the primary purpose(s) of the facility/equipment.

The Avionics/Electronics Development Lab is used during the design, development, and prototyping phases of electronic equipment. The lab includes an electronic model shop that provides prototyping support such as breadboarding, modifications, fabrication, troubleshooting and repairs.

This lab is comprised of a variety of specifically designated areas and supports many programs including: the Acoustic Intercept System (AIS) lab; the AWW-13 integrated support area; the DSM-96 area; the Beartrap lab and the Optics lab which supports the following programs: Advanced Avionics Subsystems & Technology (AAS&T); Standard hardware Acquisition & Reliability Program (SHARP); Advanced Optical Sonobouy; Advanced Gun Weapons Systems Technology Program (AGWSTP); Compass Attitude Heading Reference System (AHRS) Fiber Optic Gyroscope; Optical Backplane Interconnect System (OBIS); and Night Vision.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$20.7 M

4. Provide the gross weight and cube of the facility/equipment.

180,000 lbs., 636 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 110 and 208 volt, single and three phase, 60 and 400 hertz power, conditioned power, isolated circuits, and compressed air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include elevator access to a roof area with a platform suitable for mounting various types of antennas, conduit from the lab to the platform for power, signal and control cabling, lead free windows that open to an unobstructed field of view for RF, microwave and infrared testing, physical security, secure storage, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 10% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Avionics/Electronics Development Lab could be moved with much difficulty for programs such as the AWW-13 and AN/SQS-53A (EC-16) sonar system. Both of these programs have simultaneous hardware/software development along with prototyping and manufacturing. The software development engineering environments are located elsewhere in the plant and the updated software is brought into the lab for testing. In the case of the AWW-13 development depends heavily on the Central Computing Facilities and the networking (ethernet) capabilities of the plant. The impact to the DON if this lab was lost would be that either the products could not be developed or if they are already developed and operational could not be supported by the engineering community. The lab is part of a totally integrated capability for the development and prototyping/ manufacturing of avionic and electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed in 1983.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 1.5 Ground Vehicles, 2.2 Guided Missiles, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft related training Systems, 10.2 Logistics Planning and Implementation, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**82**	**82**	**82**	**82**	**82**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**82**	**82**	**82**	**82**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are two dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 400 scientific and technical personnel using these facilities.

14. What is the approximate number of personnel needed to maintain the equipment?

2 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Avionics/Electronics
Development Lab
UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Cable & Wiring Facility

1. State the primary purpose(s) of the facility/equipment.

The Cable & Wiring Facility has the capability to fabricate and test various types of cables and harnesses. The following types of cables can be produced: cable assemblies; RF, semi-rigid and flexible coaxial cables; ribbon cables including flat, round, Ribbonized Organized Integrated (ROI), and Organized Integrated Mass (OIM) termination; harnesses; steel and nylon braided; fiber optic; and simple to complex.

This facility utilizes state-of-the-market manufacturing technologies to manufacture cables/harnesses. Capabilities available to enhance cable manufacture include: preparation of electrical wires i.e. mass cutting, stripping, tinning, stamping, and termination technology; fabrication and testing of wire wrap plates; automatic semi-rigid coax forming and bending; automatic coax stripping; and automatic test and checkout capabilities. Fast turn-around operations can be completed for emergency orders with a small quantity in 1 day after receipt of parts.

The Cable & Wiring Facility provides for the capability of: design and development of aircraft and avionics wiring systems; development of advanced manufacturing technology for aircraft and avionics wiring systems; and development and procurement of repair tool kits. Advanced wiring technologies addresses state-of-the-art wiring concepts such as ROI, OIM, and Organized Wiring systems (OWS). Repair tool kits can be developed and procured at one-fourth to one-third the cost incurred by other agencies; this is accomplished by actively working with industry.

The Cable & Wiring Facility also has the capability for: wire preparation and wrapping; and transformer, inductor, and coil fabrication. Fabrication is accomplished using state-of-the-art computerized programmed winding machines or manual operation. Testing is performed using a programmable computerized testing system.

This facility has been designated as the Electronic Wiring center of Excellence for the Navy and is the only DOD activity supporting NATO wiring systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$3.1 M

4. Provide the gross weight and cube of the facility/equipment.

65,000 lbs., 124 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities include 208 V, three phase power and compressed air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include construction of a sound proof room for the wire braiding equipment and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Cable & Wiring Facility is part of a totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or its relocation to another site, the totally integrated avionics and electronics systems engineering, acquisition, manufacturing, and supportability capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionics and electronics systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was established within the main building complex in 1992 through a consolidation of multiple fabrication functions.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.4 Torpedoes, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity *Mission and Function Support*

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**N/A**	**N/A**	**44**	**60**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**60**	**60**	**60**	**60**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are approximately 40 craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Cable & Wiring Facility

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Computer Aided Design (CAD)/Computer Aided Manufacturing (CAM) Facilities

1. State the primary purpose(s) of the facility/equipment.

The CAD/CAM Facilities support various ship-board and avionics systems by utilizing the CAD equipment to produce CAM data, tooling, schematics, and Printed Wiring Board (PWB) documentation for fabrication, assembly and testing of PWBs.

The CAD Facilities include architecture which ranges from local, fully integrated systems to an overall interfaced system that allows product definition, analysis, logistics, and control data to be generated and shared from engineering concept initiation through manufacturing to product delivery. Product design and development is achieved through a cadre of engineering workstations, personal computers, minicomputers, and high-end central computers that are networked together in a data-driven environment. These computer systems. networks, and data exchange translators form the present implementation of the Computer Aided Acquisition and Logistics Support (CALS) initiatives. The CAM Facilities support the developing and maintaining of applications and databases from the design and development of through the manufacturing production of products.

The Engineering Design Center has five stand-alone systems, four Bravo MicroVAX's with seven tubes/stations, two Daisy Workstations, and four Personal Computers. Associated equipment includes: B, C, & D size plotters; postscript printer; hard-color copier; B, C, & D size copier; and power supply backups.

The Electrical Engineering Workstations support product technologies such as: microwave; radio frequency (RF), power supplies, transformers, interconnects, cabling, and wiring; multi-layer printed wiring boards; Application Specific Integrated Circuits (ASICs); fiber optics; and many others. The workstations provide design capture and analysis tools such as: schematic capture; mixed mode analog and digital simulation; board logic versus layout analysis; worst case/statistical timing verification; reliability and testability analysis; test program generation; and concurrent fault isolation and failure analysis. In addition, the workstation provide technical documentation.

The Mechanical Engineering Workstations support 3D wire frame, surfaces, and solids modeling as well as technical data package documentation for piece parts and assemblies. Designs are analyzed using finite element modeling, dynamic mechanism analysis, and thermal analysis tools prior to committing to hardware fabrication. Rapid prototyping is accomplished through analyzing 3D soft copies and the 3D CAD model to generate hard-copy plastic prototypes on the Stereolithography Apparatus (SLA). The workstations are complemented by a host of personal computers running AUTOCAD and CADKEY software.

The SLA has the capability of rapid prototyping three dimensionally accurate plastics prototypes of mechanical parts. These parts are used for design/ concept validation, design verification and fit checking, and as patterns for follow-on processes such as investment and sandcasting. Computer models of the parts are developed in this facility and a prototype is produced in two to three days. The use of the SLA parts as patterns for follow on initial production processes offers lower cost and turn around schedules for low quantities.

The CAD Facilities have been selected for the CAD-2 first article acceptance site because of the extensive CALS capabilities that span the entire design/development and manufacturing cycle.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in these facilities is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$36.4 M

4. Provide the gross weight and cube of the facility/equipment.

40,000 lbs., 171 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt, three phase power, conditioned power, isolated circuits, and compressed air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include raised flooring, physical security, a dark room, an access control system, a fire suppression system, extensive cabling, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (70 degrees +/- 4 degrees Fahrenheit), humidity (50% +/- 10% RH) and air cleanliness (micron filtration to 6 parts per 100 cubic feet).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The CAD/CAM facilities are part of a totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or its relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionics and electronics systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The CAD facility was constructed inside the main building complex in 1980. The CAM facility was added in 1982.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.4 Multiplatform, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**80**	**80**	**80**	**60**	**60**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**60**	**60**	**60**	**60**

13. What is the approximate number of personnel used to operate the facility/equipment?

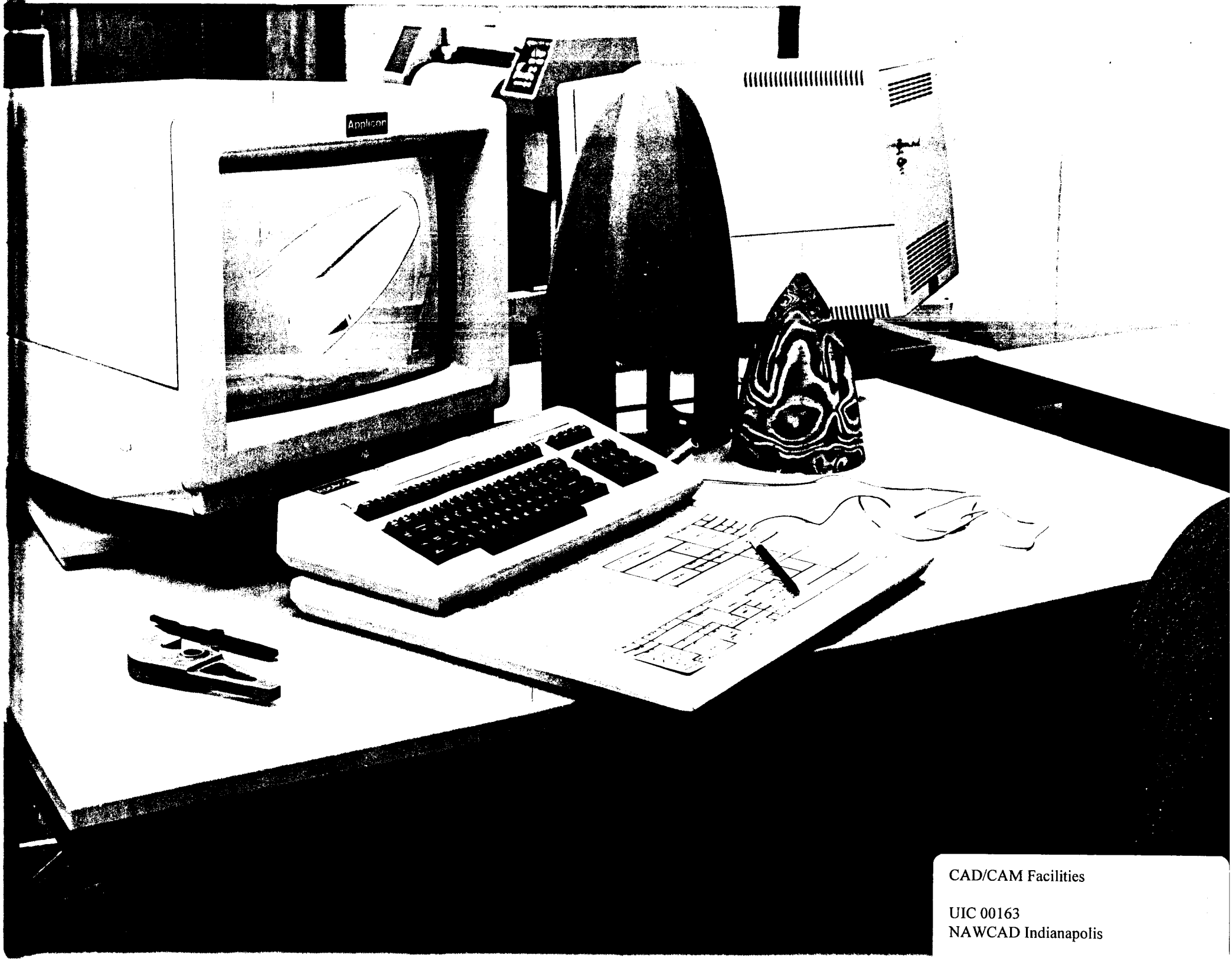
There are two dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are between 40 to 50 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

11 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



CAD/CAM Facilities

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Calibration Lab

1. State the primary purpose(s) of the facility/equipment.

The Calibration Lab is used for the calibration and repair of commercial and support avionics test equipment. The lab is a Navy Type III Calibration Lab constructed for environmentally controlled conditions such as temperature, illumination, humidity, and pressure. In addition to the environmental controls, the lab uses a grounded floor with static and electro-magnetic interference (EMI) free areas and a high voltage area. The lab also has the capability to deal with vapors.

The Calibration Lab has been designed for the automation of test procedures and inventory information for workload scheduling and processing required to calibrate, troubleshoot, and repair test equipment and computer equipment

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$4.4 M

4. Provide the gross weight and cube of the facility/equipment.

141,000 lbs., 206 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 110 and 208 volt, 60 and 400 hertz, single and three phase power, conditioned power, isolated circuits, compressed air, and water and drains.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include static dissipative flooring, an electromagnetic interference (EMI) shielded area, vibration isolation to 0.003 G (gravitation), illumination at 150 foot candles, air handling to maintain a positive pressure of 0.1 inches of water, workstation hoods ventilated to outside air, vibration isolated foundations for granite piers, compressed air and environmental controls. This is a Navy Type III Calibration Laboratory constructed to Navy specifications.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 2 degrees Fahrenheit), humidity (40% +/- 10% RH). and air cleanliness.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Calibration Lab provides vital support to various components of the totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of the calibration lab would have a detrimental impact on the NAWC Indianapolis mission. Without the calibration lab or its relocation to another site, the totally integrated avionics and electronics systems engineering, acquisition, manufacturing, and supportability capability would be severely diminished due to lack of calibration and repair of test equipment throughout the processes at NAWC Indianapolis.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed inside the main building complex in 1970.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**45**	**45**	**45**	**45**	**40**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

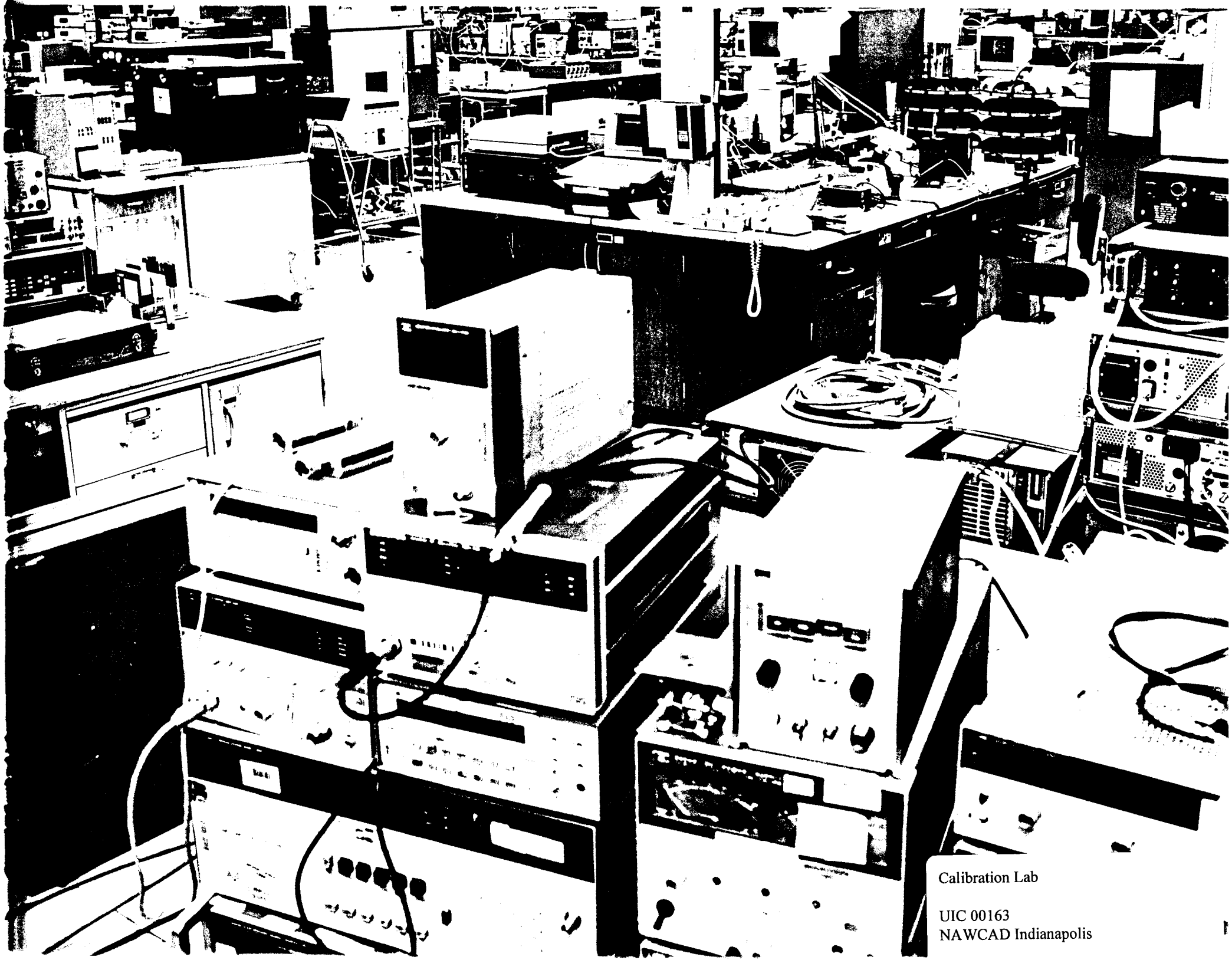
There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 30 people performing calibration functions for NAWC Indpls using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment

See attached photo.



Calibration Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Central Computing Facilities (CCF)

1. State the primary purpose(s) of the facility/equipment.

The CCF is a secure site for the location of the central computers that serve as the main computer for all business computer functions and processing. This facility also houses the communication control devices. The CCF houses the DEC VAX computer cluster that processes all business systems including; financial, material, engineering, and various other support systems. This facility holds all current business data on storage devices for immediate user access.

The CCF includes a Satellite Computer Facility which provides electronic mail, business application software and engineering and manufacturing software. This facility houses the computer used as the gateway to the Defense Data Network (DDN) and provides some backup to the CCF. The CCF includes an Office Automation Computer Facility which provides a single platform for electronic mail, word processing, spreadsheets, data tables, and calendar with automated scheduling. The CCF also includes the Network Control Center/Material Information Tracking System (MITS) which houses supply storage space, magnetic tape storage, local area network control, outside access dialback control, high volume laser printer and MITS Tandem computer.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in these facilities is portable; however, the interconnecting cabling is somewhat extensive and relocation would be significantly more labor intensive than "normal" Class 3 equipment. Included in these facilities is the center's telecommunications network control center, which provides service to every other facility at the Center.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$9.2 M

4. Provide the gross weight and cube of the facility/equipment.

32,000 lbs., 135 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utility requirements include conditioned power, 208 volt 3 phase power, and various types of cabling (ethernet, twisted pair, fiber optic, etc.) that distributes telecommunication services throughout the facilities and the rest of the Center.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include raised flooring, physical security, access control, alarm systems for temperature, humidity and air conditioning problems, fire protection systems, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (70 degrees +/- 4 degrees Fahrenheit), humidity (50% +/- 10% RH), and air cleanliness (micron filtration to 6 parts per 100 cubic feet).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

While the equipment is portable in the CCF and the interconnecting cabling is somewhat extensive, which would make the move difficult, a major concern would be the interconnection and dependency of other facilities on the CCF. In the case, of the Integrated Avionics Lab, two of the CCF computers are used to support the real-time simulations used by the lab without which a significant portion of the lab capability is lost. Having CCF replicated or relocated would not be able to address the real-time simulation needs of the Integrated Avionics Lab. As mentioned in the Avionics/Electronics Development Lab Capability Form, the AWW-13 program, which is located in that lab, depends on the use of the CCF and the ethernet to accomplish part of its software development. These are only a couple of many examples of the dependencies between facilities. It is estimated that if the CCF was relocated away from NAWC AD Indianapolis at least 4000 lines would need to be installed. The impact to the DON if the CCF was lost would be that either the products could not be developed or if they are already developed and operational could not be supported by the engineering community. The CCF is part of a totally integrated capability for the development and prototyping/ manufacturing of avionic and electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The individual computer rooms that comprise these facilities were constructed in 1987.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.3 Shipboard, 7.4 Land-Based, 7.5 Space Communications Systems, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**	
Hrs/Wk	**168**	**168**	**168**	**168**	**168**	**(Note: Utilized at all times.)**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**	
Hrs/Wk	**168**	**168**	**168**	**168**	**(Note: Utilized at all times.)**

13. What is the approximate number of personnel used to operate the facility/equipment?

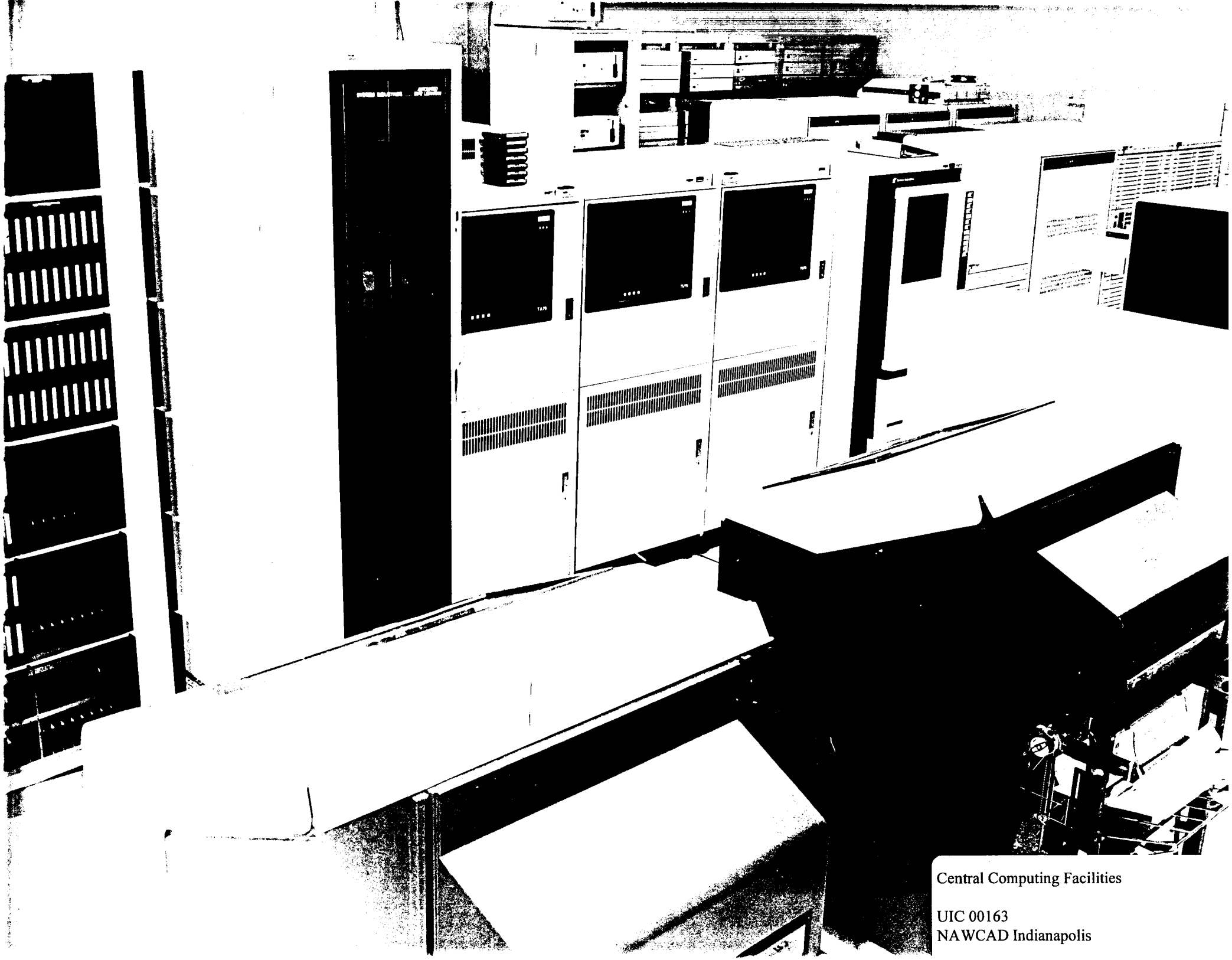
There are 8 system operators to support the various computer systems of this facility. There are approximately 2800 scientific or business personnel using the services of this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

2 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Central Computing Facilities

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Centrifuge - Acceleration Test Facility

1. State the primary purpose(s) of the facility/equipment.

The Centrifuge - Acceleration Test Facility has the capability to conduct design, development, and manufacturing acceleration tests on electronic equipment and systems. This facility is a dedicated building which includes two centrifuge systems: one with a fifteen foot radius arm and one with a two foot radius arm.

The fifteen foot Centrifuge is used for qualification and production testing. Currently the system is being used regularly for the MK-2 Polaris Guidance System. This system is also used for larger assemblies requiring acceleration testing. Some of the unique capabilities include: 148 slip rings that allows for equipment to be monitored during acceleration tests; 3 rotary coaxial joints for signals requiring shielding; rotary glands which allow cooling or other liquids as well as vacuum and pressure to be utilized by the unit under test during acceleration; a video camera mounted under the arm and another stationary camera in the arm room for monitoring the tests; and the ability to be configured with a rotating table attached to the end of the arm for more specialized tests.

The two foot Centrifuge is used for smaller units requiring acceleration testing. This system is used for aircraft instruments and accelerometer. Some of the unique capabilities include: 16 slip rings used to operate the equipment during acceleration tests; a rotary joint for applying pressure or vacuum to the unit under test; and a video camera mounted on the centrifuge arm for monitoring the performance of the unit under test.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is a fixed asset.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$1.2 M

4. Provide the gross weight and cube of the facility/equipment.

10,000 lbs., 47 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 110, 208 and 440 volt, single and three phase, 60 and 400 hertz power, compressed air, and vacuum.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

This facility was constructed around the installed 15 foot radius centrifuge arm.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Centrifuge is a fixed asset that would be difficult and expensive to relocate. It is a part of a totally integrated process for the qualification and testing of large assemblies requiring acceleration testing such as MK-2 Polaris Guidance Systems. Without the centrifuge or its relocation to another site, the integrated capability to efficiently develop, prototype, manufacture, and test electronic systems would be lost.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed as an addition to the main building complex in 1965.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

9.1 Navy Strategic Systems

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**3**	**3**	**3**	**3**	**3**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**3**	**3**	**3**	**3**

13. What is the approximate number of personnel used to operate the facility/equipment?

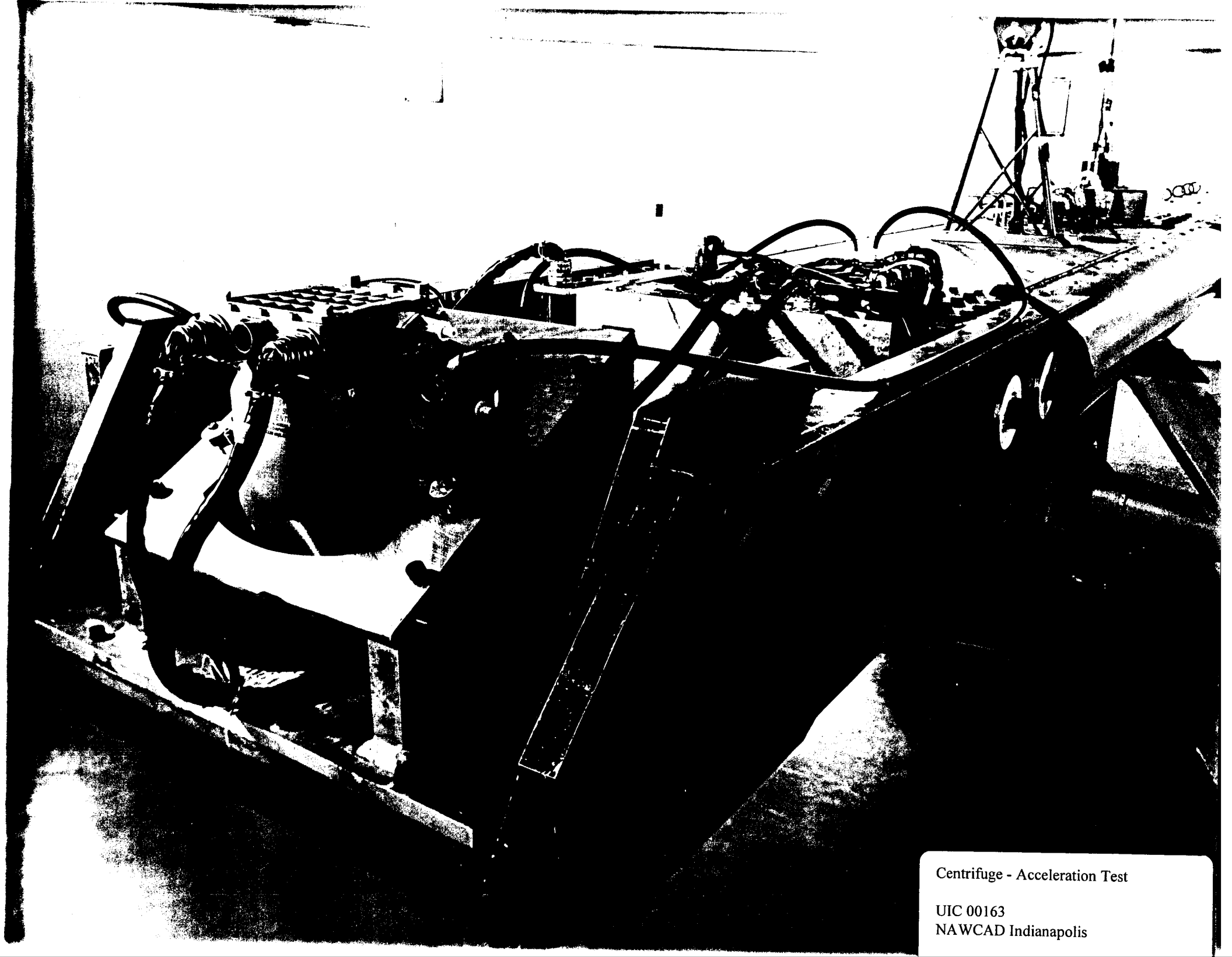
There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are approximately 2 technicians using the services of this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Centrifuge - Acceleration Test

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Class 10,000 Clean Room Facility

1. State the primary purpose(s) of the facility/equipment.

The Class 10,000 Clean Room Facility is used for repair and test of Polaris MK-2 Gimbal Assemblies and for repair and test of Polaris MK-2 Electronic Assemblies.

This facility is unique in that it was designed as a Guidance System repair facility. The concrete piers extend down to the bedrock. This facility has a North Star alignment and a dedicated deionized water system chilled to a specific temperature. This Class 10,000 Clean Room has 3 hour firewalls and a dedicated power and alarm system.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$5.9 M

4. Provide the gross weight and cube of the facility/equipment.

95,000 lbs., 155 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

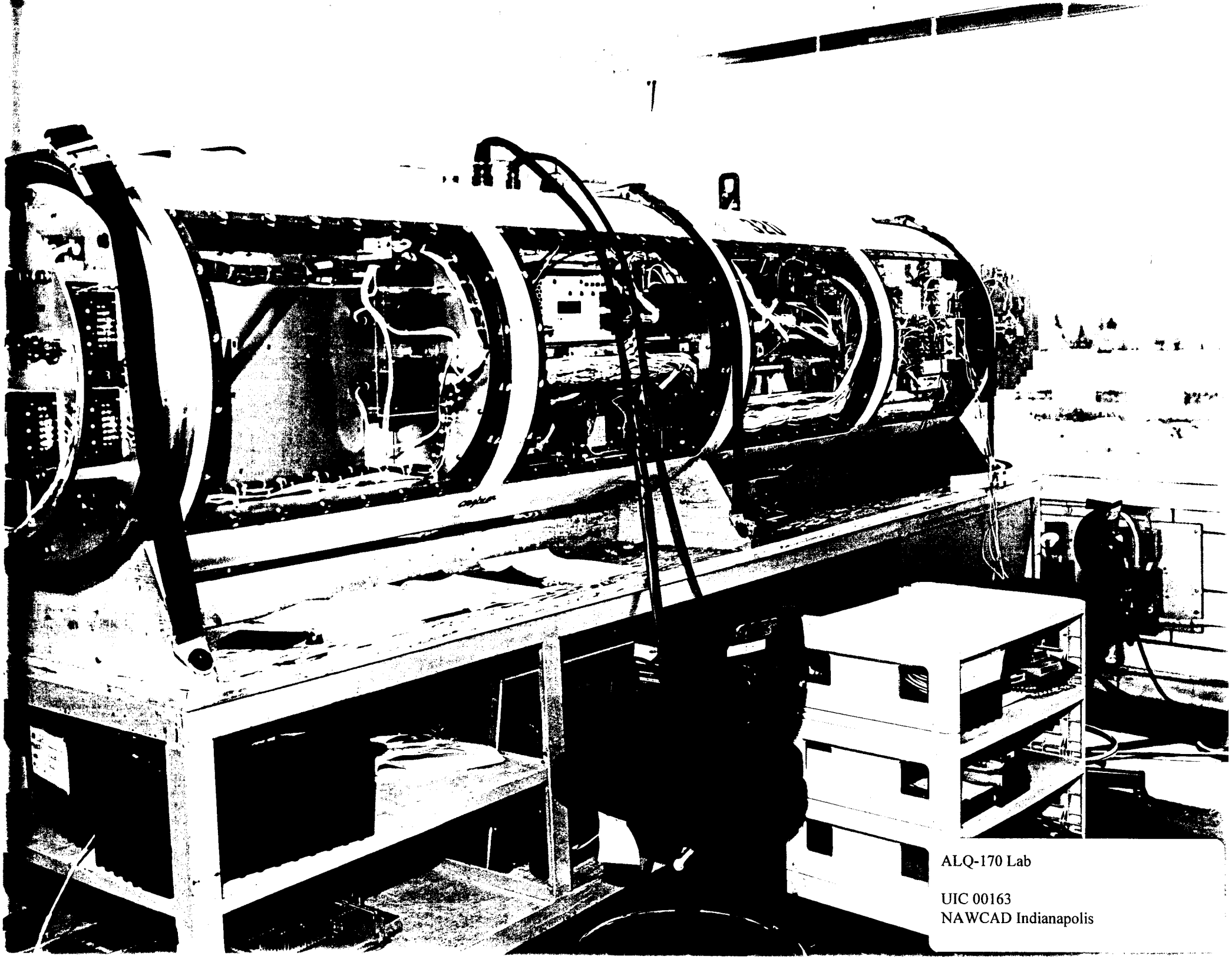
Special utilities required for operation of this facility include 208 and 110 volt three phase power, dedicated power, chilled deionized water, compressed air and distributed vacuum.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include 3 hour fire rated construction, air showers, raised flooring, concrete foundations which extend down to bedrock for the granite piers, environmental controls, a dedicated HVAC system, a dedicated central vacuum system, physical security, access control and environmental monitoring and alarm systems.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental control requirements include temperature (71 degrees +/- 3 degrees Fahrenheit), humidity (35% +/- 10% RH), and air cleanliness (.3 micron air filtration and 25 air changes per hour).



ALQ-170 Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Automated Storage, Kitting, and Retrieval System (ASKARS)

1. State the primary purpose(s) of the facility/equipment.

ASKARS performs material handling, inventory and general system transactions and is the Navy standard system for the issue and receipt of material through warehouses and mechanical storage facilities. This equipment has the ability to automatically assemble electronic components into a kit prior to the build release.

The ASKARS Material Storage Area has three automated stackers that serve six bin roll of 4,080 containers. Each container can be subdivided into over 19,000 spaces. The Tandem computer can then provide up to 500 data records per space. The conveyor system connects five input/output workstations to the three stackers.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility and its associated equipment is a fixed asset.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$1.7 M

4. Provide the gross weight and cube of the facility/equipment.

127,600 lbs., 145 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 110, 208, and 440 volt, single and three phase power, conditioned power, compressed air, and nitrogen.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include fire protection systems, physical security, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental control requirements include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The ASKARS is a fixed asset that would be extremely difficult to relocate or replicate. The ASKARS software was developed specifically for the complex and unique job order/product structure required by manufacturing and material handling processes at NAWC Indianapolis. ASKARS is linked to databases networked to procurement, supply, manufacturing, and material tracking systems throughout NAWC Indianapolis. The impact on customer support would be severe. The months and millions of dollars necessary to reconnect ASKARS to the various databases at a new site would translate into significant downtime and loss of customer support.

The ASKARS is part of a totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or its relocation to another site, the totally integrated avionics and electronics systems engineering, acquisition, manufacturing, and supportability capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionics and electronics systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed as an addition to the main building complex in 1977.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.4 Torpedoes, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**80**	**80**	**80**	**80**	**80**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**80**	**80**	**80**	**80**

13. What is the approximate number of personnel used to operate the facility/equipment?

Between 14 and 19 people depending upon utilization and workload.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

ASKARS

UIC 00163
NAWCAD Indianapolis

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Class 10,000 Clean Room Facility is part of a totally integrated capability for development and prototyping/manufacturing capability for avionic and electronic systems. Even though the facility was uniquely designed for Polaris Guidance system repair, the loss of this facility would not only impair our ability to repair Navy strategic systems but also your ability to develop other electronic systems requiring this type of environmental control.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1960.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

9.1 Navy Strategic Systems

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**80**	**80**	**80**	**80**	**80**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

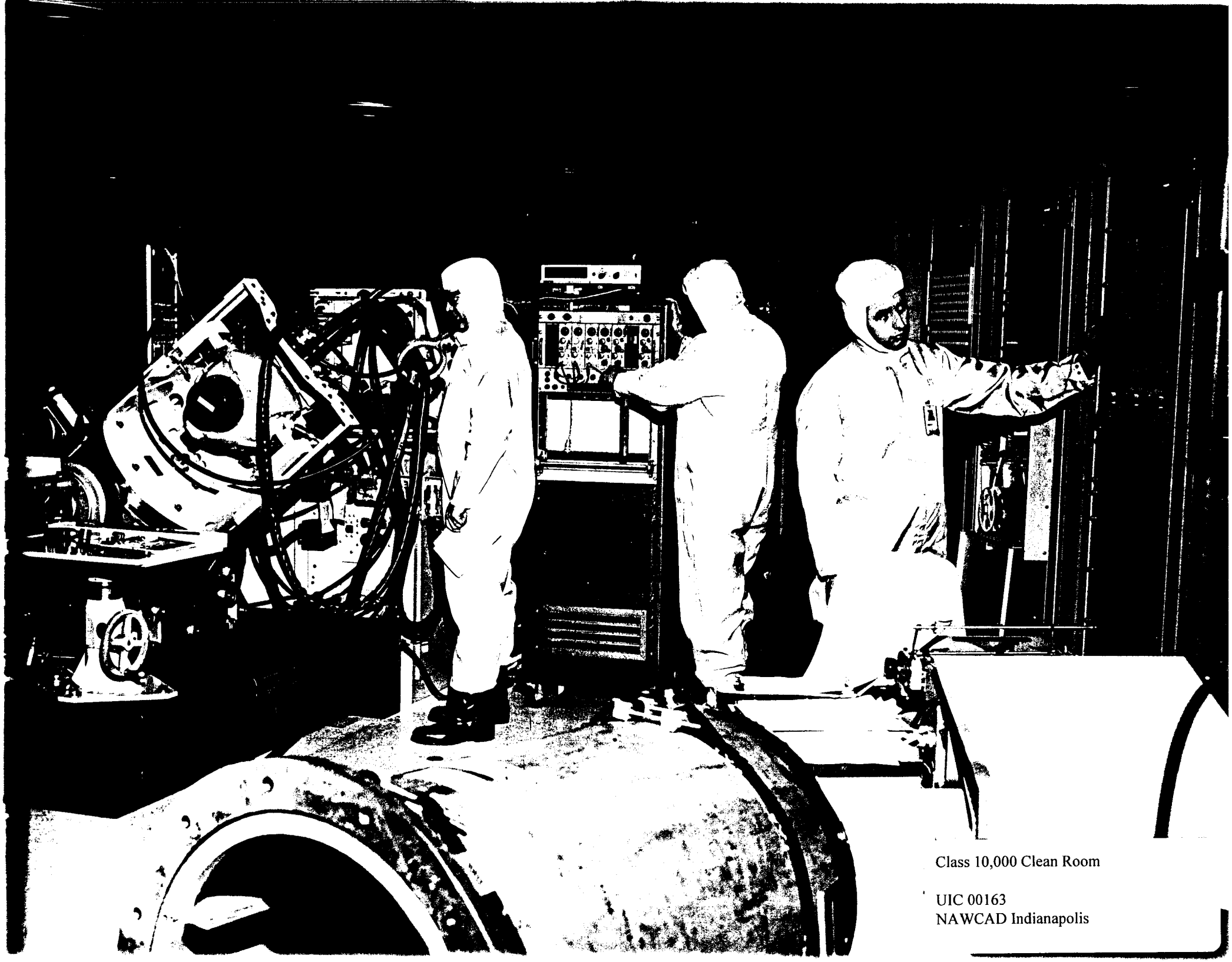
There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are between 4 to 30 craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Class 10,000 Clean Room

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Digital Scene Matching Area Correlator (DSMAC) Lab

1. State the primary purpose(s) of the facility/equipment.

The DSMAC Lab has the capability to test, evaluate, and predict the performance of sensors, detection algorithms, and navigation update processes for Cruise Missiles and Unmanned Air Vehicles (UAVs). This lab was designed and built for the purpose of testing and development of DSMAC and similar navigation sensor systems and has the capability to be used for development and test of numerous existing and future sensor platforms such as: Infra-Red (IR), Near-Infrared (NIR), Electro-Optical (EO), and machine vision systems

This lab is designated as a Temporary Secure Facility Working Area (TSFWA) and is accredited by the Navy Special Security Officer (SSO) due to the sensitive nature of the work. All equipment within the area must be registered with the Navy SSO and remain in the lab at all times. The DSMAC Lab is also a TEMPEST approved enclosure with RF shielded ceiling, floor, walls, and doors to facilitate the processing of classified data. The computer systems and data storage media supports operation within a secure environment. The lab also utilizes a sound dampening system to prevent sound transmission beyond the confines of the lab. Power line filters, phone filters, and a secure phone system are required as a part of normal lab operation.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment located in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$ 0.3 M

4. Provide the gross weight and cube of the facility/equipment.

7,200 lbs., 27 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include dedicated, filtered power, conditioned power and filtered telecommunication lines.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include interlocked RF shielded access, access control, RF shielding throughout the facility, a security monitoring and alarm system, raised flooring, acoustic shielding throughout the facility, 2 hour fire rated construction, and environmental controls. This is a TEMPEST approved sensitive compartmented information facility (SCIF).

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (68 degrees +/- 2 degrees Fahrenheit) and humidity (50% +/- 10% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The impact to the DON if the DSMAC Lab was lost would be primarily to the Tomahawk program. Currently, all of NAWC AD Indianapolis' Tomahawk workload requires the use of this lab for mission planning algorithms, for the critical design, development, support, and maintenance capabilities for the Tomahawk mission planning system. For example, prior to Operation Desert Storm the lab was used to develop and provide training to the operational Tomahawk planners that enabled them to build many of the Tomahawk missions over Iraq. $40M has just been spent on a new version of the Tomahawk missile. Without the lab, the DSMAC IIA guidance, which is part of this version would not have been possible. Currently the lab is upgrading the Tomahawk mission planning system to fully utilize the DSMAC IIA. In the summer of 1994, the program is releasing an multimillion dollar contract for a new missile variant with FLIR sensor and this lab will be used to provide support for this variant as it has in the past for the other weapons. Without the lab the Tomahawk weapon system will have reduced capability and support.

The lab has very powerful image processing capability. Programs such as the Advanced Gun Program, radar image recognition of chaff and an X-ray Tomography imaging project (from the EMPF). The DSMAC Lab is currently supporting the EMPF and the relocation of the DSMAC Lab would make that working relationship more difficult and costly. Without the DSMAC Lab these projects would not have the facilities to perform their unique image processing tasks. The AWW-13 pod project uses the lab because it is a shielded room with unique security features for highly classified operation.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1982.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 10.2 Logistics Planning and Implementation, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**65**	**65**	**65**	**65**	**65**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**65**	**65**	**65**	**65**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 12 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

DSMAC Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Electronic Assembly Facility

1. State the primary purpose(s) of the facility/equipment.

The electronics assembly area is used for the prototyping, emergency production, and data package validation of a large variety of avionic, electronic, mechanical, and electromechanical equipment. A very versatile and flexible area, the manufacturing prototyping capabilities are used in a concurrent engineering environment in which there is constant interface between the designers and the prototype/manufacturing personnel. Problem solutions, enhancements, or design changes can be verified by fabricating the equipment, verifying or testing the equipment and completing the documentation/data package. This manufacturing function is often used for emergency fleet production, industry bailout, or mobilization support.

The electronics assembly area has extensive fabrication, assembly, test, troubleshooting, modification, and repair capabilities. The range of capabilities include point-to-point wiring, cable and harness installation, automated wave soldering, automated and manual component insertion, coil and transformer winding, wire and ribbon welding, bare and assembled board level functional testing, and various manual and automated test capabilities.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$31.1 M

4. Provide the gross weight and cube of the facility/equipment.

214,000 lbs., 1,024 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 and 440 volt 3 phase power, compressed air, water and drains, vacuum, 400 hertz power, and electrical grounding throughout for electrostatic discharge (ESD) protection.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include environmental controls and various types of direct ventilation to outside air.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Electronic Assembly Facility is part of a totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or its relocation to another site, the totally integrated avionics and electronics systems engineering, acquisition, manufacturing, and supportability capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionics and electronics systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is part of the original construction of the Center, which was completed in 1942.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**52**	**52**	**52**	**52**	**52**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**52**	**52**	**52**	**52**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are approximately 200 craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

4 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Electronic Assembly

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Electro-Magnetic Interference (EMI) Facility

1. State the primary purpose(s) of the facility/equipment.

The EMI Facility conducts design, development and first article qualification tests used to assess the conducted and radiated electromagnetic profiles of airborne and shipboard electronic systems. Measurements are performed at all levels of product development, from brassboard to production phase systems. In addition to EMI testing, this facility can perform the following testing: bonding; interference control; insertion loss, attenuation of enclosures; radio frequency spectrum characteristics; radar engineering design requirements; aircraft power characteristics; electrical connectors; and connector and cable shielding.

This facility consisted of three shielded enclosures: one anechoic shielded enclosure, one partially anechoic enclosure, and one Mode-Stirred Chamber. Enclosure 1 is a free standing dual chamber of welded construction which allows one side to be used as a test cell and the other to be used as an instrumentation cell. Enclosure 2 is a free standing modular chamber of bolted construction with several movable absorber panels used to make the chamber semi-anechoic over its usable frequency range. Shielded Enclosure 3 is a free standing modular chamber of bolted construction and made from highly reflective zinc clad steel panels.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The shielded enclosures associated with this facility are moveable assets. All remaining equipment is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$3.1 M

4. Provide the gross weight and cube of the facility/equipment.

9,000 lbs., 18 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt three phase, 60 and 400 hertz power.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include environmental controls and replacement of 2 of the 3 shielded enclosures if relocated due to anticipated loss of rated shielding performance if disassembled.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees ± 5 degrees Fahrenheit) and humidity (50% ± 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The EMI facility has three separate enclosures. One enclosure is constructed from welded metal panels forming a two cell test facility. Due to the type of construction, it is very unlikely that the enclosure could be moved and retain its shielding integrity. The two other enclosures are bolted construction and could be moved, but most likely would be cheaper to replace when considering the amount of labor to tear down, rebuild, and certify their shielding performance.

The impact to the DON if the EMI facility was lost would be considerable. The EMI facility is part of a totally integrated capability for the development and prototyping/ manufacturing of avionic and electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was originally constructed within the main building complex in 1968 and expanded in 1980.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.4 Torpedoes, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.2 Logistics Planning and Implementation, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**32**	**32**	**32**	**32**	**32**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**34**	**34**	**34**	**34**

13. What is the approximate number of personnel used to operate the facility/equipment?

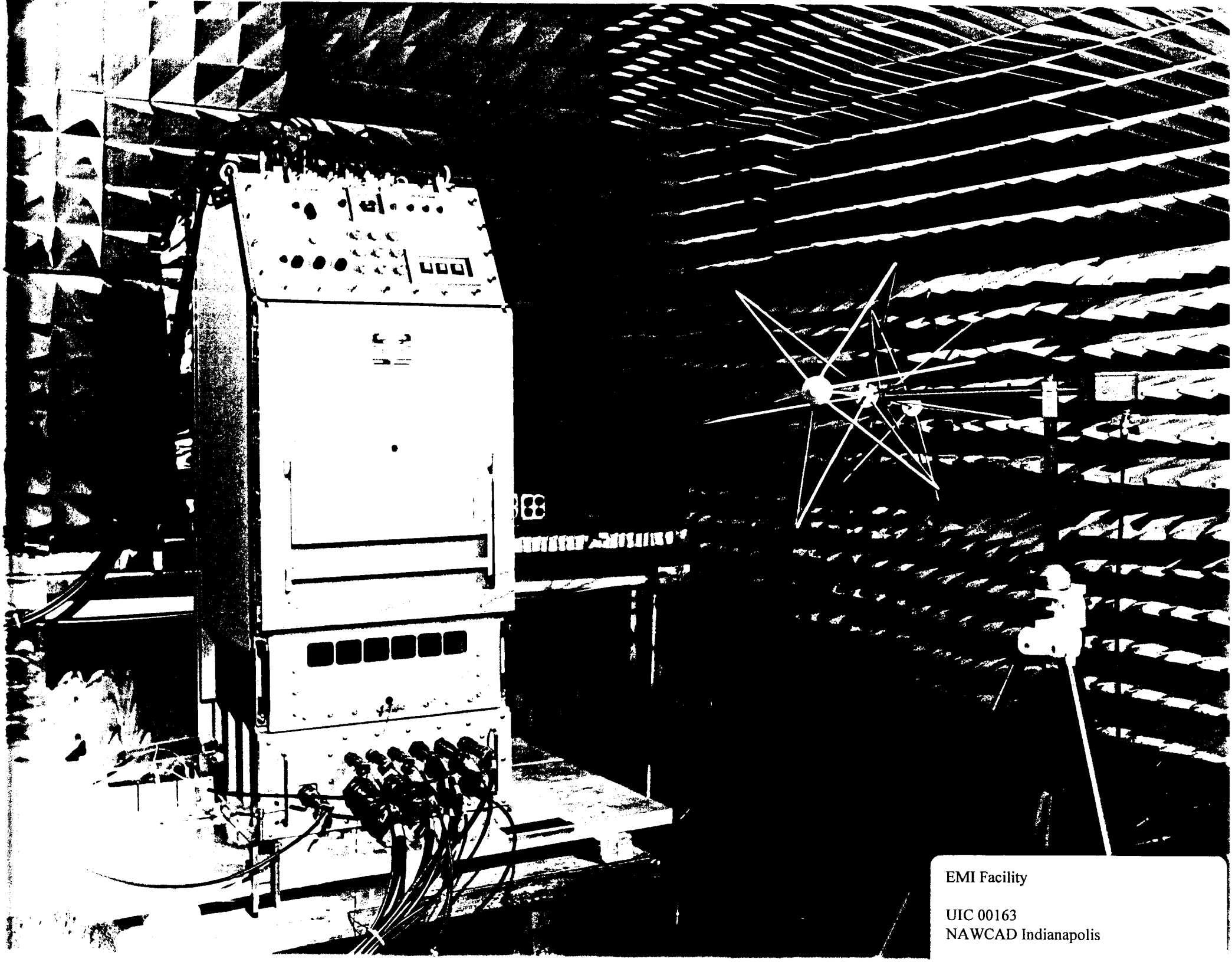
There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are 5 people using this facility for testing.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



EMI Facility

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Electronics Manufacturing Productivity Facility (EMPF)

1. State the primary purpose(s) of the facility/equipment.

The EMPF is a 45,000 square foot facility in the Science and Technology Park located in downtown Indianapolis. The EMPF focuses on the development and transfer of state-of-the-art manufacturing processes to industry to support the efficient manufacture of electronic systems. The EMPF provides for the exchange and transfer of technology between government, businesses, and academia.

The EMPF Demonstration Factory provides: support to research projects that require production level processes and equipment; implementation of proof-of-concept operations in an operational production line; technology deployment; and training and education. The Electronics Manufacturing Learning Center (EMLC) located at the facility offers four types of training; skill courses, college credit programs, workshops, and professional seminars.

The EMPF is the Navy's Center of Excellence for Microelectronics and is the only facility of its kind in the United States. The EMPF provides industry with the opportunity to utilize production equipment to develop processes for manufacturing off-line and without major capital expense. Hands-on electronics manufacturing training in a production type environment is available. The facility is flexible and open to allow for frequent equipment changes and to allow students easy access to equipment.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$7.1

4. Provide the gross weight and cube of the facility/equipment.

72,000 lbs., 794 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 and 440 volt three phase power, compressed air, distributed nitrogen, water and drains.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include ventilation to outside air for various pieces of equipment and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees ± 5 degrees Fahrenheit) and humidity (50% ± 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The EMPF would be very difficult to replicate or relocate due to the complexities of establishing consortiums with government, industry and academia. Since the EMPF is the only facility of its kind, the loss of the EMPF would severely impact technology transfer between industry and government as well as manufacturing science and technology (MS & T) efforts.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed in 1991 and is leased by Indiana University. NAWC Indianapolis shares in the operation of the facility as part of a Cooperative Research & Development Agreement (CRADA).

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 2.9 Fire Control, 5.1 Sonar Systems, 5.4 Space Sensor/Surveillance Systems, 9.1 Navy Strategic Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.8 Other Subsidiary Systems or Components

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**N/A**	**40**	**40**	**40**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 40 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

EMPF

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Environmental Test Facility

1. State the primary purpose(s) of the facility/equipment.

The Environmental Test Facility includes a Climatic Test Lab and a Dynamic Test & Data Acquisition/Analysis Lab. This facility provides extensive climatic environmental test capability for first article and qualification testing of electronic equipment and systems and conducts design development and manufacturing dynamic environmental tests on electronic equipment and systems including aircraft instrumentations and wiring.

The Climatic Test Lab portion of the Environmental Test Facility includes; three temperature chambers, one thermal shock chamber, six temperature/humidity chambers, five altitude chambers, one altitude chamber, one accelerated weathering chamber, two salt spray chambers and one explosion chamber.

The Dynamic Test & Data Acquisition/Analysis Lab portion of the Environmental Test Facility includes ten vibration and four shock machines. This lab has the capabilities to perform; tests that duplicate gunfire vibration, aircraft propeller frequencies and other environments where distinct sinusoidal frequencies are injected over a random vibration spectrum; tests to verify the ability of ship-board installations to withstand shock loadings which may occur during wartime service; and simulations involving aircraft landings, catapult takeoffs and arrested landings.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The larger chambers and shock testing equipment in this facility are moveable assets. The remaining equipment is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$9.6 M

4. Provide the gross weight and cube of the facility/equipment.

320,000 lbs., 334 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 and 440 volt, 60 and 400 hertz, three phase power, chilled deionized water, water and drains, and compressed air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include a dedicated cooling tower, environmental controls, direct access from the exterior through a large door for installing/deinstalling the larger equipment, special seismic mass foundations, special vibration isolation foundations (concrete pads on top of air bags on top of concrete pillars), physical isolation from other facilities, and sound proofing.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% ± 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Since the Environmental Lab has the capability of testing large systems, the capabilities are somewhat unique, the equipment used is large and costly so that many other production sites do not possess equipment of this magnitude. This lab's primary function is to provide first article/qualification test capability along with Environmental Stress Screening (ESS) for production equipment. Since ESS is part of the production process, quick turn around times are essential. The Environmental Lab is part of a totally integrated capability for the development and prototyping/ manufacturing of avionic and electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This loss would have a major impact on production of systems and their qualification effort would suffer. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed as an addition to the main building complex in 1956.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.4 Torpedoes, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**80**	**80**	**80**	**80**	**80**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**112**	**112**	**112**	**112**

13. What is the approximate number of personnel used to operate the facility/equipment?

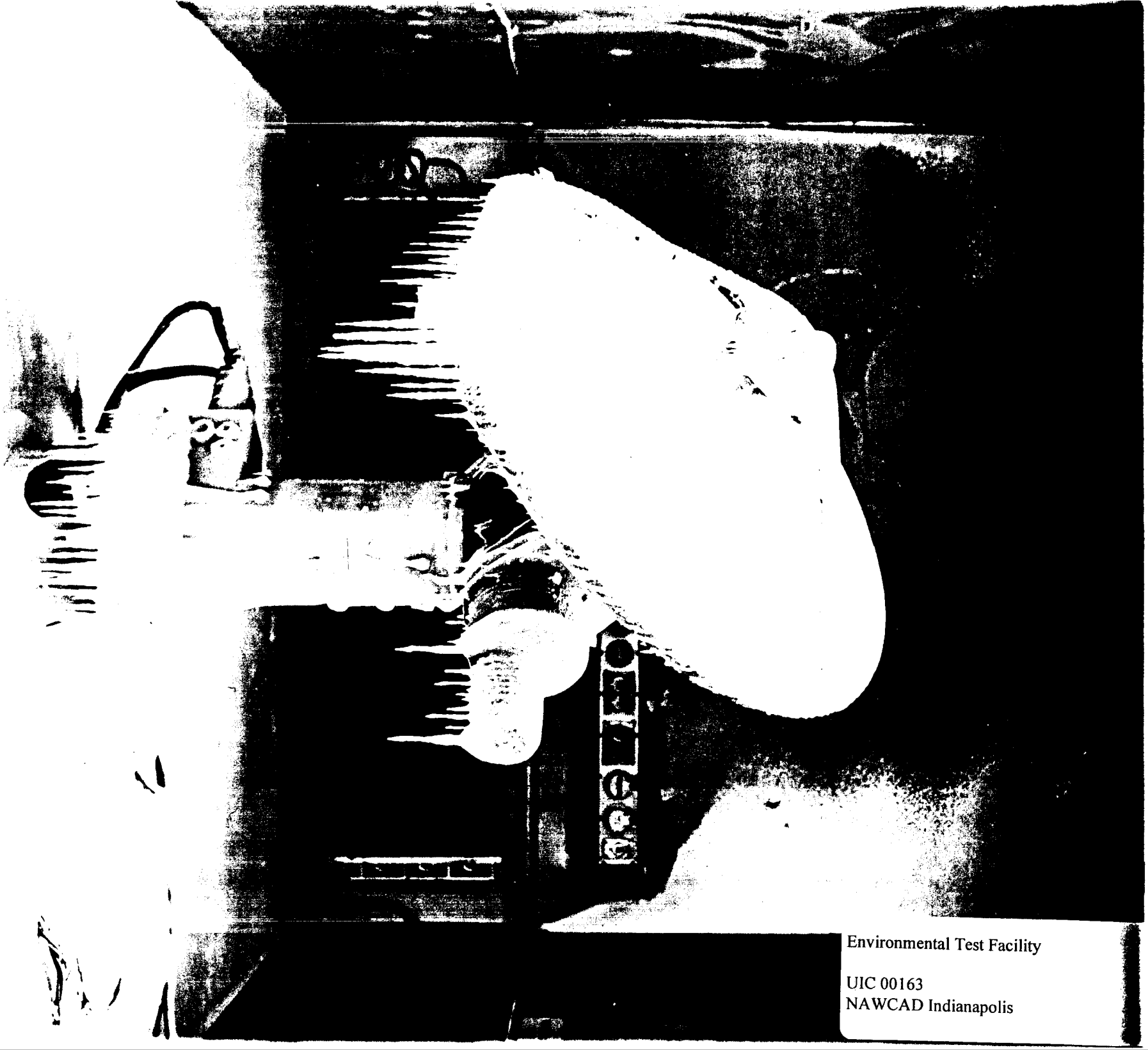
There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are approximately 6 technicians and craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Environmental Test Facility

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	EP-3/ES-3 CILOP and Integrated Test Facility (ITF)

1. State the primary purpose(s) of the facility/equipment.

The EP-3/ES-3 CILOP and ITF supports the EP-3E and ES-3A Software Support Activities (SSAs) and other related VQ Projects such as Storyteller, Viper, VQ Trainer, Classic Aerie, Classic Nidus, ASUW, VPU, Story Classic, PGPU, GSS, Ripsaw, WIXS, and others. This facility contains full-scale mockups of EP-3E and ES-3A aircraft for software development, integration, test, training, and engineering support.

This facility houses the EP-3E and ES-3A SSA software development hot benches containing the core data processing avionics boxes from the aircraft as well as the subsystems which are the most software intensive on the aircraft, i.e. MSP, ARR-81, GPS, Cubic Receivers. The benches have simulation and stimulation equipment and software debugging and analysis tools and are directly linked to the VAX complex resident in the building. The EP-3E and ES-3A SSA's share a series of VAX's which are networked together along with 30 networked user terminals. This shared software environment is crucial to both SSAs.

The EP-3E and the ES-3A benches are used for: fixing Software Trouble Reports (STRs) in the mission software and system maintenance software; coding and sub-system level testing of each STR fix; system integration testing of fixes in conjunction with the entire OFP software; full blown regression testing of all software deliverables prior to their delivery to the fleet; control all software source code, STRs, changes to the software and tapes of the software to be delivered to the fleet and elsewhere; troubleshooting all engineering problems found in the fleet and make appropriate corrections; venders to validate new firmware and hardware changes and troubleshoot; the Navy Fleet Introduction Team (FIT) personnel to validate their training manuals and train Fleet personnel; design of new sub-systems for the EP-3E Program and the integration of their new software and hardware packages; and all validation testing for the Fleet since there is no "test aircraft" for the EP-3E and ES-3A.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The EP-3E and ES-3A hotbenches located in these facilities are moveable assets. All remaining equipment is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$18.7 M

4. Provide the gross weight and cube of the facility/equipment.

34,500 lbs., 190 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt, 60 and 400 hertz three phase power, 28 volt direct current (DC) power, conditioned power, environmental controls, and filtered power feeds and telecommunications lines.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include access controls, raised flooring, RF shielding throughout the facility, interlocked RF shielded access, a security monitoring and alarm system, acoustic shielding throughout the facility, 2 hour fire rated construction, and environmental controls. These are TEMPEST approved sensitive compartmented information facilities (SCIFs).

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (70 degrees ± 2 degrees Fahrenheit) and humidity (50% ± 10% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The VQ SSA Facility (CILOP Facility) could be moved to another facility via a combination of replication and relocation, although the task would be extremely difficult. Painstaking planning and coordination would have to be exercised to synch up the ITF move with the VQ SSA facility move to minimize downtime to the EP-3E and ES-3A. It is believed that VQ SSA Facility EP-3E and ES-3A software development stations, as well as the VAX network, could be relocated (all non-trivial tasks; it took two years of effort to set up and much of the work would have to be redone). The SSIP integration hot bench would need to be replicated, for the same reasons that the ITF's hot benches had to be replicated (costly effort). The Classic Aerie, GSS migration system, and AIP benches could be relocated with medium effort. The Storyteller software development stations could also be relocated, again the effort would be medium. The VQ Facilities technician area would no longer be required at NAWC AD Indianapolis and could be disbanded. The whole task would be: 2.5 years to build the new SSIP integration bench, followed by at least one year of deinstall/teardown/ship/reinstall of everything, so at least 3.5 years all together.

Some of the reasons why this plan is difficult and very risky include the following: Each of the EP-3E and ES-3A software development stations have dozens of cables routed between the 19" racks and the tables, which would have to be carefully marked and routing drawings would have to be generated in order to reuse these cables after shipment to a new site. (Each of the subsystems within the development stations were wired using aircraft prints, but modifications were made for lab use, and a set of development stations prints were never generated - the people who built them are still on board and would do the work to add additional subsystems to it if needed.) Even with careful removal of cables and accurate drawings, it is inevitable that portions of the GFE would have to be rewired at the new site.

Also, both the EP-3E and ES-3A aircraft are deployed, and NAWC AD Indianapolis is already stood up and functioning as the SSA on each platform. In addition to the fact that the Squadrons and NAVAIR have approved a fairly ambitious software delivery schedule from the SSA's to the deployed aircraft, there is also the matter of keeping the ITF open to fix an emergency priority I safety of flight software trouble report (STR) should one be generated at the Fleet. The VAX and Development stations VQ SSA Facility are

crucial to any STR fixes. Therefore, you would not want to begin the dismantling of anything in this facility until the ITF's racks have been replicated and the new facility is totally prepared for both the ITF and VQ SSA Facility systems simultaneously.

As for the SSIP benches, full-scale development of the SSIP, which is the next generation EP-3E, is underway. It includes adding communications equipment to the EP-3E which will allow it to more effectively communicate with Navy and other service's platforms and make the idea of joint-services surveillance a reality. The schedule for this development and deployment of systems to existing EP-3E platforms is extremely aggressive. and the Navy's safekeeping could depend on it. Tearing down the SSIP development bench (a full-scale EP-3E MAS mockup, modified for SSIP equipment) and moving the Storyteller software development area until the big bench has been replicated at the new Site and everything is ready for the transition is not advisable.

The Classic Aerie hot bench is located within VQ SSA Facility because it is an EP-3E ground support station for the Special mission, and it utilizes EP-3E mission tapes, which can be generated directly from the EP-3E software development station. Similarly, the GSS migration system is located within building 5300 because it supports the EP-3E ground support station for the ESM mission, and require actual EP-3E tapes. Migration also utilizes Storyteller software as a foundation for the new code being developed. It is conceivable that these programs could be moved to another SCIF at the new facility, and not remain colocated with the other VQ SSA Facility systems; however, they should not be moved until the SSA and SSIP transition efforts are underway.

The impact to the Department of the Navy if VQ SSA Facility systems were lost (shut down without replication elsewhere) is severe. If the ITF were to remain open, the software support efforts would be bottlenecked and slowed down to a crawl for the EP-3E and ES-3A platforms due to lack of available time in the ITF. But if the ITF and VQ SSA Facility systems were shut down together, no STR's could be fixed period for either program, causing the risk of the programs being shut down due to a safety-of-flight pri. 1 STR being discovered which can not be fixed. Also, there would be no further upgrades to EP-3E program via SSIP, and no opportunity for a follow-on program with the ES-3A, meaning that the platforms will not be able to keep up with the rest of the Department of Defense (DOD), causing a potential risk to National Security. All of this could lead to an intelligence community which is uninformed in peace time, and the unnecessary and devastating consequence of putting troops in the field at excessive risk during war time.

The Integration Test Facility would be impossible to relocate, and extremely difficult to replicate, at another site. The EP-3E and ES-3A Mission Avionics Suite (MAS) mock-ups are Custom Fit benches within the boundaries of the ITF. Each of these benches took over 2.5 years to build from scratch. Because of the the cables are custom fit throughout the lab, it would be difficult to re-use very many of these cables at another site even if a "relocate" command were mandated. The majority of the cables would have to be rebuilt, and 2.5 years to complete would be an optimistic estimate which assumes that there were enough qualified electrical and mechanical technicians available to build both benches simultaneously (approximately 7 ET's, 1.5 METs, and at least one Systems Engineer to coordinate the effort PER BENCH!). Also, it is important to note that both MAS mock-ups are co-located within the ITF, the ITF is a secure facility capable of processing data above Secret, and there is a plethora of shared support equipment (SE) between the EP-3E and ES-3A benches (including a VAX cluster).

Therefore, in order to minimize down time, the entire MAS rack and cable structure for both the EP-3E and ES-3A should be constructed at the new facility, and then in one fell swoop the $30 Million of GFE (aircraft assets) and also all program-owned support equipment resident in the ITF should be deinstalled, packaged, shipped to the new facility, uncrated, reinstalled, and integrated into the new lab. Even with this rebuild effort, it is conservatively estimated that both the EP-3E and ES-3A will be without

their integration and test benches for 6 months while all of this equipment movement and new lab cable debugging is going on.

Some reasons why the ITF can't be down long enough to "relocate" (which would be estimated to take the same amount of time as "replicating", with the added down time because the ITF has to be brought down to start "relocating") are as follows: Both the EP-3E and ES-3A aircraft are deployed, and NAWC AD Indianapolis is already stood up and functioning as the software support activity (SSA) on each platform. In addition to the fact that the Squadrons and NAVAIR have approved a fairly ambitious software delivery schedule from the SSA's to the deployed aircraft, there is also the matter of keeping the ITF open to fix an emergency priority I safety-of-flight software trouble report (STR) should one be generated at the Fleet. Also, full-scale development of the Sensor System Improvement Program (SSIP), the next generation EP-3E, is underway. It includes adding communications equipment to the EP-3E which will allow it to more effectively communicate with Navy and other service's platforms and make the idea of joint-services surveillance a reality. The schedule for this development and deployment of systems to existing EP-3E platforms is extremely aggressive, and the Navy's safekeeping could depend on it. Another important reason is that Fleet Introductory training is ongoing in the ITF now, and since the aircraft are already deployed, it is crucial that the ITF remain available for the Navy Fleet Introduction Team (FIT) to train their operations and maintenance crews.

The impact to the Department of the Navy if the ITF were lost is severe. There would be no further software or engineering support for the EP-3E and ES-3A platforms, causing the risk of the programs being shut down due to a safety-of-flight pri. 1 STR being discovered which can not be fixed. There would be no further upgrades to EP-3E program via SSIP, meaning that the platforms will not be able to keep up with the rest of the Department of Defense (DOD), causing a potential risk to National Security. All of this could lead to an intelligence community which is uninformed in peace time, and the unnecessary and devastating consequence of putting troops in the field at excessive risk during war time.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The Integrated Test Facility was constructed within the main building complex in 1986. The VQ software support activity (SSA) facility was constructed as a separate building in 1990.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

3.2 Air, 5.3 Special Sensors, 10.1.2 Aircraft-Related Training Systems, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**90**	**90**	**90**	**90**	**90**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**90**	**90**	**90**	**90**

13. What is the approximate number of personnel used to operate the facility/equipment?

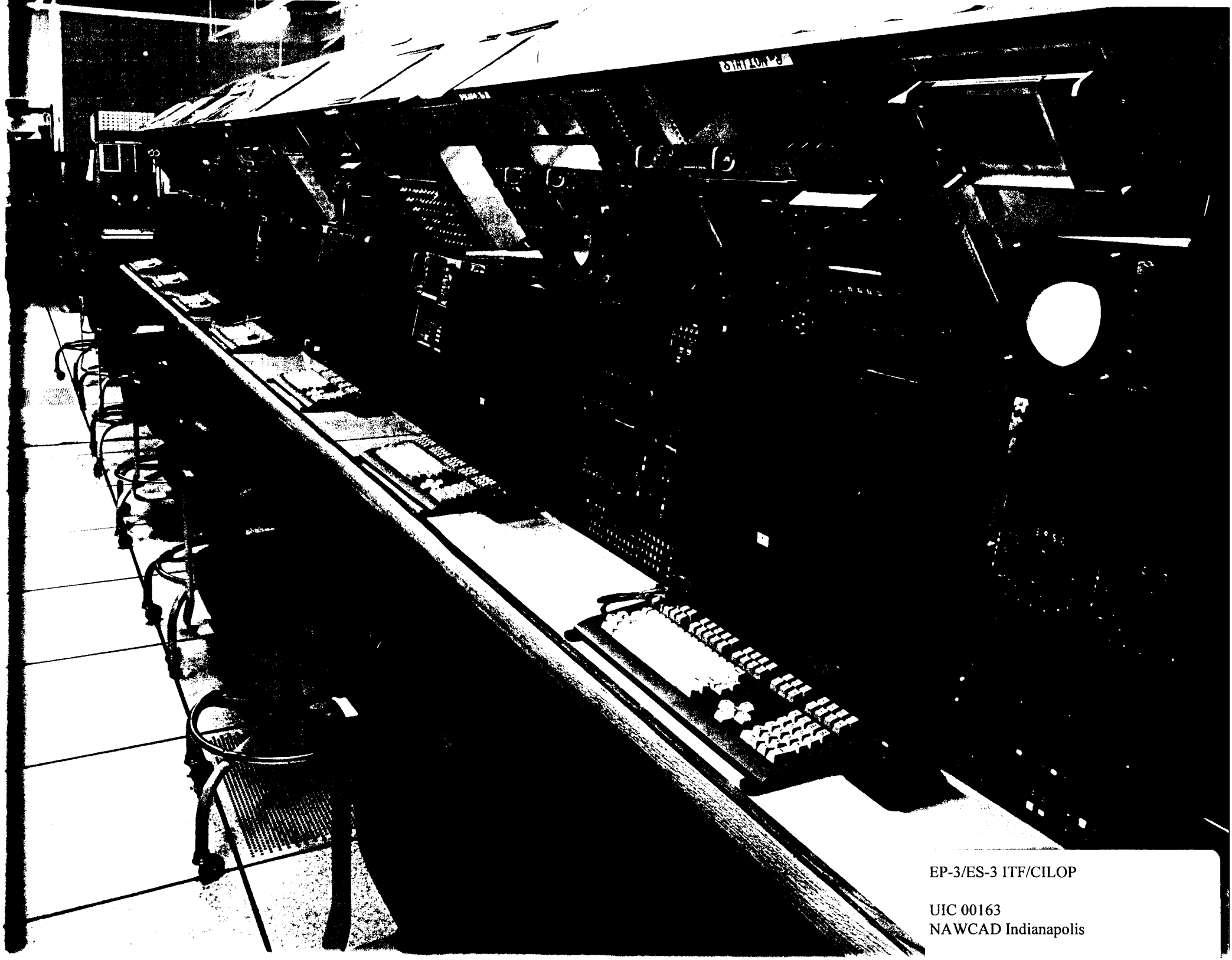
There are 2 dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 200 scientific and technical personnel using the ITF and 250 personnel that use the VQ SSA Facility.

14. What is the approximate number of personnel needed to maintain the equipment?

6 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



EP-3/ES-3 ITF/CILOP

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Electronic Warfare (EW) Facility

1. State the primary purpose(s) of the facility/equipment.

The EW Facility provides the capabilities of: Bayesian radar identification algorithm development for Radar Warning Receivers (RWRs), jammers and ESM sets; and threat library maintenance for the ALR-76 RWR.

This facility is used to develop advanced missile threat simulations for the ALQ-170 Set which simulates missile threats against ship-board Electronic Counter Measures (ECM). Housed in this facility are all the computer resources necessary to code and burn programs into Read-Only Memory (ROM). Each workstation has removable hard drives for storing classified information and is set up in an environment where specific tasks are automated and Software Configuration Management is implemented with the aid of a local area network.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$2.2 M

4. Provide the gross weight and cube of the facility/equipment.

1,800 lbs., 122 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt three phase power, conditioned and dedicated power.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget considerations include raised flooring, physical security, access control, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees ± 5 degrees Fahrenheit) and humidity (50% ± 10% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

While the equipment in the lab is portable, there are several issues related to relocation or replication. One issue is that this lab is shared by the ALQ-170 and ALR-76 programs which both need threat library support so that relocating the lab without relocating both programs creates a loss for both or one of the programs depending on whether one or both programs move. The second issue is based on whether or not the move is done independent of the corresponding ALQ-170 Lab, since this lab is where the software developers and Software Support Activity burns the ROMs for use in the ALQ-170 Lab. This creates a problem since the ALQ-170 SSA no longer has easy access to testing capability and vice versa the ALQ-170 Lab has no easy way to get new software. The third issue is related to the ALR-76 project and the fact that the ALR-76 system is used on the S-3B, ES-3A and the EP-3A aircraft and takes advantage of the fact that the ES-3A and EP-3A VQ Integrated Test Facility are located at NAWC AD Indianapolis. In the Integrated Test Facility is the AN/ALR-76 Programmable Interface Unit (PIU), which is a computer controlled device which allows the software programmers to debug and troubleshoot and change the code within the AN/ALR-76. By moving this facility without moving the ALQ-170 lab and the EP-3/ES-3 Integrated Test Facility, all the synergy and benefits of having the labs located at one site would be lost.

The impact to the DON if the EW facility was lost would be considerable. The ALQ-170 Software Support Activity would no longer be able to function so no change to the existing could occur also all new development of the software for versions 4/5 would stop. The ability to develop new simulations for new threats would cease. What that means for the AN/ALR-76 is that the development of radar identification libraries for new geographic areas would stop as well as updates to current libraries would cease. The Fleet could continue to use existing libraries (in only a few geographic areas) for about a year before they would become obsolete. For the AN/ALQ-170, the loss of the EW facility would mean that updating of the threat characteristics and making other modifications in the Generic simulator would stop. The Fleet could continue to use the existing AN/ALQ-170 system for about a year before the simulator would become obsolete.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1982.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

3.2 Air, 5.2 Radar Systems, 5.3 Special Sensors, 8.3 Electronic Warfare (EW) Systems

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**12**	**40**	**40**	**40**	**40**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**44**	**44**	**44**	**44**

13. What is the approximate number of personnel used to operate the facility/equipment?

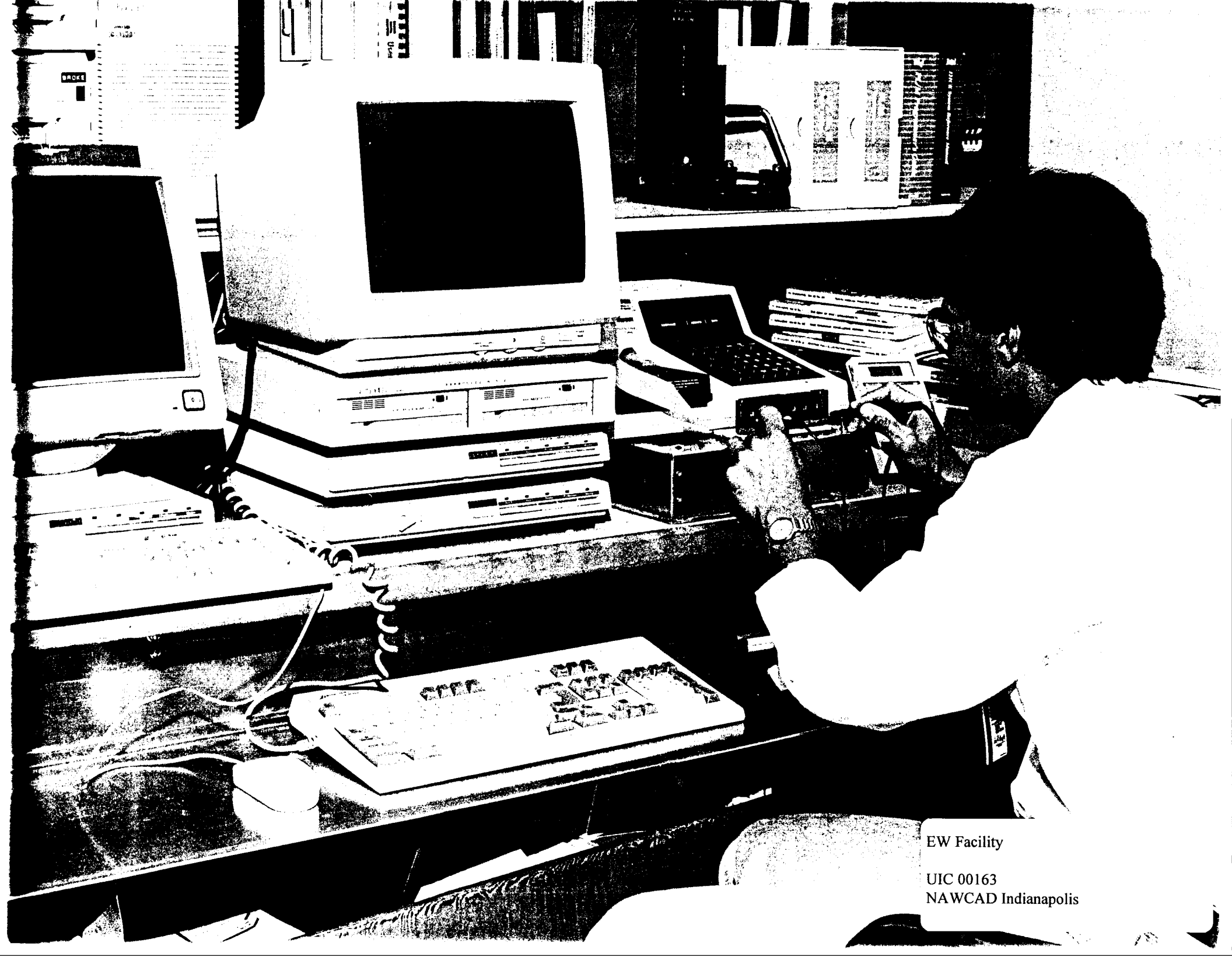
There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 11 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



EW Facility

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Failure Analysis Facility

1. State the primary purpose(s) of the facility/equipment.

The Failure Analysis Facility is used to determine the failure mechanisms and causes of failed electrical and electronics component parts and subassemblies in order to recommend corrective actions to prevent the recurrence of system failures.

This facility performs; Destructive Physical Analysis (DPA) and Failure Analysis (FA), houses the only government-owned Scanning Auger Multiprobe (SAM), has the combined functions of Auger Electron Spectroscopy (AES) and Secondary Ion Mass Spectroscopy (SIMS), holds two Scanning Electron Microscopes (SEMs), and houses an Energy Dispersive x-ray Analysis System (EDXA).

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$2.4 M

4. Provide the gross weight and cube of the facility/equipment.

7,500 lbs., 15 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt power, nitrogen distribution, compressed air, and water and drains.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include direct ventilation to outside air for the fume hoods, physical security, a foundation that is vibration isolated (less than 10 micrometers at 60 hertz), and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees ± 5 degrees Fahrenheit) and humidity (55% ± 5% RH)

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Failure Analysis Facility provides vital support to the various functions of the totally integrated NAWC Indianapolis capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without the Failure Analysis Lab or its relocation to another site, the integrated capability would be severely diminished or become very inefficient. Failure mechanisms and causes for electronic components and assemblies would not be identified in a timely manner.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1974.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.4 Torpedoes, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.2 Logistics Planning and Implementation, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**40**	**40**	**40**	**40**	**40**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

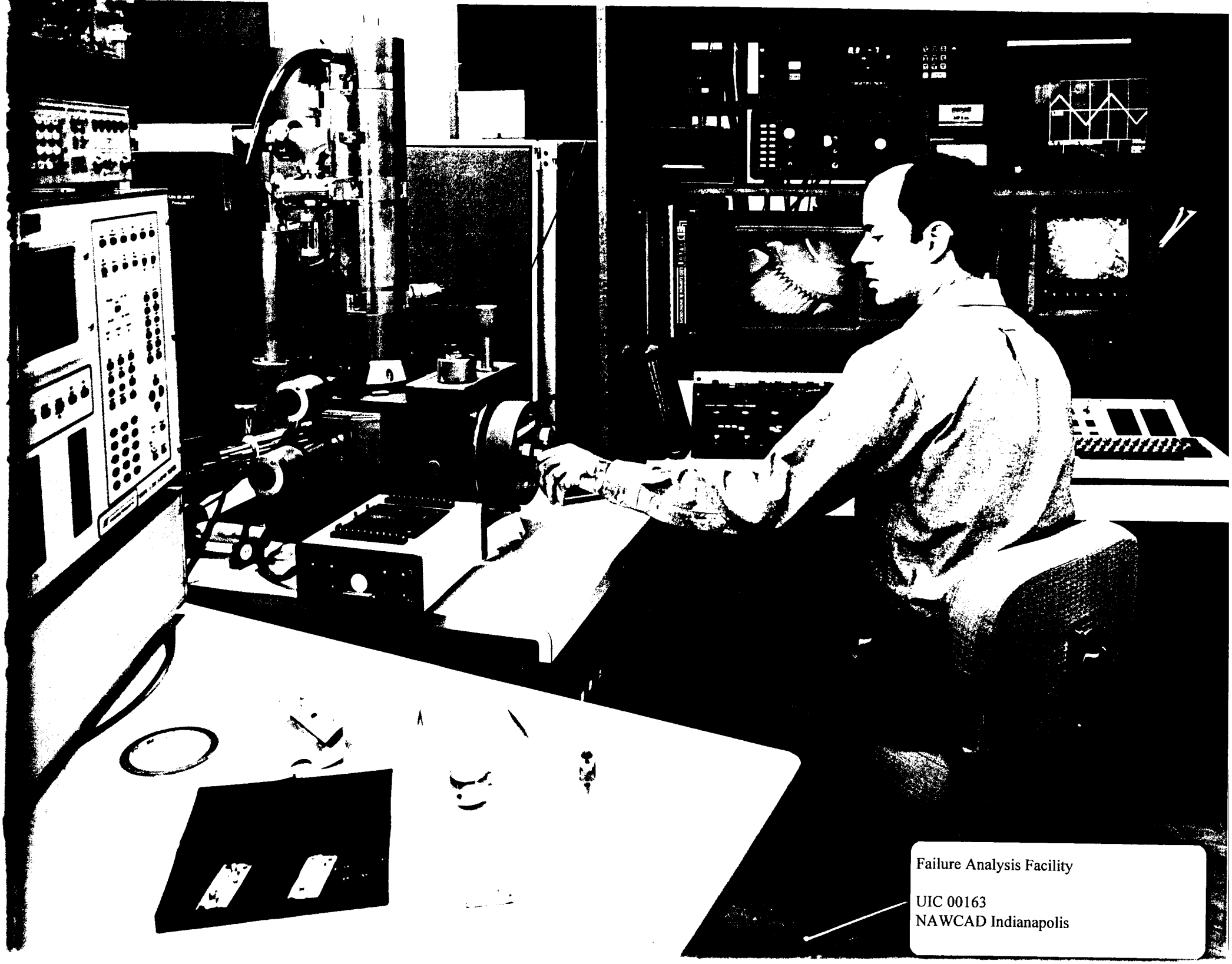
There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are 6 technicians and craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Failure Analysis Facility

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Flexible Integrated Machining System (FMS)

1. State the primary purpose(s) of the facility/equipment.

The FMS is a computer controlled group of machines connected by a material handling system which efficiently produces a variety of machined parts at low to medium volume. The system is fully automated with two Computer Numerically Controlled (CNC) Horizontal Mills for 5-axis contouring and positioning, a 110-position toolholder, two lathes with robot load and unload cross-milling/drilling capabilities, and two automated guided vehicles (AGV) for workpiece movement. A computer system is tied to every element of the FMS and provides overall control and when fully automated, the system is capable of operating in a "lights out" mode.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment that comprises this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$10.3 M

4. Provide the gross weight and cube of the facility/equipment.

88,000 lbs., 110 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 and 440 volt three phase power and compressed air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include an 8000 square foot foundation with a buried guide wire to control the automatic guided vehicles and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees $\pm$ 5 degrees Fahrenheit) and humidity (50% $\pm$ 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Flexible Integrated Machining System (FMS) is part of a totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, acquisition, manufacturing, and supportability capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionics and electronics systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed (and the equipment installed) within the main building complex in 1989.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**20**	**50**	**68**	**68**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**68**	**68**	**68**	**68**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are 5 craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Flexible Integrated Machining System

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Integrated Avionics Lab

1. State the primary purpose(s) of the facility/equipment.

The Integrated Avionics Lab provides hardware and software tools for avionics integration during design, development, and support phases of acquisition for avionics systems and sub-systems via 1553, fiber optics and other data buses.

This lab support avionics integration including hardware-in-the-loop real-time testing to validate connectivity and software functionality. Resources from several technology areas including inertial navigation, GPS satellites mission computers, radio communication, displays, and interface units are flexibly allocated for specific testing. Connectivity includes 1553, fiber optics, discrete digital and analog signals. Real-time computer simulators are tied together with Ethernet and high speed shared memory provide a realistic and dynamic environment to evaluate avionics functionality.

Projects supported include: GPS integration on CH-53, C-2, C-130, CAINS I, CAINS II, CRS, NGCR, AYK-14, NSIU, DSDC, AAS&T, SHARP, MDPS, VAMPS, GPWS, V-22 avionics suite, MH-53E avionics suite, and ES-3A navigation sub-system.

This lab is unique in the NAWC Aircraft Division for supporting avionics integration at the hardware/software interface level.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable; however, the interconnecting cabling is somewhat extensive and relocation would be more labor intensive than for "normal" Class 3 equipment.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$18.4 M

4. Provide the gross weight and cube of the facility/equipment.

38,000 lbs., 125 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt three phase power, 400 hertz power, conditioned power, dedicated circuits, and extensive telecommunications wiring.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include raised flooring, access control, physical security, RF shielding, fire protection, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees ± 5 degrees Fahrenheit) and humidity (50% ± 10% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Integrated Avionics Lab is an extremely complex lab with extensive under the floor cabling. Expensive test equipment is shared among the programs, including a Rate Table, GPS satellite simulator, Cockpit interface, 1553 analysis tools, and some computer resources. As a result, the new facility must be prepared while the old one continues to operate or an anticipated 1-2 year impact will occur on most of the programs in the lab. To prepare the new location , avionics racks, large test equipment, air conditioning, and computer wiring must be installed prior to the actual avionics, portable test equipment, and microprocessor development stations being moved. First a raised floor, air conditioning, 60 Hz power conditioning, and 400 Hz power, and computer wiring must be installed (9 months). At the same time avionic wiring is progressing. Then avionics racks, the cockpit, and the large test equipment, such as the rate table must be installed (6 months). Then the avionics wiring and computers can be installed (6 months). Finally all systems must be verified to work correctly (6 months). Then the avionics can be moved to the new site. It should be noted that if not all existing projects in the IAL are not relocated with the IAL, those remaining projects will need to procure duplicate capabilities. The IAL has served as model for developing synergy amongst projects by the sharing of resources and personnel. The IAL has allowed small projects to leverage off a larger capability.

The impact to the DON if the IAL was lost would be that either the various project products could not be developed or if they are already developed and operational could not be supported by the engineering community. There are several Software Support Activities that depend on the IAL for their software support environments: CAINS I, IA, and II, CAINS Reference System (a Mini-SINS replacement for LPHs), V-22 Mission Planning System, and the MH-53 (which is in the process of setting up in the IAL). Testing of avionics in the IAL will have to be accomplished entirely by flight testing. Advanced technology simulation and demonstration capability will be lost. The GPS program Controls and Displays Navigation Unit (CDNU) software support will be lost and the GPS integrations on the CH-53, C-2, ES-3, and C-130 will have to be transitioned to another DOD location with a significant learning curve attached. Government avionics support for the V-22 aircraft will be significantly impaired.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1992.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

3.2 Air, 5.2 Radar Systems, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 10.1.2 Aircraft-Related Training Systems, 10.3 Facilities Engineering, 10.9 Activity Mission and Function Support.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**N/A**	**N/A**	**56**	**56**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**62**	**62**	**62**	**62**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are 2 dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 36 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

2 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Integrated Avionics Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Lighting/Night Vision Lab

1. State the primary purpose(s) of the facility/equipment.

The Lighting/Night Vision Lab provides testing and evaluation of aircraft crew station and exterior lighting systems including night vision compatible lighting. This lab is used for qualification, first article, acceptance test and sample plan approval on any aircraft lighting including night vision compatible lighting. The SMQ-11 receiving inspection testing for single line CRTs is conducted in this lighting lab.

The Lighting/Night Vision Lab has the capability to be used in creating NVIS standards for calibration of the spectroradiometer system which is a required test system for all certified night vision compatible lighting test labs.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$ 0.6 M

4. Provide the gross weight and cube of the facility/equipment.

4,200 lbs., 12 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include filtered electrical feeds.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include a vibration isolated foundation, environmental controls, adequate space for a 50 foot bench, and "light tight" construction (light leakage not to exceed 0.000001 foot candles).

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (70 degrees $\pm$ 5 degrees Fahrenheit) and humidity (50% $\pm$ 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Lighting/Night Vision Lab is part of a totally integrated capability for the development and prototyping/manufacturing of aircraft crew station and exterior light systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for aircraft crew station and exterior light systems to satisfy Fleet operational/safety problems

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1979 and expanded in 1993.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 3.2 Air, 10.8 Other Subsidiary Systems or Components

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**40**	**40**	**40**	**40**	**40**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**50**	**50**	**50**	**50**

13. What is the approximate number of personnel used to operate the facility/equipment?

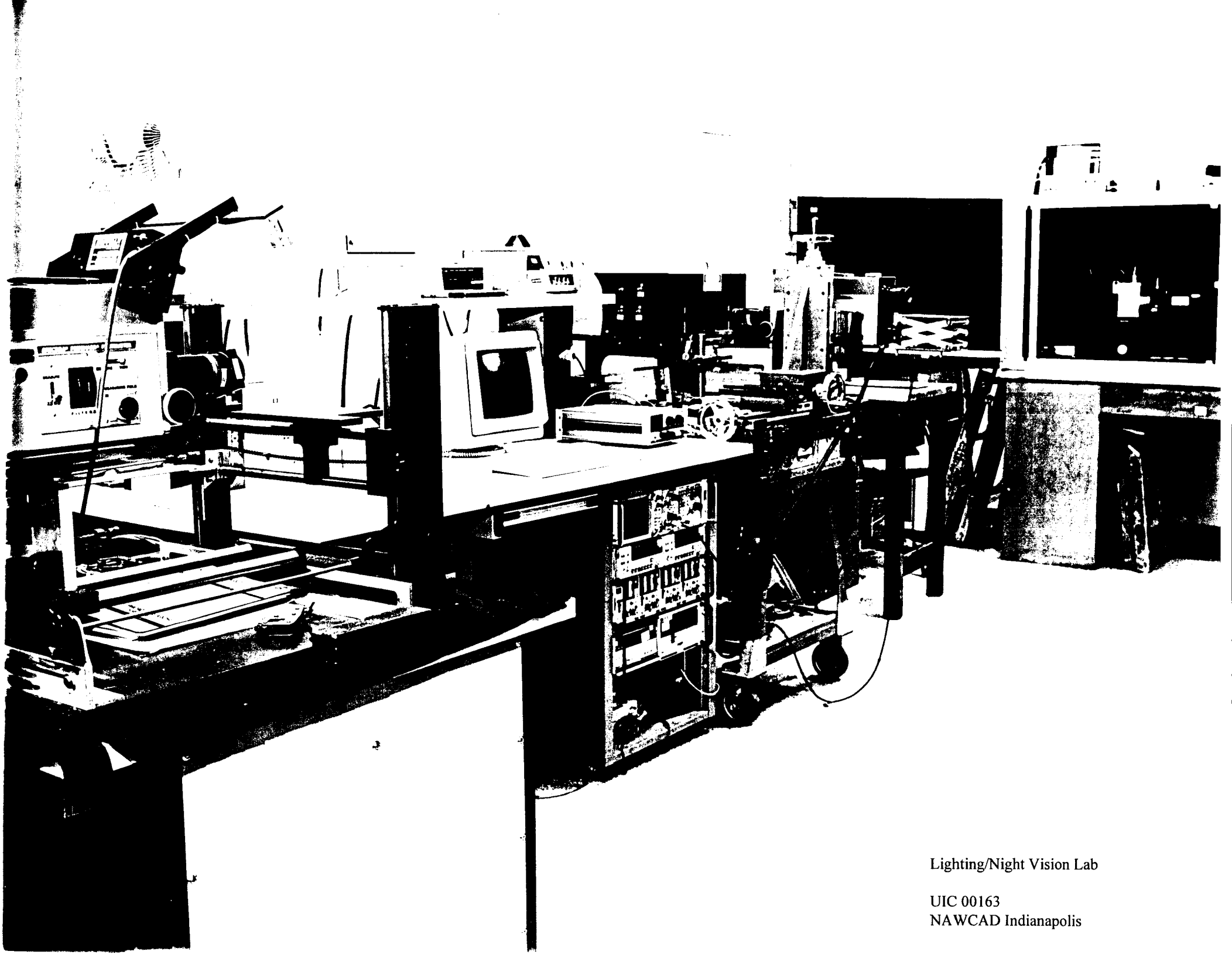
There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 6 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Lighting/Night Vision Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Material Lab

1. State the primary purpose(s) of the facility/equipment.

The Material Lab consists of an Metals/Composite Lab, an Organic Materials Lab and an Inorganic Material Lab which provide analysis and consultation on metals, composites, organic and inorganic chemistry.

The Metals/Composite Lab provides test and evaluation of materials and composite material prototype manufacturing and repairing. This lab performs: failure analysis of metals, composites and other materials; inspection and evaluation of the mechanical properties of materials; metallography, x-ray radiography, and optical microscopy; photographic documentation; chaff evaluation; composite prototypes and lay ups; and evaluation of adhesives and potting.

The Organic Materials Lab performs analysis on organic chemicals and material of all types. This lab has the ability to perform: shelf life determinations; monitoring of waste streams for environmental compliance; analysis on hazardous material; tests on failure analysis and manufacturing process problems; Surface Insulation Resistance (SIR) testing on electronic boards; and electronic discharge and other types of electrical testing.

The Inorganic Materials Lab performs all the analytical testing required to: analyze plating baths used in Printed Wiring Board (PWB) fabrication and metal finishing; monitor waste streams leaving wastewater treatment systems; verify proper corrosion control of powerhouse boiler and cooling waters; analyze all metallic materials that require receiving inspection; verify proper quality and identify contaminant levels in Class 100 clean room water distribution; perform acceptance testing on optical components for night vision, walleye, and DSMAC applications, perform alloy identification for failure investigations; and monitor contaminant levels in manufacturing solder pots.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$13.9 M

4. Provide the gross weight and cube of the facility/equipment.

85,000 lbs., 309 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt three phase power, deionized water distribution, reverse osmosis water distribution, water and drains, various true earth ground sources, natural gas, high-volume argon gas distribution, high-volume nitrogen distribution, filtered compressed air, chilled water, and distributed vacuum.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include numerous exhausts (direct ventilation to outside air), a lead-lined room for the industrial X-ray machine, separate rooms for various processes that involve handling of noxious, toxic, and hazardous fumes, vibration isolated foundations, refrigerated storage for organic and inorganic compounds, code-compliant storage for compressed gasses, oxidizers, inert and fuel gasses, poisons, acids, caustics, reactives, flammables and bulk chemicals, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees $\pm$ 5 degrees Fahrenheit) and humidity (50% $\pm$ 10% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Replication and/or relocation of the materials laboratory would very difficult and expensive. Several major pieces of laboratory equipment no longer receive support from the manufacturer and would have to be sent to surplus or have repair/installation parts custom fabricated at the new site. Equipment that can be moved must be carefully secured and there would be major costs for the disposal of a substantial inventory of hazardous chemicals. Both relocation and /or replication of the materials laboratory would create additional costs and schedule delays in Navy programs.

The impact to DON if this facility was lost would be the increase in test turn around time and the reduced product quality for manufacturing and prototyping operations. Production schedules would be delayed waiting for test results. The materials laboratory is equipped to perform complete material analyses and investigations of metals, composite materials and organic chemicals or materials. Some of the testing, such as plating analyses, without the lab would take too long by a contract laboratory to be useful. The materials laboratory has some unique equipment to perform its mission, and this capability would be lost. The material laboratory is part of a totally integrated capability for the development and prototyping/manufacturing of avionic/electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed in 1942.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 1.5 Ground Vehicles, 2.2 Guided Missiles, 2.4 Torpedoes, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**40**	**40**	**40**	**40**	**40**

12. Provide the projected utilization data out to FY1997.

FY— —	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are approximately 18 scientific personnel using this facility to provide analysis and consultation.

14. What is the approximate number of personnel needed to maintain the equipment?

2 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Material Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Microwave Integrated Circuit Lab

1. State the primary purpose(s) of the facility/equipment.

The Microwave Integrated Circuit Lab is used for design, simulations, prototyping, testing, and evaluating of RF circuits and systems. This lab has signal generation and measurement capabilities from VLF into the K band microwave region with extensive accuracy of measurement. and extensive testing and evaluation capabilities, temperature and humidity controls, isolated power; and a raised floor for the instrumentation.

In a separate room the Microwave Integrated Circuit Lab has static controlled workstations with extensive soldering and desoldering equipment. This area has the ability to use different types of solder for the different kinds of microstrip circuit boards used in modern microwave equipment.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$2.7 M

4. Provide the gross weight and cube of the facility/equipment.

4,800 lbs., 30 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 400 hertz three phase power, compressed air, and isolated power.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include raised flooring, physical security, access control, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (70 degrees ± 2 degrees Fahrenheit) and humidity (45% ± 5% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The specialized simulation equipment, test equipment, and assembly/test personnel housed in the Microwave Integrated Circuit (MIC) Lab are critical to rapidly prototyping RF/microwave circuits. The lab and the designers who use the lab need to be at the same site. This lab is used across multiple projects. The MIC Lab is part of a totally integrated capability for the development and prototyping/manufacturing of avionic/electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1979.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

5.3 Special Sensors, 7.2 Airborne, 7.3 Shipboard

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**24**	**34**	**36**	**36**	**36**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**38**	**38**	**38**	**38**

13. What is the approximate number of personnel used to operate the facility/equipment?

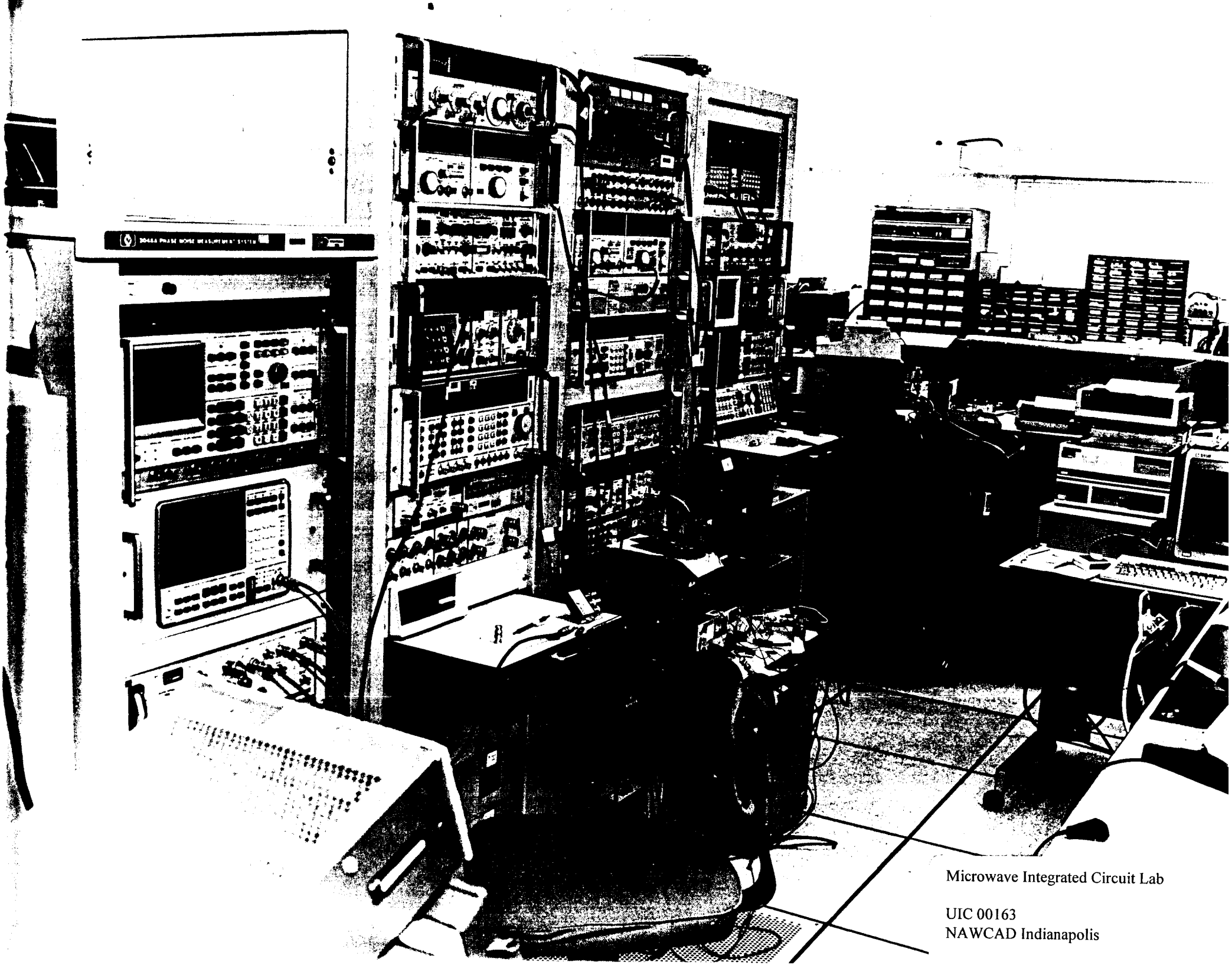
There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 6 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Microwave Integrated Circuit Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Mobile Communication Lab

1. State the primary purpose(s) of the facility/equipment.

The Mobile Communication Lab is used to evaluate the quality of RF links as a function of link distance. This lab is housed on a 1987 GMC van truck frame which is twenty three feet long and has seating for a driver and five passengers. The lab can be positioned a distance from the opposite end of the RF link to evaluate the performance of the link in an operational environment.

The Mobile Communication Lab is used for the Frequency Agile Filters, SINCGARS, and ASC-26 Communication applications.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This is a portable facility (all equipment is housed on a 1987 GMC step-van frame).

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$ 0.2 M

4. Provide the gross weight and cube of the facility/equipment.

2,800 lbs., 17 cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No special utilities are required.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

There are no special budget requirements.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

There are no environmental control requirements.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Mobile Communication Lab is a communications van that could be relocated to another site by driving it there. This van is a one of a kind with no commercial alternatives. The lab was designed specifically for its function of doing remote/mobile testing of the various developmental communication and navigation products. This lab is used across multiple projects. The Mobile Communications Lab is part of a totally integrated capability for the development and prototyping/manufacturing of avionic/electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was acquired in 1988.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

3.2 Air, 7.2 Airborne

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**4**	**4**	**4**	**4**	**4**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**4**	**4**	**4**	**4**

13. What is the approximate number of personnel used to operate the facility/equipment?

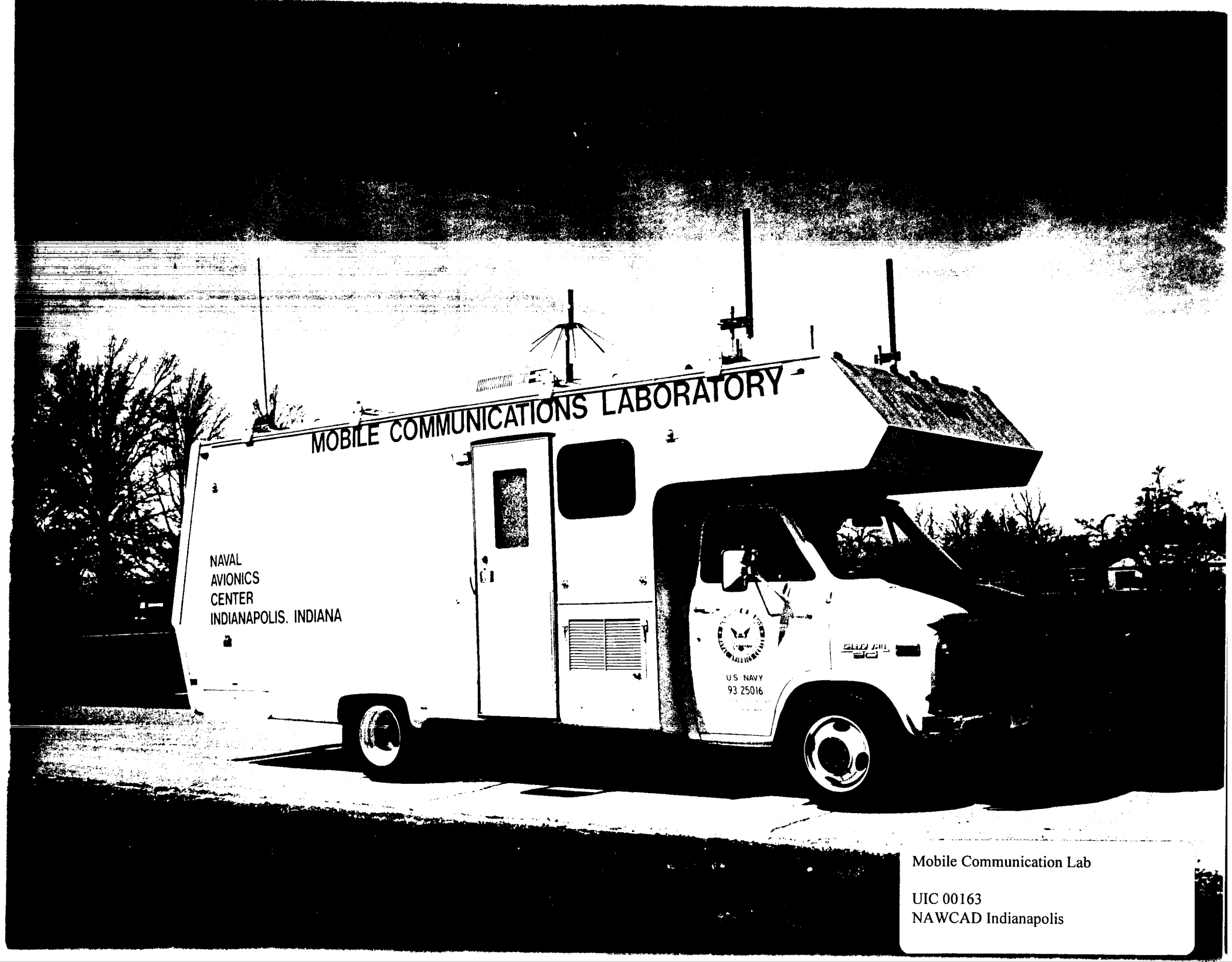
There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 2 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Mobile Communication Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Mobile Navigation Lab

1. State the primary purpose(s) of the facility/equipment.

The Mobile Navigation Lab is a low cost, accurate, repeatable, and readily available test environment which provides dynamic motion. This lab provides a link between static bench testing and "at sea" testing and provides the following benefits: reduces "at sea" testing; accessible for year-round testing; shortened hardware and software development time; repeatable test environment; significant yearly cost savings; reduced manpower requirements.

The Mobile Navigation Lab has the capability to test: Carrier Aircraft Inertial Navigation Systems (CAINS) I, IA, and II; CAINS Reference System (CRS); Global Positioning System (GPS); Standard Altitude Heading reference System (SAHRS); Single Mode Alignment (SMAL); Convert Data Link; and most present and future navigation systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is a portable asset (all equipment is mounted inside a 1986 Greyhound bus)

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$1.2 M

4. Provide the gross weight and cube of the facility/equipment.

4,800 lbs., 17 cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required to operate this facility (while parked) include an exterior source of 60 and 400 hertz power, and an exterior source of HVAC that can be flex-ducted to the parked bus..

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

There are no special budget requirements.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

There are no environmental controls required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Even though the Mobile Navigation Lab is physically a stand alone facility, functionally it is closely integrated with function of other stationary lab facilities such as the Integrated Avionics Lab and the DSMAC Lab. Therefore, it would be essential to move all of the support facilities at the same time this lab is being relocated to minimize project impact and reduce overall cost. The lab was designed specifically for its function of doing static/dynamic testing of the various developmental navigation products. This lab is used across multiple projects. The Mobile Navigation Lab is part of a totally integrated capability for the development and prototyping/manufacturing of avionic/electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic to satisfy Fleet operational/safety problems. In addition, without this capability the user programs would require a significant increase in the number of sea tests and flight tests, which are costly and can cause program delays while waiting for the availability for ships and flight hours.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was acquired in 1986 and became fully operational in 1988.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**20**	**20**	**20**	**20**	**20**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**20**	**20**	**20**	**20**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 6 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Mobile Navigation Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Plating Facility

1. State the primary purpose(s) of the facility/equipment.

The Plating Facility is used to provide production plating and printed wiring board plating capabilities to other Navy facilities and the fleet. This facility also has the capability to test, research and implement new plating techniques and processes and is capable of producing all commercially available finishes including the following capabilities: weld, anodize, chromating, passivation, cadmium, chrome, and nickel. The Plating facility can also produce precious metal plating and waste water pretreatment to minimize metal waste being released into the environment.

The Plating Facility has developed special processes for ALD-9 cable repair and the SH-60 strut plating.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is a fixed asset.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$5.0 M

4. Provide the gross weight and cube of the facility/equipment.

210,000 lbs., 200 cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 and 440 volt three phase power, a high volume (100,000 gallons/day) water supply, a separate drain system piped to a waste water treatment plant, compressed air, distributed steam and a heating plant capable of maintaining temperature at 25 air changes per hour of 100% outside air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include extensive ventilation (every process tank required a fume hood except the rinse tanks) to outside air, separate ventilation systems for the acids and cyanide, availability of a waste water treatment plant designed to separate wastes from metal finishing operations, non-corrosive materials used in all utility distribution systems, dedicated rectifiers, code compliant storage facilities for bulk acids, caustics, and reactives, and an adjoining wet lab for chemical composition analysis.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (65 degrees minimum), waste water treatment for all heavy metals, and air scrubbing of the exhausts (in some states).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Plating Facility is a fixed asset that would be extremely difficult to relocate to another site due to its size and special facility requirements. It is part of a totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or its relocation to another site, the totally integrated avionics and electronics systems engineering, acquisition, manufacturing, and supportability capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionics and electronics systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed in 1967.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**36**	**36**	**36**	**36**	**36**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

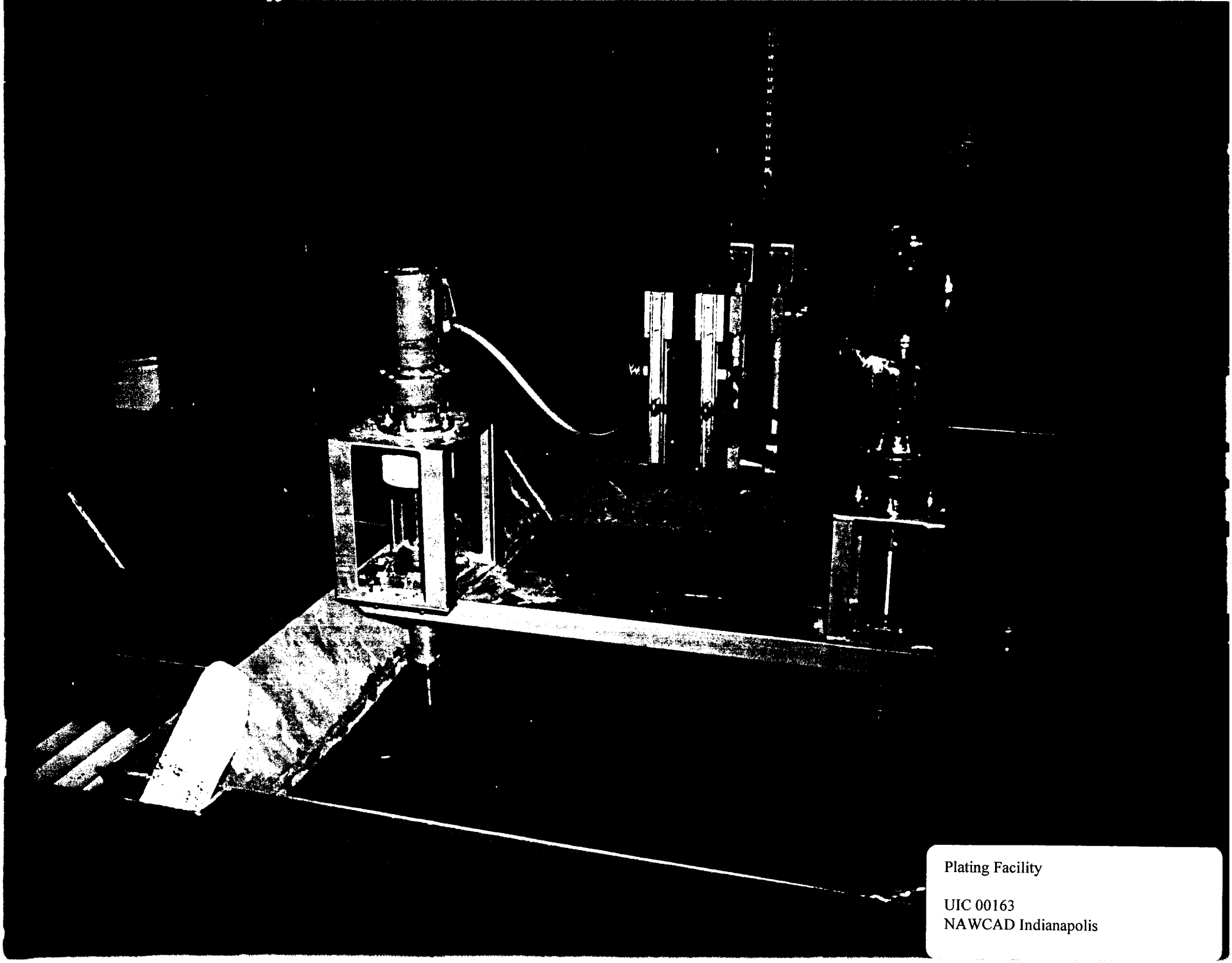
There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are approximately 6 craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Plating Facility

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Printed Wiring Board (PWB) Fabrication

1. State the primary purpose(s) of the facility/equipment.

The PWB Fabrication Facility makes all of the types of bare PWBs needed to support customers. The Plating Facility has the capability to perform analytical testing of plating baths used in Printed Wiring Board (PWB) fabrication and metal finishing. This facility provides quick cycle time which enables proper adjustment of plating and cleaning bath components and testing to troubleshoot plating baths when a manufacturing problem arises.

This facility builds single sided, double sided, multilayer up to 19 layers, and flex and flex rigid boards. All the plating, chemical processing, phototool generation, photo imaging, automatic optical inspection and mechanical equipment required to build printed wiring boards are available in this facility. The PWB Fabrication Facility has the capability to build boards from many types of material such as epoxy, BT epoxy, polyimide, Kelver, and Kapton. Special plating can be performed which includes Ni/Au plated through hole boards on any area of the board required.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$7.2 M

4. Provide the gross weight and cube of the facility/equipment.

110,000 lbs., 228 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 and 440 volt three phase power, a high volume water supply, a separate drain system piped to a waste water treatment plant, compressed air, distributed steam, reverse osmosis water and nitrogen.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include ventilation for the electroplating processes, two types of dark rooms for the photo processing operations, availability of a waste water treatment plant designed to separate wastes from metal finishing operations, a separate room for etching processes with special ventilation and non-corrosive materials used in utility distribution systems, code compliant storage facilities for bulk acids, caustics and reactives, a dry nitrogen storage area for raw materials, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 10% RH) in some areas, and air cleanliness (Class 100,000 conditions in the photo processing areas).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Printed Wiring Board Fabrication Facility provides the bare boards that are the building blocks for most electronics. As such, this facility is part of a totally integrated capability for the development of prototyping/manufacturing of avionics and electronic systems. Since this capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or its relocation to another site, the totally integrated avionics and electronics systems engineering, acquisition, manufacturing, and supportability capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionics and electronics systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed in 1967.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**44**	**44**	**44**	**44**	**44**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**44**	**44**	**44**	**44**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are 14 craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Printed Wiring Board Fabrication

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Rapid Acquisition of Manufacturing Parts (RAMP) Facility

1. State the primary purpose(s) of the facility/equipment.

The RAMP Facility is a Flexible Computer Integrated Manufacturing (FCIM) initiative driven by digital data. Digital data allows for the use of artificial intelligence to assist manufacturing engineering in creating process plans, routing, test programs, and in developing programs for automated equipment.

The RAMP Facility houses the equipment needed for the electronic assembly process of Printed Wiring Boards (PWBs). This process includes manual, semi-automated, and fully auto-mated processes of inserting components into through-hole technology or onto surface mount technology PWBs. Boards leave the facility fully tested and ready to be inserted into a higher assembly. The RAMP Printed Wiring Assembly (PWA) portion provides: small lots of boards in approx. 30 days; significant reduction of lead times; engineering, planning, scheduling, routing, manufacturing, and board testing in a computer-assisted environment. The RAMP cell has the ability to re-engineer boards that have no documentation and catch design flaws before production.

This facility also provides: automated scheduling functions which allow real time job tracking and status reporting; electronic data packages to make computer simulation a viable means of developing engineering drawing packages, validating component substitutions, and printed wiring board design; process automation for vary accurate algorithms for planning workload and cost proposals. This facility has the capability of surface mount technology.

The RAMP Facility is a Class 100,000 clean room and has a static-dissipative flooring for handling electro-static discharge. The computer room has a raised floor and an internal air conditioning system to keep a regulated temperature for the mini-VAX's.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$21.4 M

4. Provide the gross weight and cube of the facility/equipment.

120,000 lbs., 812 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt three phase power, 400 hertz power, conditioned power, water and drains, compressed air, nitrogen, an uninterruptable power supply (UPS) for the computer room and vacuum.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include static-dissipative flooring, a small computer room with raised flooring, fire protection and a UPS, environmental controls, ventilation to outside air for many pieces of equipment, and telecommunications wiring.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit), humidity (50% +/- 20% RH) and air cleanliness (Class 100,000 clean room conditions throughout the building).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The RAMP Facility would be extremely difficult to relocate due to the extensive equipment in the overall facility as indicated by the over $21M replacement value. In addition, the RAMP system is linked to various NAWC Indianapolis databases required by prototyping, manufacturing and material handling. Extensive facility alterations, software linkages to databases, and special utilities would be required at a new site. The impact of the loss of the RAMP cell to both the Navy and DOD would be the elimination of the single DOD prototype paperless electronics assembly operation. RAMP is part of a DOD initiative to develop a data driven environment (paperless) for a high mix/low volume circuit assemblies. Once developed and proven this technology will be exported to industry, primarily medium to small businesses. NAWC Indianapolis partners with 7 other DOD activities and out sponsor in Naval Supply Systems Command (Logistics & Research Development) Code 64. In addition, NAWC Indianapolis would lose a vital link (the RAMP cell) of a totally integrated capability for the development and prototyping/fabrication of avionic and electronic printed wiring assemblies. Since this capability is essential whenever commercial industrial sources cannot cost effectively provide the printed wiring board assemblies, the loss of this facility would have a negative impact on Fleet support.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was a Military Construction project completed in 1991.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**N/A**	**N/A**	**24**	**32**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**40**	**40**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

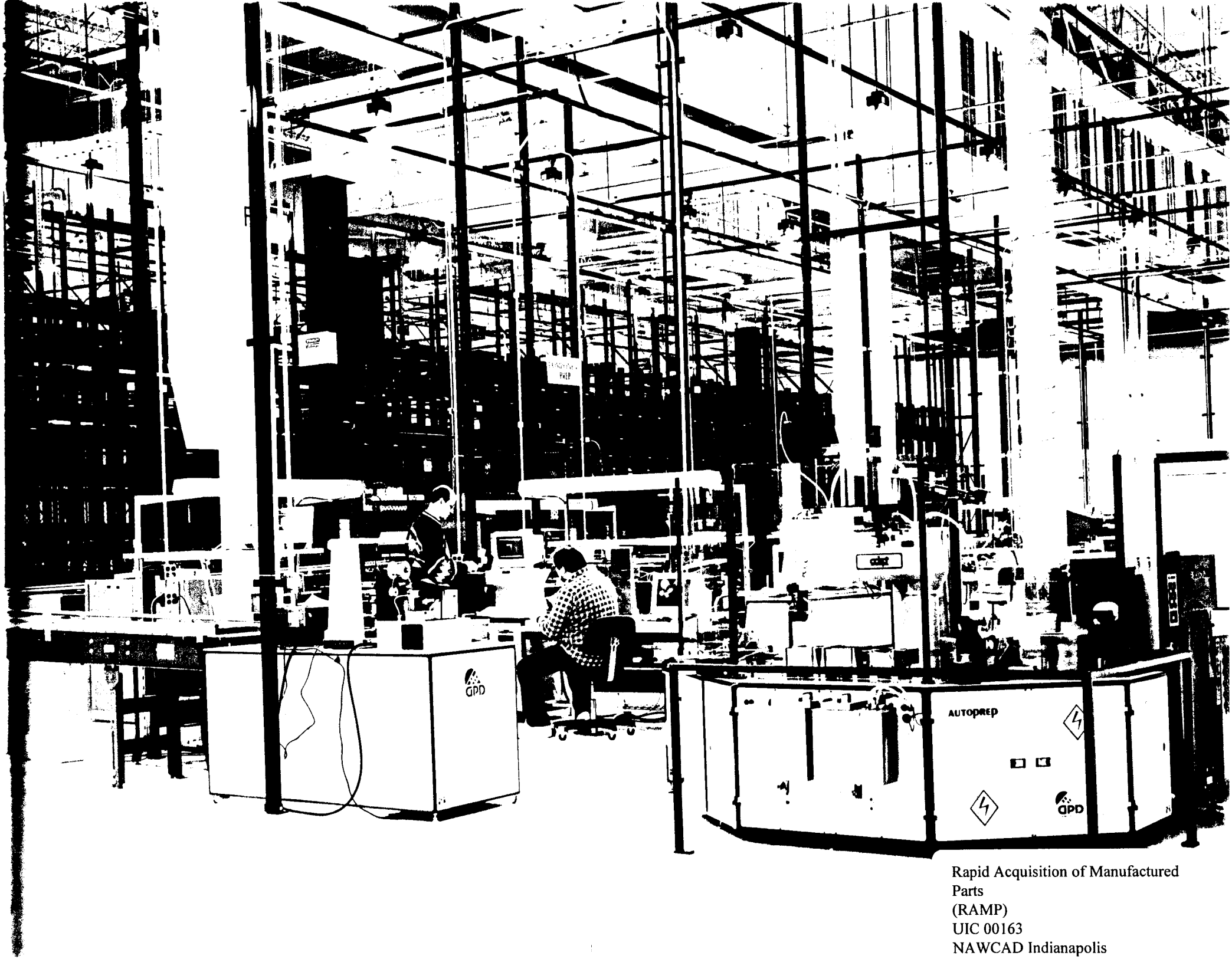
There are 3 dedicated operators to support the functions performed in this facility. Depending on workload variations, there are approximately 80 people involved in developing the RAMP cell and using it for fabrication of printed wiring board assembly.

14. What is the approximate number of personnel needed to maintain the equipment?

3 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Rapid Acquisition of Manufactured Parts
(RAMP)
UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Reliability Burn-in Test Facility

1. State the primary purpose(s) of the facility/equipment.

The Reliability Burn-in Test Facility provides environmental testing of manufactured or procured products using temperature cycling, random vibration, and a slip table for humidity.

The facility has the capability to perform: Environmental Stress Screening (ESS) test are performed to eliminate latent defects; Qualification Tests to demonstrate the Mean Time Between Failure (MTBF) of a product; Reliability Development Growth Tests to test, analyze and fix design problems which are detected while running the products using Mission Profiles to duplicate the real world user environment; and troubleshooting on new designs or problems with pre-production and production units.

The Reliability Burn-in Test Facility has nineteen chambers to use. Two walk-in chambers are used for ESS tests of large consoles and the antenna pedestal for the SMQ-11 Weather Satellite System. The rest of the chambers may be configured for simultaneous temperature and random vibration.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$4.5 M

4. Provide the gross weight and cube of the facility/equipment.

28,000 lbs., 89 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 and 440 volt three phase power, compressed air, a high volume chilled water supply or the availability of a cooling tower.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include physical isolation from other facilities and a supply of cooling water for the chambers.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

There are no special environmental controls, but temperature and humidity are maintained at 72 degrees +/- 10 degrees Fahrenheit and 50% +/- 20% RH respectively.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Reliability Burn-in Test Facility is used across multiple projects. The facility is part of a totally integrated capability for the development and prototyping/manufacturing of avionic/electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1972.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 2.4 Torpedoes, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**168**	**168**	**168**	**168**	**168**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**168**	**168**	**168**	**168**

13. What is the approximate number of personnel used to operate the facility/equipment?

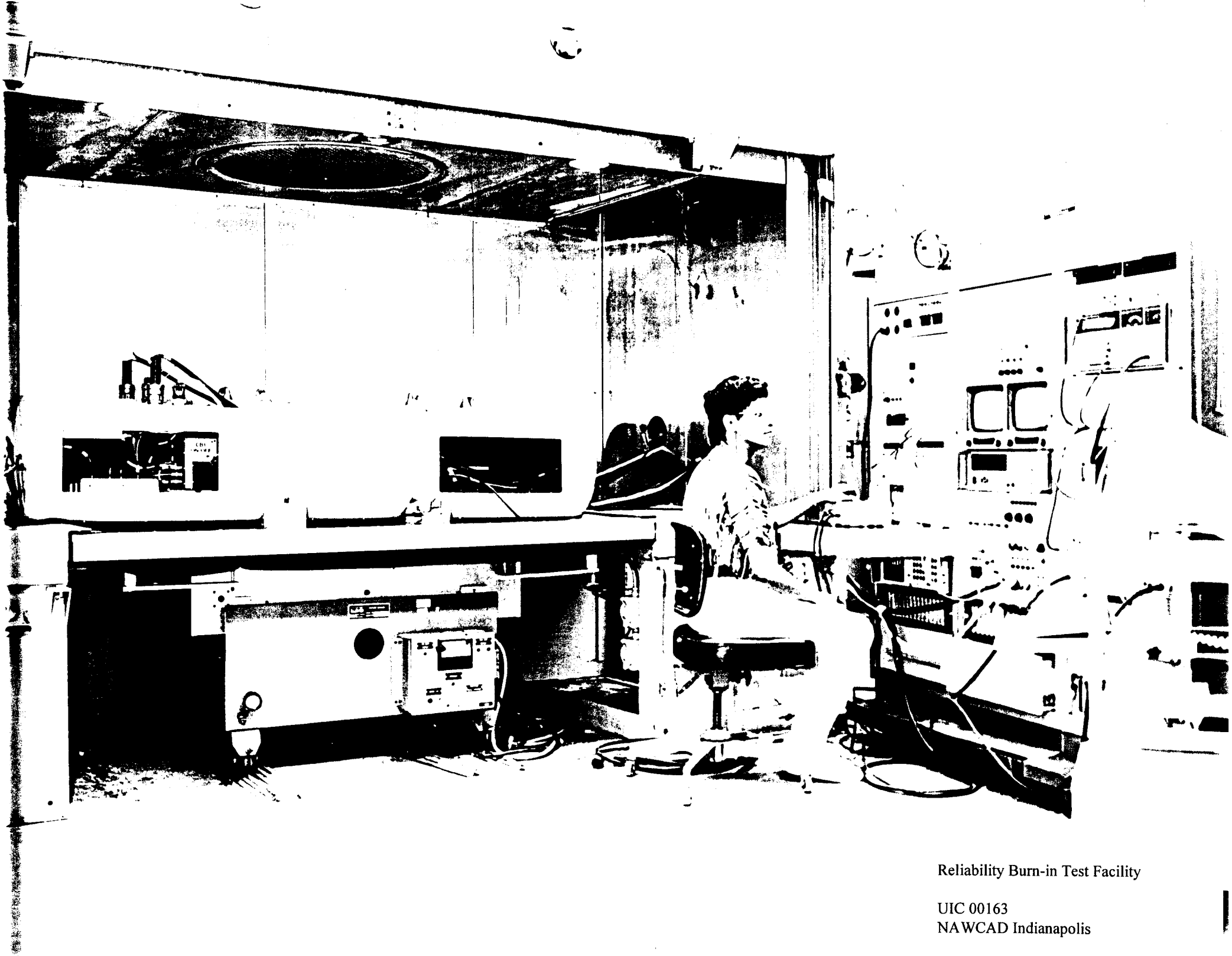
There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are between 8 to 12 craftsmen and technicians using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Reliability Burn-in Test Facility

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Secure Compartmented Integrated Facility (SCIF)

1. State the primary purpose(s) of the facility/equipment.

The Secure Compartmented Integrated Facilities (SCIF) are used for all projects that require access to sensitive information and special security and intelligence support. These secure facilities enable engineers, technicians and physicists to conduct classified work and store classified material. Attributes of the facilities include motion detectors, alarmed doors, fiber optic telephone/transmission lines, paper shredder, TV monitors and cameras, separate air conditioner units for each lab, two sound cover systems, STU-IIIs on all data lines, cipher locks and control system and back up power system for cipher locks.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in these facilities are portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$3.1 M

4. Provide the gross weight and cube of the facility/equipment.

1,800 lbs., 68 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of these facilities include filtered power and telecommunication lines and back-up power for the access control system.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include ductwork silencing, acoustic isolation throughout, RF shielding, an access control system, motion detectors and an alarm system, fire protection, a closed circuit television system with cameras and monitors, sound cover systems, a classified material storage vault, cipher locks, offices for intelligence and special security support. This is a TEMPEST approved sensitive compartmented information facility (SCIF) constructed in accordance with all the requirements of Defense Intelligence Agency Manual 50-3.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Secure Compartmented Integrated Facilities are used across multiple projects. The loss of these facilities would have a negative impact to the DON and could not be replaced by commercial sources. A number of projects at NAWC AD Indianapolis require secure facilities and would not be able to perform the tasks assigned. Depending on the project supported, either the product would not be developed or if the product is operational then it could not be supported.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was originally constructed within the main building complex in 1984, expanded in 1992, and will be expanded again this fiscal year.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 7.2 Airborne, 8.3 Electronic Warfare (EW) Systems, 10.1.2 Aircraft-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**44**	**44**	**44**	**44**	**44**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**44**	**44**	**44**	**44**

13. What is the approximate number of personnel used to operate the facility/equipment?

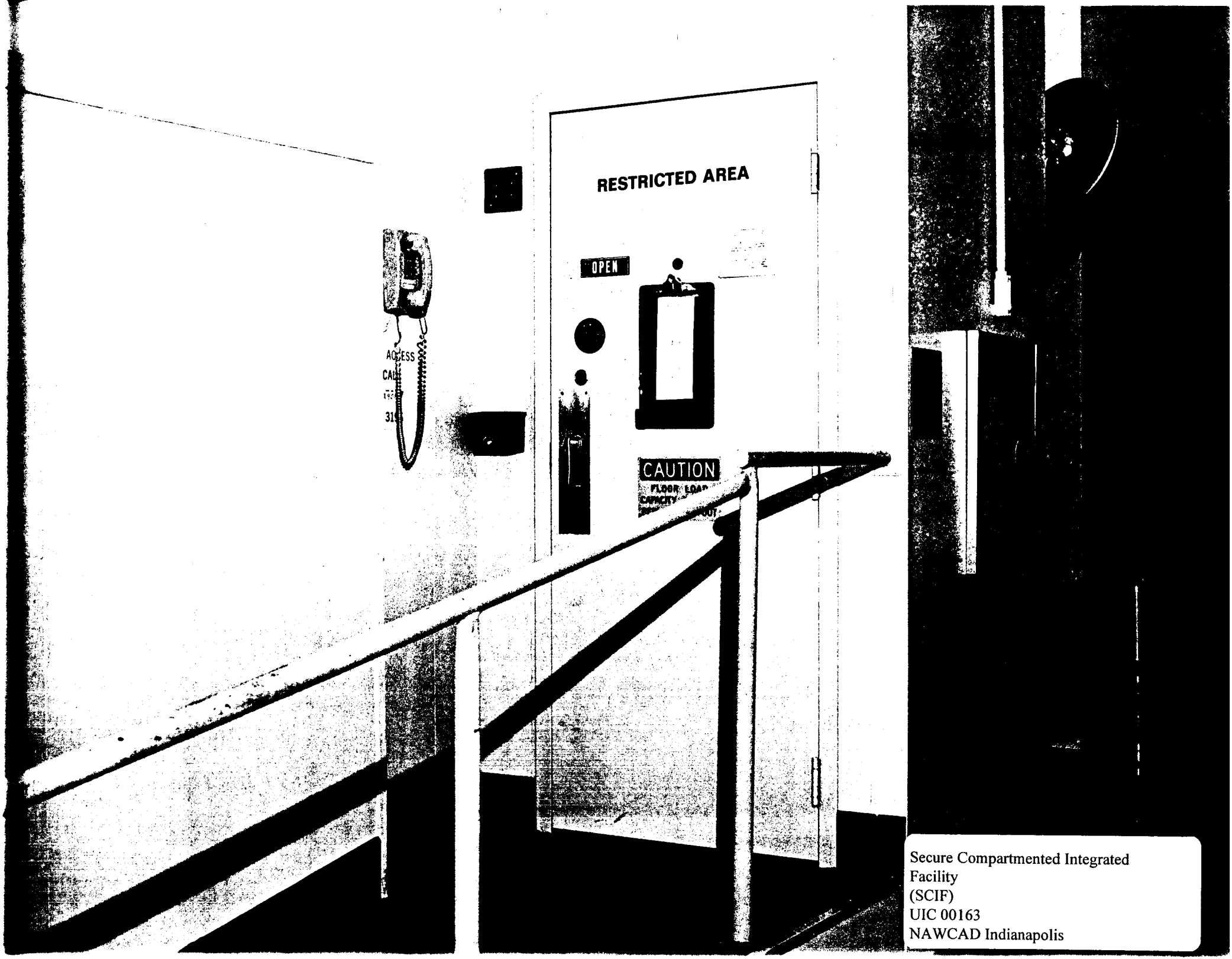
There are 4 dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 40 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Secure Compartmented Integrated Facility
(SCIF)
UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Sheet Metal & Machining Facilities

1. State the primary purpose(s) of the facility/equipment.

The Machining Facility contain a full spectrum of capabilities which consist of conventional equipment such as mills, drill, grinders, lathes and boring mills as well as computer controlled numerically controlled 3 to 5 axis machines. This facility contains a Mechanical Model Shop which provides prototyping hardware. This facility also houses 29 NC/CNC machines and a distributed numerically controlled network that connects these machines to a central computer containing N/C programs eliminating the need for tapes which simplifies the editing process. There are 200 conventional type machines that are capable of holding close tolerances.

The Sheet Metal facility performs precision operations in shearing, punching, forming, laser cutting, water-jet cutting, notching and rivet assembly. This facility has state-of-the-art equipment which allows the capabilities of a complete precision sheet metal fabrication shop. 0.01 to .25 thickness capability, 2 precision CNC turret press, normal tolerances +/- .005 to .01, steel rolled die capability, 12" hydroform, punch press up to 200 ton capacity.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable except for the structural portions of the various hoists.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$28.6 M

4. Provide the gross weight and cube of the facility/equipment.

412,000 lbs., 1,210 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 and 440 volt three phase power, compressed air, and conditioned water.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include physical isolation and extensive grounding for the welding shop, a sound proof room for the water jet cutter, numerous vibration isolation pads and specially designed

coolant pits for the larger machinery, various hoists, filtered exhaust systems for select equipment, provisions for the storage, handling and disposal of cutting fluids, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Machining Facility is part of a totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems. Since this capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, acquisition, manufacturing, and supportability capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionics and electronics systems to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is within the main building complex, which was originally constructed in 1942.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**81**	**81**	**81**	**81**	**81**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**81**	**81**	**81**	**81**

13. What is the approximate number of personnel used to operate the facility/equipment?

There are no dedicated operators to support the functions performed in this facility. Depending on workload variations, there are approximately 160 craftsmen using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

4 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.

Sheet Metal & Machining

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	TACAIR Pod Lab

1. State the primary purpose(s) of the facility/equipment.

The TACAIR Pod Lab has the capability to develop and maintain test pods for Tomahawk Cruise Missile sensors and guidance system testing including current and next generation systems.

This lab is used to develop and maintain test pods deployed on UH-1 helicopters and military jet aircraft. All support equipment necessary to keep pods operational is maintained in the lab. Evaluations and enhancements for the current guidance systems employed in the Tomahawk and development of next generation down looking and forward looking sensors and guidance devices for future cruise missile applications are some of the capabilities of the TACAIR Pod Lab.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$ 0.8 M

4. Provide the gross weight and cube of the facility/equipment.

1,600 lbs., 16 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 208 volt three phase power, 115 volt three phase 400 hertz power and compressed air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include physical security, access control, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The loss of the TACAIR Pod Lab would have a negative impact to the DON. For the HELO Pod and the TACAIR Pod, it mean that potential cost savings would be lost. However, in the case of the Generic Tomahawk TACAIR Pod, which currently in R&D and being prototyped, it could mean that the Tomahawk Baseline Improvement Program for the Tomahawk Block 4 would lose its ability (or at least cause a significant delay) to test the next generation of the Tomahawk sensors and guidance head.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was converted from its prior use as a navigation laboratory in 1993. It is located within the main building complex.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**N/A**	**N/A**	**N/A**	**34**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**36**	**38**	**40**	**40**

13. What is the approximate number of personnel used to operate the facility/equipment?

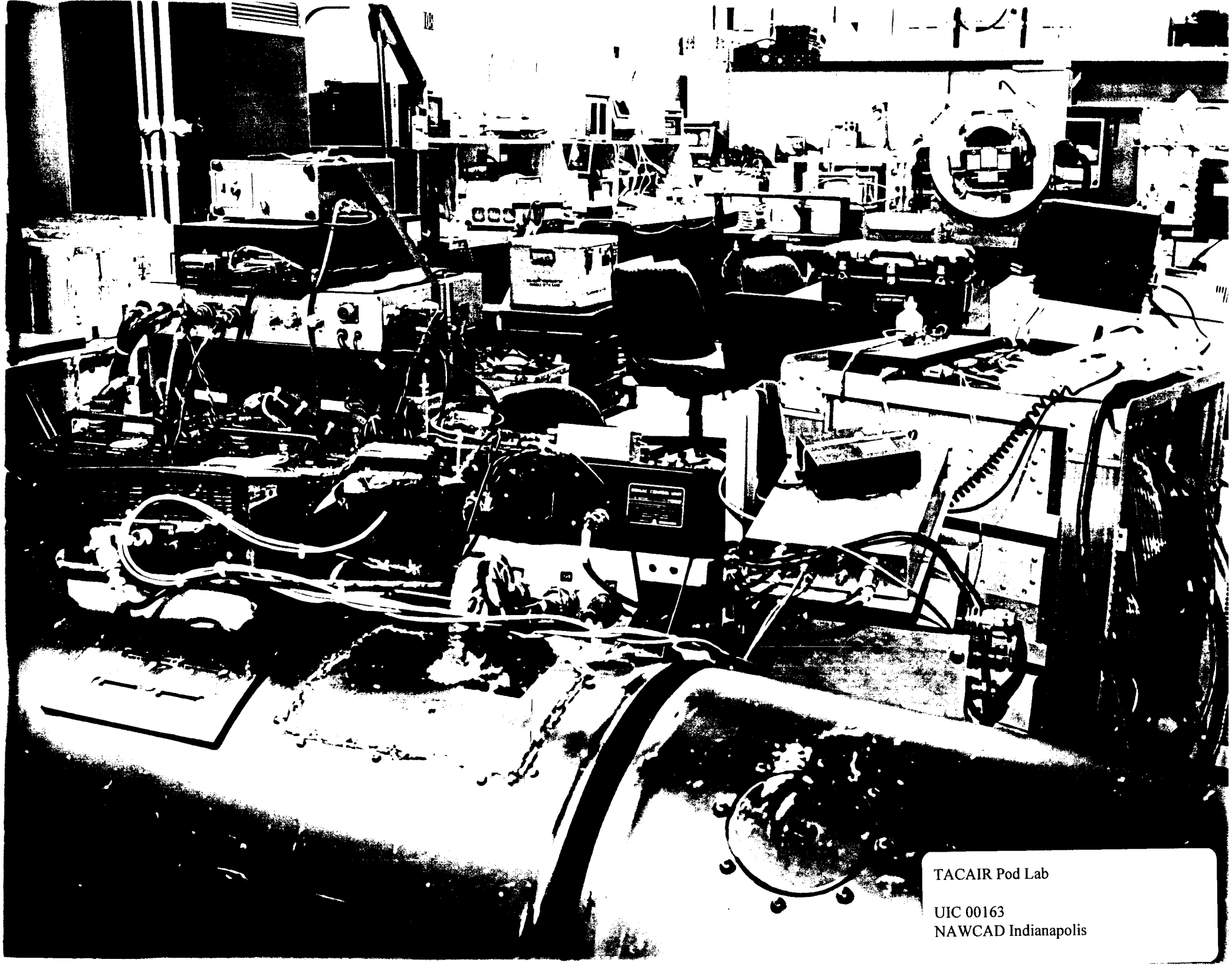
There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 8 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



TACAIR Pod Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Test Equipment Design Lab

1. State the primary purpose(s) of the facility/equipment.

The Test Equipment Design Lab supports the development, design, prototyping, modification, verification, and analyses of production and environmental test resources and the reverse engineering of units under test.

The Test Equipment Design Lab is used to design and develop special purpose test equipment and procedures used to reduce or eliminate rework and to improve product quality. This lab supports acquisition programs by: developing contractual testing requirements; developing test plans, procedures and test equipment requirements; and providing support for production testing. This lab has the capability for the development of: special test fixturing for chassis and harness testing; new generation in-circuit testers for in-process testing; test program development tools.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$ 0.1 M

4. Provide the gross weight and cube of the facility/equipment.

6,600 lbs., 10 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility include 115 volt three phase, 400 hertz power and compressed air.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include a secured storage area and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Test Equipment Design Lab is used across multiple projects. The Test Equipment Design Lab is part of a totally integrated capability for the development and prototyping/manufacturing of avionic/electronic systems. Since this integrated capability is essential whenever support through normal acquisition processes or commercial industrial sources is not otherwise available, the loss of this facility would have a negative impact to the DON and could not normally be replaced by commercial sources. Without this facility or relocation to another site, the totally integrated avionics and electronics systems engineering, design, development, prototyping, and manufacturing capability would be severely diminished. This would result in a loss of integrated capability, facilities, and knowledge-base to provide support over the full acquisition life cycle for avionic and electronic to satisfy Fleet operational/safety problems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1991.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 2.9 Fire Control, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**N/A**	**32**	**32**	**32**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**32**	**32**	**32**	**32**

13. What is the approximate number of personnel used to operate the facility/equipment?

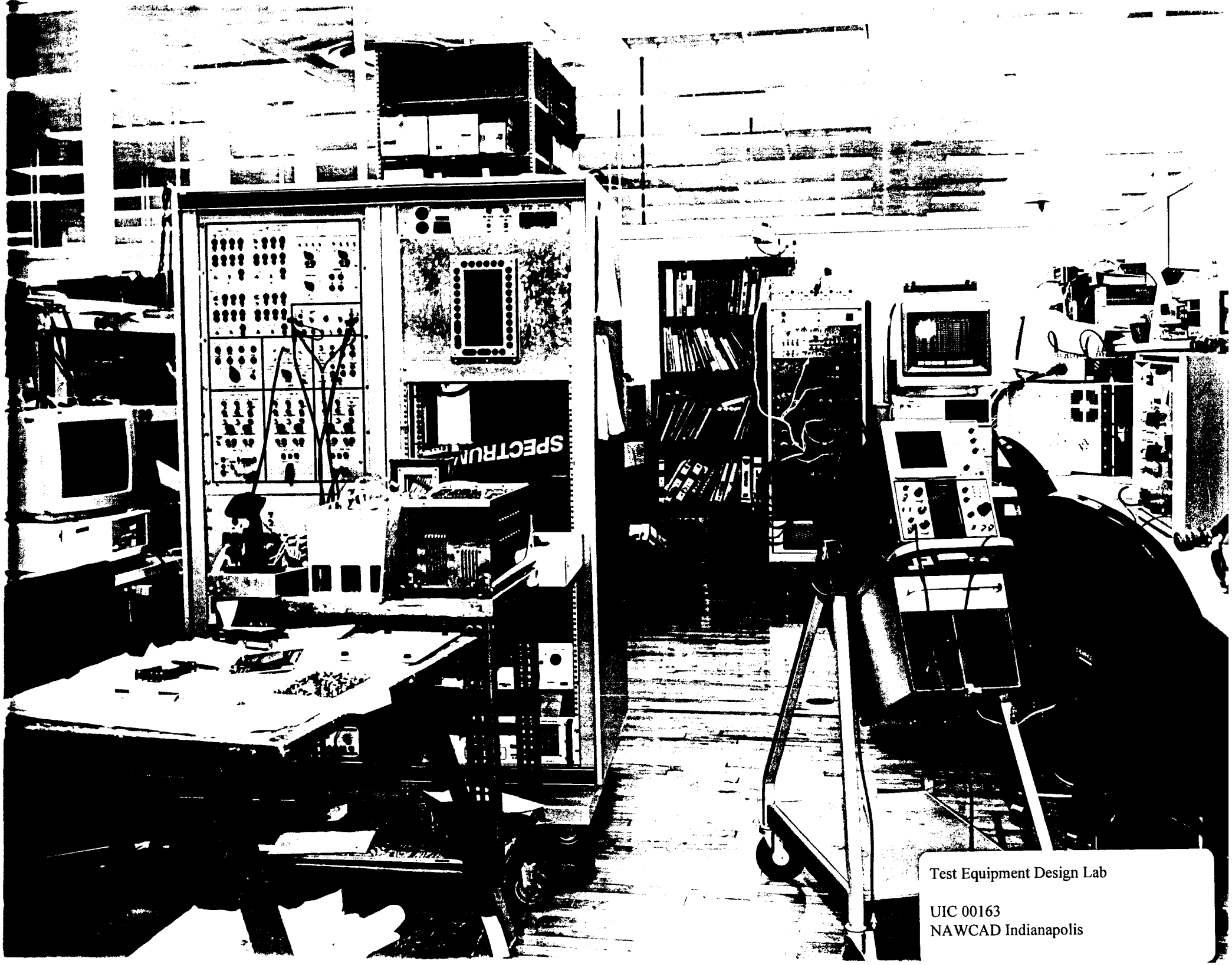
There are no dedicated operators to support the technical functions performed in this facility. Depending on workload variations, there are approximately 23 to 30 scientific and technical personnel using this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Test Equipment Design Lab

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Video Teleconference Center (VTC) Facility

1. State the primary purpose(s) of the facility/equipment.

The Video Teleconference Center provides secure or nonsecure real-time communication between other geographically dispersed DOD filed activities and contractors, on-line and off-line. The Defense Telecommunications Network (DCTN), an integrated and centrally located all digital network, provides the connectivity between facilities. The purpose of the facility is for cost savings and travel avoidances and savings.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All of the equipment in this facility is portable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$1.3 M

4. Provide the gross weight and cube of the facility/equipment.

2,400 lbs., 23 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

There are no special utilities required for operation of this facility.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include an intrusion alarm system, intercom system, acoustic and RF shielding, a secure telecommunications link, physical security, access control, and environmental controls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 10% RH).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Without the Video Teleconference Center, NAWC Indianapolis would lose the significant savings or cost avoidance from VTC use in lieu of travel throughout the U.S. In addition, communications and employee productivity would suffer without the VTC that "connects" teams across geographic sites.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1990. A second, non-secure VTC will be installed in an existing conference space this fiscal year.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.4 Torpedoes, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**N/A**	**14**	**27**	**33**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**38**	**36**	**36**	**36**

13. What is the approximate number of personnel used to operate the facility/equipment?

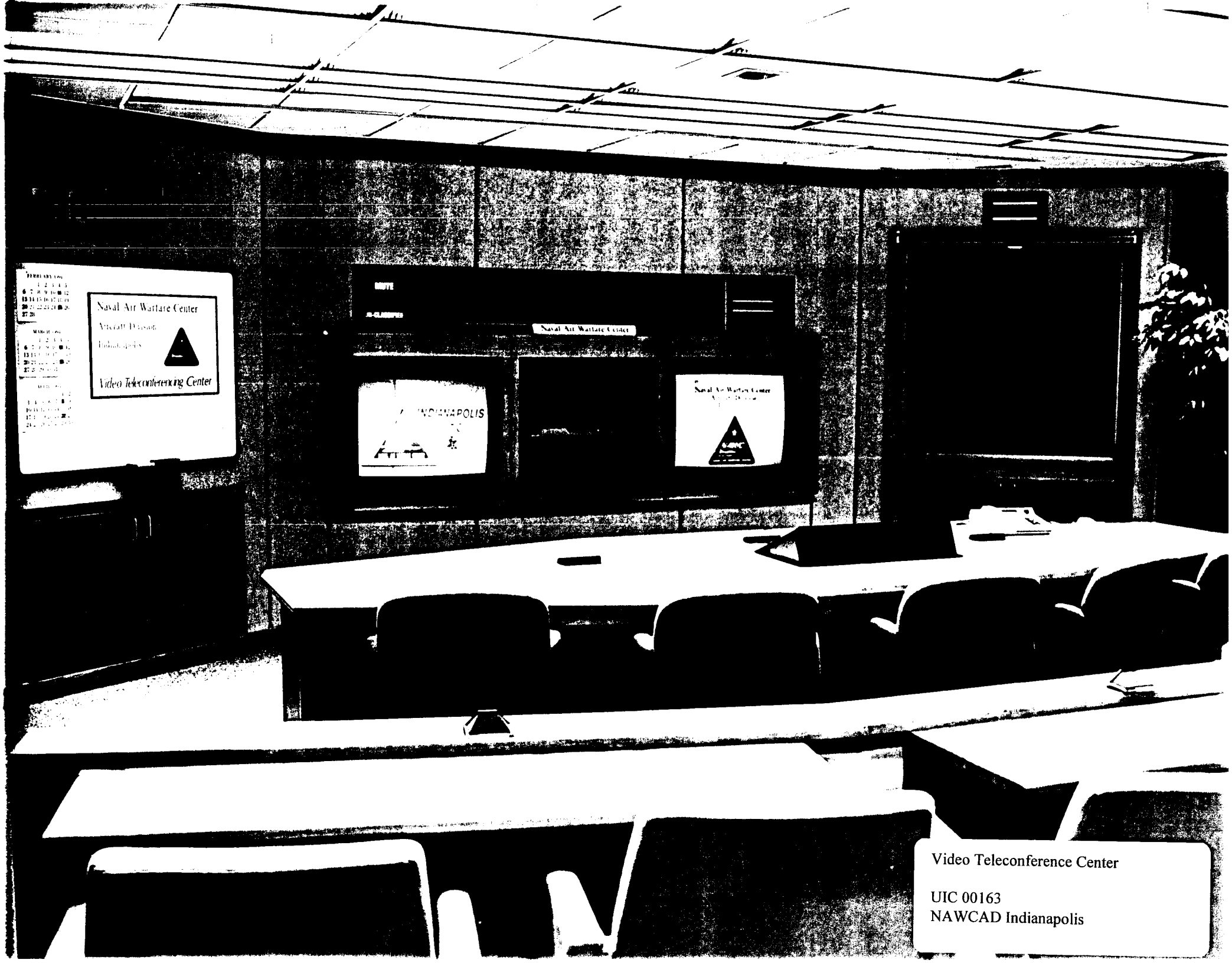
1.5 people currently - this will increase to 2.5 people once the second VTC becomes operational.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Video Teleconference Center

UIC 00163
NAWCAD Indianapolis

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC Indianapolis
Facility/Equipment Nomenclature or Title	Waste Water Treatment Center

1. State the primary purpose(s) of the facility/equipment.

The Waste Water Treatment Center receives all of the rinse water from the plating shop and printed wiring board fabrication facility. The metal and cyanide contaminants are removed by the wastewater treatment system so that the rinse water quality is within limits. The quality of the rinse water is regulated according to National Pollutant Discharge Elimination System (NPDES) permit guidelines and discharge of the water is regulated by the city of Indianapolis. The system typically treats 80,000 gallons of rinse water per 18 hour day. This facility also accepts certain chemical bath dumps which are barreled and disposed of as hazardous waste.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is a moveable asset.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

$2.0 M

4. Provide the gross weight and cube of the facility/equipment.

38,000 lbs., 26 k cu. ft.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities required for operation of this facility includes 440 volt three phase power.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special budget requirements include connection to a separate drain system which collects waste water from all metal finishing operations at the center and code compliant storage facilities for bulk chemical supplies and extracted hazardous waste.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental controls include temperature (72 degrees +/- 5 degrees Fahrenheit) and humidity (50% +/- 20% RH). This facility is an environmental control measure, designed to separate metals and cyanide contaminants from process rinse water used in various printed wiring board fabrication and plating processes. The quality of the discharge water must be maintained with National Pollutant Discharge Elimination System (NPDES) permit guidelines.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Waste Water Treatment Center is vital to the plating and printed wiring board fabrication facilities. The loss of this facility would result in non compliance with environmental regulations and reflect very unfavorably upon the DON. In addition, the loss of this essential facility would result in cessation of machining and printed wiring board fabrication functions. Both are vital parts of a totally integrated capability for the development and prototyping/manufacturing of avionics and electronic systems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility was constructed within the main building complex in 1990.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1.2 Aircraft, 2.2 Guided Missiles, 2.5 Mines, 2.9 Fire Control, 2.10 Weapons Data Links, 3.2 Air, 4.2 Coastal/Special Warfare Support, 5.1 Sonar Systems, 5.2 Radar Systems, 5.3 Special Sensors, 5.4 Space Sensor/Surveillance Systems, 5.5 Ocean Surveillance, 6.2 Aircraft Navigation Systems, 6.5 Satellite Navigation Systems, 7.2 Airborne, 7.4 Land-Based, 8.3 Electronic Warfare (EW) Systems, 9.1 Navy Strategic Systems, 10.1.2 Aircraft-Related Training Systems, 10.1.4 Weapons-Related Training Systems, 10.2 Logistics Planning and Implementation, 10.3 Facilities Engineering, 10.6.1 Submarine, 10.6.2 Aircraft, 10.8 Other Subsidiary Systems or Components, 10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY	**89**	**90**	**91**	**92**	**93**
Hrs/Wk	**N/A**	**56**	**56**	**56**	**56**

12. Provide the projected utilization data out to FY1997.

FY	**94**	**95**	**96**	**97**
Hrs/Wk	**56**	**56**	**56**	**56**

13. What is the approximate number of personnel used to operate the facility/equipment?

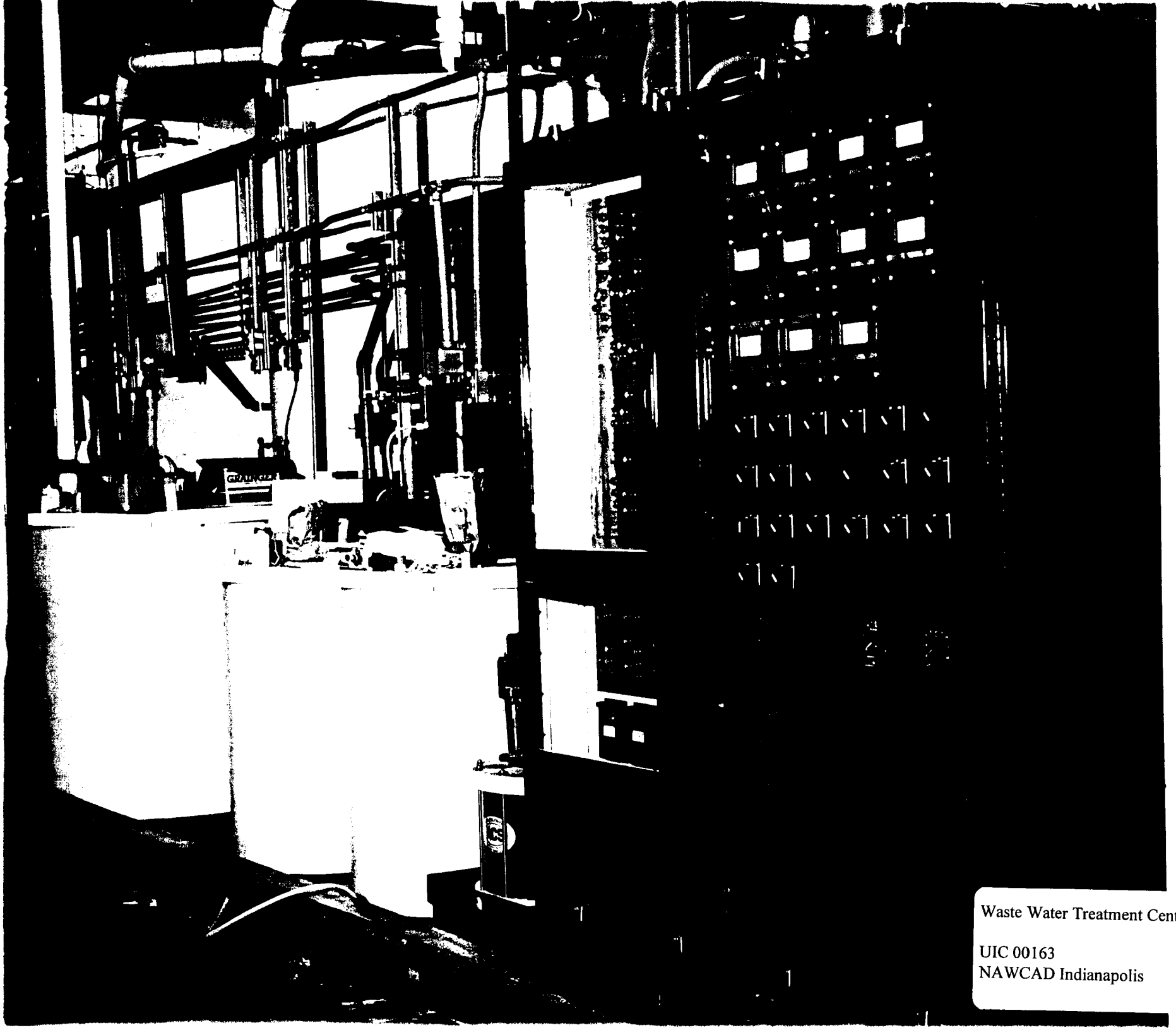
2 people.

14. What is the approximate number of personnel needed to maintain the equipment?

1 person part time.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

See attached photo.



Waste Water Treatment Center

UIC 00163
NAWCAD Indianapolis

DATA CALL #5

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

Thomas R. Darnell
(Name (Please type or print)

Signature

Commanding Officer
Title

29 April 1994
Date

Naval Air Warfare Center, Aircraft Div., Indianapolis
Activity

DATA CALL 5
BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

BARTON D. STRONG
NAME (Please type or print)

Signature

COMMANDER
Title

MAY 12 1994
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

G.H. Stroshal, RADM, USN
NAME (Please type or print)

Signature

Commander
Title

5/13/94
Date

Naval Air Warfare Center
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
MAJOR CLAIMANT LEVEL

W. C. BOWES, VADM, USN
NAME (Please type or print)

Signature

COMMANDER
Title

13 May 94
Date

NAVAL AIR SYSTEMS COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.B. Greene, Jr.
NAME (Please type or print)

Signature

Acting
Title

19 May 1994
Date

NAWCAD
INDY
#5

161 N00163

DATA CALL #5 - REQUESTS FOR CLARIFICATION
CONTROL #001
BRAC-95 CERTIFICATION

Cume Rate

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

CAPTAIN JOHN B. PATTERSON
NAME (Please type or print)

Signature

ACTING COMMANDER
Title

SEP 16 1994
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

L. L. LUNDBERG
NAME (Please type or print)

Signature

ACTING COMMANDER
Title

9/19/94
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
MAJOR CLAIMANT LEVEL

WILLIAM C. BOWES
NAME (Please type or print)

Signature

COMMANDER
Title

21 Sep 94
Date

NAVAL AIR SYSTEMS COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

Signature

Title

9/23/94
Date

DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER
NAVAL AIR WARFARE CENTER HEADQUARTERS
1421 JEFFERSON DAVIS HWY
ARLINGTON VA 22243

IN REPLY REFER TO
1000
Ser NAWC-21C/

SEP 16 1994

From: Commander, Naval Air Warfare Center
To: Distribution

Subj: RELEASE OF BASE REALIGNMENT AND CLOSURE DATA CALL IN THE ABSENCE OF THE COMMANDER

1. During the period 19-21 September I will be on travel.

2. Mr. Lewis L. Lundberg, Technical Director, Naval Air Warfare Center, is designated as acting as Acting Commander during this period. As such, he is authorized to release completed Base Realignment and Closure Data Calls and to provide certification for the data calls.

W. E. Newman

W. E. NEWMAN

Distribution:
COMNAVAIRWARCENWPNDIV
COMNAVAIRWARCENACDIV
NAVAIRWARTRASYSDIV

DATA CALL #5 - REVISION 1

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

Thomas R. Darnell
(Name (Please type or print)

Signature

Commanding Officer
Title

7 September 1994
Date

Naval Air Warfare Center, Aircraft Div.
Activity

DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION
PATUXENT RIVER, MARYLAND 20670-5304

5400
Ser CT51F/1433
SEP 6 1994

From: Commander, Naval Air Warfare Center Aircraft Division, Patuxent River, MD 20670-5304

Subj: CHANGE I FOR BASE REALIGNMENT AND CLOSURE (BRAC) DATA CALL NUMBER FIVE FOR INDIANAPOLIS

Encl: (1) Change I NAWCAD/Indianapolis 6 Sep 94 for BRAC Data Call Five
(2) Change I BRAC95 Certification for BRAC Data Call Five

1. Enclosure (1) is Change I for BRAC Data Call Number Five for NAWCAD Indianapolis. Replace present pages as follows:

Remove Present Pages	Replace With
17-31	Enclosure (1)
37	Enclosure (1)

2. Enclosure (2) is the required BRAC 95 certification for Change I to Data Call Five.

3. My point of contact at Division Headquarters is Mr. Stuart B. Simon, Code AD07. He can be reached at commercial (301) 826-1122 or DSN 326-1122.

Barton D. Strong
BARTON D. STRONG

Distribution:
COMNAVAIRWARCEN (NAWC-21)
NAVAIRWARCENACDIV Patuxent River (CT00)
NAVAIRWARCENACDIV Indianapolis (Code 00/01)
NAVAIRWARCENACDIV Lakehurst (Code 00/71)
NAVAIRWARCENACDIV Warminster (Code 00/07B)
NAVAIRWARCENACDIV Trenton (Code 00/01A1)
CONAS Patuxent River

161

DATA CALL #13 - BSAT
REQUEST FOR CLARIFICATION CONTROL #AW-089
BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

CAPTAIN JOHN B. PATTERSON
NAME (Please type or print)

Signature

ACTING COMMANDER
Title

9/22/94
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

WILLIAM E. NEWMAN
NAME (Please type or print)

Signature

COMMANDER
Title

9/28/94
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
MAJOR CLAIMANT LEVEL

WILLIAM C. BOWES
NAME (Please type or print)

Signature

COMMANDER
Title

27 Sep 94
Date

NAVAL AIR SYSTEMS COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

NAME (Please type or print)

Signature

Title

10/1/94
Date

DATA CALL #13 - REQUESTS FOR CLARIFICATION
Control # AW-089

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

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I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

Thomas R. Darnell
(Name (Please type or print)

Signature

Commanding Officer
Title

20 September 1994
Date

Naval Air Warfare Center, Aircraft Div.
Activity

REQUESTS FOR CLARIFICATION

From the Base Structure Analysis Team (BSAT)

Control #: AW-089

Date sent: 20 September 1994

To: CAPT Doug Cook

Voice: (703) 604-1857
Fax: (703) 604-1859

Service: Navy
Site: NAWC Indianapolis
Facility/Capability: All facilities
Page: Various

CLARIFICATION/CORRECTION REQUESTED for Data Call #13. Please provide the conversion factor for converting the workyears reported in each of your Historical Workload forms to hours.

CDR Mark B. Samuels, CEC, US
(703) 681-0481, or (703) 578-5750

NOTE: This information is needed urgently, Request you respond with clarification comments (below) or corrected page(s) by 23 September 1994. FAX a preliminary response directly to the T&E Joint Cross-Service Working Group @(703)578-6592. Then, send your official response, properly certified, through your chain of command for certification and further forwarding to the BSAT.

Reply:	86	87	88	89	90	91	92	93	
	1786	1776	1783	1760	1754	1757	1760	1728	Hours/Work Years

Sharon Nelson	081	(317) 353-3156	9/20/94
Name	Code	Commercial Phone #	Date

N00163

DATA CALL #5 - REQUESTS FOR CLARIFICATION
CONTROL # 001

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

Thomas R. Darnell
(Name (Please type or print)

Signature

Commanding Officer
Title

14 September 1994
Date

Naval Air Warfare Center, Aircraft Div.
Activity

pg 17, 18, 19, 20, 21, 22, 23, 24, 25, 26-37 161

DATA CALL 5 CHANGE I
BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

BARTON D. STRONG
NAME (Please type or print)

Barton D. Strong
Signature

COMMANDER
Title

6 Sept 1994
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

WILLIAM E. NEWMAN
NAME (Please type or print)

W E Newman
Signature

COMMANDER
Title

9/16/94
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
MAJOR CLAIMANT LEVEL

WILLIAM C. BOWES
NAME (Please type or print)

Signature

COMMANDER
Title

19 Sept 94
Date

NAVAL AIR SYSTEMS COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

Signature

Title

7/26/94
Date

APPENDIX D

"LAB" JOINT CROSS-SERVICE GROUP
DATA CALL #12

NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISION
PATUXENT RIVER

This portion of Appendix D is the verbiage to supplement photos enclosed in the submission of 15 August. Verbiage was inadvertently left out.

GENERAL INFORMATION

Facility/Capability Title: **Magnetic Media Laboratory** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Other** UIC = **062269 INTO 00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:			**60%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC							
Other			**60%**	**40%**			

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Magnetic Media Laboratory**

Facility Description; Including mission statement:

The Magnetic Media Laboratory is an RDT&E facility dedicated to evaluating the electrical performance parameters, dimensional characteristrics and physical properties of instrumentation quality recording tape. The facility defines salient criteria for state-of-the-art media and determines the required values for proper system performance. The results of these studies are then incorporated into standards and specifications for government procurement of these media. The MML also monitors the quality of delivered products for compliance with these documents.

The Laboratory accomplishes its mission by utilizing approximately $2 million of in-house equipment to perform measurements on magnetic recording media. The tests which are performed evaluate the performance, magnetic and physical properties of these materials and determine the usefulness of these products for recording the required types of data. The test results lead to the development of federal and industry wide specifications and standards. The facility also has the ability to evaluate the compliance of mass produced tape products with these documents.

Interconnectivity/Multi-Use of T&E Facility:

Type of Test Supported:

Parametric testing of new types of media and statistical behavior of production media.

Summary of Technical Capabilities:

The laboratory supports FED-SPEC-W-T-1553 for magnetic instrumentation tape and W-R-175 for intrumentation tape hubs and reels. The physical facility contains 2000 sq. ft. of class 100 cleanroom.

Keywords:

Magnetic Media, Cleanroom, Recording tape

GENERAL INFORMATION

Facility/Capability Title: **VS Labs**

Origin Date: **May 9, 1994**

Service: **N**

Organization/Activity: **NAWCAD**

Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles**

UIC = **62269 INTO 00421**

T&E Test Facility Category **Integration Lab**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**		**45%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**		**45%**	**40%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **VS Labs**

Facility Description; Including mission statement: **The VS Facility provides development and life cycle support for the S-3A/B Weapon System software. The facility is also used for integrating and testing hardware improvements prior to aircraft installation.**
Interconnectivity/Mulit-Use of T&E Facility: **N/A**
Type of Test Supported: **Hardware and Software Design, Development and Integration; Technology Demonstration; Systems Integration and Life Cycle Support**
Summary of Technical Capabilities: **The equipment consists of 14 racks of equipment, an acoustic interface system, 2 spectrum analyzers, 11 computer/workstations, 10 simulation cabinets, an S-3B trainer cabinet, an AHU, an SRF enhancement system, a disk drive, 10 workbench/simulators, 6 printers, 2 displays, a file server, 2 tape drives, an AN/ALR-76 stimulator, a GPS antenna, and other associated items of equipment.**
Keywords: **Integration Laboratory, Systems Engineering, Software V&V**

GENERAL INFORMATION

Facility/Capability Title: **VP Facility - PHIC** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 INTO 00421**

T&E Test Facility Category **Integration Lab**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**10%**		**40%**	**50%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**10%**		**40%**	**50%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **VP Facility - PHIC**

Facility Description; Including mission statement: **The VP Program Hardware Integration Center (PHIC) provides hardware support for the P-3C aircraft through the use of simulation, stimulation and actual hardware in-the-loop development and test operations.**
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported: **Hardware and Software Design, Development and Integration; Technology Demonstration; Systems Integration and Life Cycle Support**
Summary of Technical Capabilities: **The equipment consists of six tape drives, three AQA-7 units, nine computers, three SASP-A/B consoles, an acoustic maintenance unit, nine equipment racks, two software input racks, a teleprinter rack, an MTB console rack, four operator stations, a computer rack, an IR detection system, two navigation/communication racks, an ordnance simulation rack, a simulation control rack, a pilot station rack, five logic racks, ten switch racks, nine workbenches, three MG sets, a display control unit, a maintenance panel and two power supplies. Also included are approximately 500 subassemblies.**
Keywords: **Integration Laboratory, Systems Engineering, Software V&V**

GENERAL INFORMATION

Facility/Capability Title: **VP Facility - SPF** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 INTO 00421**

T&E Test Facility Category: **Integration Lab**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**50%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**50%**	**30%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **VP Facility - SPF**

Facility Description; Including mission statement: **The VP Facility - SPF is a computer program generation facility that supports the development and maintenance of mission software used by the CP-901 and AN/ASQ 212 tactical computers on P-3C aircraft. It produces aircraft loadable tapes and cassettes for all P-3C operational and system test programs from Non-Update to Update III P-3C aircraft.**
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported: **Hardware and Software Design, Development and Integration; Technology Demonstration; Systems Integration and Life Cycle Support**
Summary of Technical Capabilities: **The equipment includes tape drives, disk drives, printers, PDUs, cabinets, and various computers.**
Keywords: **Integration Laboratory, Systems Engineering, Software V&V**

GENERAL INFORMATION

Facility/Capability Title: **Anechoic Chamber #2** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWC-AD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **62269 INTO 00421**

T&E Test Facility Category: **Installed Systems Test Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		20%	60%	20%			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC		20%	60%	20%			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Anechoic Chamber #2**

Facility Description; Including mission statement: **The 40' x 20' x 20' Anechoic Chamber, lined with special high grain, low sidelobe horn absorbers to optimize performance for radar cross section measurements, is utilized for the research and development of low observable technology to increase aircraft survivability. It is equipped with a Scientific-Atlanta Radar Cross Section Analyzer System to acquire, process and store data.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Radar Cross Section Measurements on a variety of materials.**
Summary of Technical Capabilities: **It is equipped with a Scientific-Atlanta Radar Cross Section Analyzer System to acquire, process and store data.**
Keywords: **Radar Cross Section, Low Observable Technology**

GENERAL INFORMATION

Facility/Capability Title: **Anechoic Chamber (Bldg 120)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Installed Systems Test Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**20%**	**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC		**20%**	**40%**	**40%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Anechoic Chamber (Bldg 120)**

Facility Description; Including mission statement: **Building 120 is a 90' x 30' x 30' pyramidal chamber with 12' spherical quiet zone. The tapered design of this chamber creates an environment favorable for low frequency testing. The chamber is equipped to perform standard antenna measurements of partial full scale mock-ups and reduced scale model mock-ups. The chamber is utilized to measure and optimize installed antenna system performance.**
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported: **Low Frequency RF Antenna Testing**
Summary of Technical Capabilities: **The chamber is equipped with a two axis positioner with a model tower mounted on top to provide the capability for standard antenna measurements.**
Keywords: **Anechoic Chamber, Antenna Measurements**

GENERAL INFORMATION

Facility/Capability Title: **Anechoic Chamber (Bldg 144)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Installed Systems Test Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**20%**	**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC		**20%**	**40%**	**40%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Anechoic Chamber (Bldg 144)**

Facility Description; Including mission statement: **Structure 144 is a 100' x 40' x 40' shielded anechoic chamber which is uniquely designed for multi-purpose operation. The design permits the acquisition of antenna pattern measurements and Radar Cross Section (RCS) measurements in frequency range from 100 MHz to 100 GHZ. measurements.**
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported: **Antenna Pattern Measurements and Radar Cross Section (RCS) Measurements in frequency range from 100 MHz to 100 GHZ.**
Summary of Technical Capabilities: **The chamber has a 12' cylindrical quiet zone and is fitted with a three axis positioner which is controlled by an Antenna/RCS measurement system. The positioner can be prepared to accommodate a model tower (SA58000B) for standard antenna measurements or a low profile pylon for RCS**
Keywords: **Radar Cross Section, Anechoic Chamber**

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Test Tower (Bldg 367)** Origin Date: 05/11/94

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category Open Air Range

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**10%**	**20%**	**40%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC	**10%**	**20%**	**40%**	**30%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Test Tower (Bldg 367)**

Facility Description; Including mission statement:

The Structure 367 Full Scale Aircraft Facility permits mounting aircraft either right side up or upside down, in an electromagnetic free space environment. The facility consists of an aircraft tower/control building that supports the aircraft 40 feet above ground on an azimuth over elevation positioner. A mobile RF source tower can be positioned and operated from any one of three locations 500', 833', or 1280' distant. In addition there is a mobile van, with power that allows signal generation at almost any azimuth, tower/control building that houses pedestal control equipment, RF receivers, computers, and equipment peculiar to the tests in progress - such as Direction Finding systems, adaptive nulling processors, radar warning receivers, etc.

Interconnectivity/Multi-Use of T&E Facility:N/A

Type of Test Supported:

Measurement of the characteristics of Direction Finding systems, adaptive nulling arrays, radar warning receivers, etc.

Summary of Technical Capabilities:

There are currently three full scale aircraft that have been prepared (stripped of non-essential components/weight) for the range; the F/A-18, EA-6A, and A-7. The EA-6A can also be reconfigured as an EA-6B. In addition an F-14 awaits restoration. There are various stores available for each aircraft. Major programs supported in the last three years include ALR-67 (F-18), ALQ-99 (EA-6B), ALQ-149 (EA-6B), ALQ-126/165 (F-18), ALQ-162 (F-18 Plyon), WALLEYE (A-6E).

Keywords:

Electromagnetic Measurements, Electronic Warfare, Direction Finding, Radar Warning Receivers

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Test Tower (Bldg 745)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Open Air Range**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**10%**	**20%**	**30%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC	**10%**	**20%**	**30%**	**40%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Test Tower (Bldg 745)**

Facility Description; Including mission statement: **The Structure 745 Full Scale Aircraft Facility permits mounting aircraft either right side up or upside down, in an electromagnetic free space environment for the purpose of conducting electromagnetic measurements on electronic warfare and communications systems.**
Interconnectivity/Mulit-Use of T&E Facility: **N/A**
Type of Test Supported: **Measurements of the characteristics of electronic warfare and communications systems.**
Summary of Technical Capabilities: **The facility consists of an aircraft tower that supports the aircraft 40 feet above ground on an azimuth over elevation over azimuth positioner and a small control building adjacent to the tower. A mobile RF source tower can be positioned and operated from any one of three locations 416', 875', or 1363' distant. In addition there is a mobile van, with power, that allows signal generation at almost any azimuth position relative to the aircraft and the other sources. The aircraft tower/control building houses pedestal control equipment, RF receivers, computers, and equipment peculiar to the tests in progress. Major programs supported in the last three years include data link antenna system for NAWC-AD-PAX (F018), ALQ-126/165 (F-18), L-Band Pod (F-18), TASD Plyon (F-18), WALLEYE (F-18), F-18 E/F, JTIDS, and FLEET SATCOM.**
Keywords: **Electromagnetic Measurements, Electronic Warfare**

GENERAL INFORMATION

Facility/Capability Title: **Antenna Test Tower (Bldg 115)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWC-AD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Open Air Range**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**	**20%**	**35%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC	**15%**	**20%**	**35%**	**30%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Antenna Test Tower (Bldg 115)**

Facility Description; Including mission statement: **This is a standard configuration outdoor range that is multipurpose. Standard antenna measurements and rain erosion tests are conducted in thist facility.**
Interconnectivity/Multi-Use of T&E Facility: **N/A**
Type of Test Supported: **Antenna and Radome Tests**
Summary of Technical Capabilities: **The long range antenna test facility utilizes an azimuth over elevation pedestal (which can also hold a model tower) mounted on the rooftop. Control is from the third floor. The transmit site can be: a portable tower or a moveable tower placed on the transmit pads (500', 1000', 1500') described in PSC Report 9.5.25.**
Keywords: **Antenna Measurements, Rain Erosion Measurements**

GENERAL INFORMATION

Facility/Capability Title: **Vertical Flight** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 INTO 00421**

T&E Test Facility Category **Integration Lab**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**		**45%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**		**45%**	**40%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Vertical Flight**

Facility Description; Including mission statement: **The Vertical Flight Laboratory consists of five major facilities that currently support the development and integration of fleet avionics and software products for seven primary projects. Vertical Flight programs are sponsored by NAVAIR PMA-205, NAVAIR PMA (F) 225, NAVAIR PMA-299, NAVAIR AIR-546, and SPAWAR.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Hardware and Software Design, Development and Integration; Technology Demonstration; Systems Integration and Life Cycle Support**
Summary of Technical Capabilities: **These facilities provide a secure environment for processing SECRET material.**
Keywords: **Integration Laboratory, Systems Engineering, Software V&V**

GENERAL INFORMATION

Facility/Capability Title: **VH Facility (Executive Transport-2)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 into 00421**

T&E Test Facility Category: **Integration Lab**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:			50%	50%			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles			50%	50%			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **VH Facility (Executive Transport-2)**

Facility Description; Including mission statement: **The VH Facility (HIS-2) verifies and validates VH avionics hardware and software. Tasks supported include avionics integration, software development, and operational simulation. The equipment includes instrument racks, workbenches, computers and peripherals, crew stations, power supplies, test racks, and a full-scale mock-up helicopter.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Hardware and Software Design, Development and Integration, Systems Integration**
Summary of Technical Capabilities: **The equipment includes instrument racks, workbenches, computers and peripherals, crew stations, power supplies, test racks, and a full-scale mock-up helicopter.**
Keywords: **Helicopters, Avionics, Software**

GENERAL INFORMATION

Facility/Capability Title: **Ejection Tower** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Hardware-In-The-Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**40%**	**40%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Ejection Tower**

Facility Description; Including mission statement: **The Ejection Tower produces dynamic ejection conditions which simulate the catapult phase of an ejection from an aircraft. The Ejection Tower has its upper end attached to the Vertical Drop Tower. The Vertical Drop Tower has been primarily used to test and evaluate crashworthy seating systems, restraints, energy absorbing devices and other equipment that may be exposed to a rapid deceleration environment.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Operability of Ejection Seats, Restraint Systems, Cockpit Clearance, Injury Potential, Crashworthy Seating Systems, Energy Absorbing Devices and other equipment exposed to rapid deceleration environment.**

Summary of Technical Capabilities:

The Tower is 150 feet high and inclined at an angle of 20 degrees from the vertical. It can provide ejection seat accelerations of up to 30 G's with onset rates of up to 500 G/sec with a payload of 600 pounds. The principle components of the facility are the catapult gun; rails; ejectable mass composed of the seat occupant, ejection seat, seat adapter, and cradle; and a "bogie" system and winch which is used to position the seat for cartridge loading and recovery of the test article after the test. Other ancillary equipment includes data recording instrumentation, photographic equipment, anthropomorphic manikins, accelerometers, pressure pickups, strobes and tools required for cartridge modification. Two high intensity, flicker-free portable lighting banks are also available for testing during overcast weather conditions. The Ejection Tower is used to test the operability of ejection seats, restraint systems, g-valve and wiring disconnects, cockpit clearance, or the injury potential of any man-mounted equipment that is worn during the ejection sequence.

The Ejection Tower has its upper end attached to the Vertical Drop Tower. The Vertical Drop Tower is a free standing structure 150 feet high. A 10 x 10 ft. drop cart located within the framework is used for mounting the test specimen. This cart is raised to a predetermined height, released, and free falls onto an array of expandable metal bending arrestment straps where it is abruptly stopped. This facility can produce a variety of deceleration pulses depending on the drop height, weight of the loaded cart and configuration of the arrestment straps. A maximum free fall velocity of 85 fps can be obtained imposing deceleration levels from 2 to 100 G's on test objects weighing up to 800 lbs.

TECHNICAL INFORMATION

Facility/Capability Title: **Ejection Tower**

Keywords:

Ejection Seat Performance Measurements, G-Loads, Crashworthy Seating Systems

GENERAL INFORMATION

Facility/Capability Title: **Horizontal Accelerator** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Hardware-In-The-Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**40%**	**40%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Horizontal Accelerator**

Facility Description; Including mission statement: **The Horizontal Accelerator is used for development, test and evaluation of Aircrew Lift Support Equipment, including crash resistant seats, ejection seats, clothing, helicopter seating, energy attenuation devices, restraints and other crashworthiness product lines.**
Interconnectivity/Mulit-Use of T&E Facility: **N/A**
Type of Test Supported: **The facility permits precise, repeatable testing of systems and components, under laboratory conditions.**
Summary of Technical Capabilities: **The facility produces acceleration profiles which duplicate the shock environment to which the crewman and his equipment are exposed. Its control system permits precise, repeatable testing of systems and components, under laboratory conditions. The accelerator produces essentially the same effect as a crash impact by simply reversing the orientation of the test article.** **The Horizontal Accelerator Facility consists of a pneumatically driven/hydraulically-controlled crash simulator, a 100-foot rail system, a control center, photographic high-intensity lighting and a data acquisition system. The facility contains a mechanical preparation area, test fixture storage room, electronic preparation areas and control/data acquisition room.** **Currently, it is being utilized on a number of crew systems programs and is a vital "tool" used in the development process. As required by military specifications, it is also used for the verification and validation of equipment performance as part of their qualification before fleet introduction. It is a versatile facility capable of producing accelerations which simulate those produced during a crash or abrupt acceleration. Because of its versatility it is being used by other DoD agencies, Dept. of Transportation and private industry.**

Keywords:

Aircrew Life Support Equipment, Aircraft Seats, Horizontal Accelerator

GENERAL INFORMATION

Facility/Capability Title: **Human Centrifuge/Dynamic Flight Simulator (DFS)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**	**20%**	**20%**	**25%**	**20%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**	**20%**	**20%**	**25%**	**20%**		
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Human Centrifuge/Dynamic Flight Simulator (DFS)**

Facility Description; Including mission statement:

The DFS consists of a full-scale aircraft cockpit with active instruments and controls which is mounted inside the centrifuge gondola along with a computer generated outside visual scene. The control system for the DFS incorporates a high fidelity 6 degree-of-freedom aircraft model which drives the cockpit instruments and displays as well as the centrifuge motion system. The DFS has been used successfully for manned testing of new crew equipment, advanced cockpit configurations, and to assess the performance of current and future high performance aircraft designs. The facility is a unique national asset which enables human performance testing in a realistic, high-G-flight environment, with the safety and repeatability of a ground-based laboratory.

Interconnectivity/Mulit-Use of T&E Facility:

DFS is supported by the Central Computer Facility at Warminster.

Type of Test Supported:

Manned testing of new crew equipment, advanced cockpit configurations, and assessment of the performance of current and future high performance aircraft designs.

Summary of Technical Capabilities:

The Human Centrifuge located at the NAWCADWAR is the largest and most capable man-rated centrifuge in the world. It has a 50-foot arm, a 16,000 horsepower direct-drive motor, and is able to reach a maximum of 40 G's with a 1000 pound payload. Between 1.5 G and 15 G's, the centrifuge can produce an average g-onset rate of 10 G/second with an maximum instantaneous G-onset of 13 G/second. The crewstation for the centrifuge is enclosed in a 10-foot spherical gondola mounted in a high speed dual-gimbal system. The movable gimbal system enables multi-directional G forces (Gx, Gy, Gz) to be applied on the pilot/subject and is responsive enough to permit closed-loop pilot control. This feature has enabled the development of a unique real-time sustained-G flight simulation capability known as the Dynamic Flight Simulator (DFS).

Keywords:

G-tolerance, Centrifuge, Dynamic Crew Station, Real-time sustained-G flight simulation.

GENERAL INFORMATION

Facility/Capability Title: **Special Access Program Spaces** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **(No details available)** UIC = **62269 INTO 00421**

T&E Test Facility Category: **N/A**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:							

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles

Armanent/Weapons

EC

Other

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Special Access Program Spaces**

Facility Description; Including mission statement: **Under the BRAC '91 realignment of NAWCAD Warminster with NAWCAD Patuxent River, 20,000 sq.ft. of Special Access Program Space is being constructed. These spaces, which are all on raised deck, are split between the South Technology Complex (15,500 sq. ft.) and the North Technology Complex (4,500 sq.ft.).**
Interconnectivity/Multi-Use of T&E Facility: **N/A**
Type of Test Supported: **N/A**
Summary of Technical Capabilities: **N/A**
Keywords: **N/A**

GENERAL INFORMATION

Facility/Capability Title: **Human Centrifuge/Dynamic Flight Simulator (DFS)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**	**20%**	**20%**	**25%**	**20%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**	**20%**	**20%**	**25%**	**20%**		
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

GENERAL INFORMATION

Facility/Capability Title: **Structural Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**30%**	**50%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**30%**	**50%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Structural Test Facility**

Facility Description; Including mission statement: **The Structural Test Facility performs structural tests, both static and fatigue, on aircraft structural specimens ranging in size and complexity from small coupons and structural elements through major subassemblies to full scale aircraft. Test loads are normally applied by electronically-programmed, servo-controlled, electro-hydraulic actuators that may be used singly or in several separately-programmed groups. The equipment to be moved includes four hydraulic pumps, three dust collectors, five drill presses, three hydraulic presses, seven power saws, two environmental chambers and miscellaneous other machine shop tools and supplies.**
Interconnectivity/Multi-Use of T&E Facility: **N/A**
Type of Test Supported: **Static and Fatigue Tests on Aircraft Structural Specimens**
Summary of Technical Capabilities: **Test loads are normally applied by electronically-programmed, servo-controlled, electro-hydraulic actuators that may be used singly or in several separately-programmed groups. The equipment includes four hydraulic pumps, three dust collectors, five drill presses, three hydraulic presses, seven power saws, two environmental chambers and miscellaneous other machine shop tools and supplies.**
Keywords: **Structural Testing**

GENERAL INFORMATION

Facility/Capability Title: **Hydraulics Research Lab** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	5%	30%	35%	30%			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	5%	30%	35%	30%			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Hydraulics Research Lab**

Facility Description; Including mission statement: **This laboratory provides developmental testing of Naval Aircraft hydraulic components including pumps, filters, fittings and hoses at pressures to 30,000 PSI and flow rates to 50 GPM. Environmental and functional tests are performed on aircraft hydraulic equipment including pressure surge, flexure fatigue, vibration and low and high temperature functioning.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Environmental and functional measurement and tests on aircraft hydraulic equipment (surge, fatigue, vibration, and temperature tests).**
Summary of Technical Capabilities: **The facility has capabilities at pressures up to 30,000 PSI and flow rates to 50 GPM.**
Keywords: **Hydraulic Measurements**

GENERAL INFORMATION

Facility/Capability Title: **Code 60724 Machine Shop** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **N/S (Fabrication of Prototypes)**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**40%**	**30%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles		**40%**	**30%**	**30%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Code 60724 Machine Shop**

Facility Description; Including mission statement: **The Code 60724 Machine Shop provides a wide range of machinery and equipment capable of producing high quality, close tolerance parts required to support research and development activities at NAWCADWAR.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **N/A**
Summary of Technical Capabilities: **The equipment includes 6 grinders, 12 lathes, an optical comparator, a metal disintegrator, 3 drill presses, 3 gear shapers, a honing machine, 2 band saws, a jig borer, 10 milling machines, a control projector, and miscellaneous smaller tools and material. This machine shop will be combined with the NAWCADWAR Code 60725 Machine Shop at Patuxent River. The equipment included in these two facilities will be installed in Building 104, rooms 16, 19, and 22 and Building 2186, room 112.**
Keywords: **Machine Shop, R&D Prototypes**

GENERAL INFORMATION

Facility/Capability Title: **Code 60725 Machine Shop** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWC-AD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 INTO 00421**

T&E Test Facility Category: **N/A (Fabrication of Prototypes)**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**40%**	**30%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles		**40%**	**30%**	**30%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Code 60725 Machine Shop**

Facility Description; Including mission statement: **The Code 60725 Machine Shop provides a wide range of machinery and equipment capable of producing high quality, close tolerance parts required to support research and development activities at NAWCADWAR.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **N/A**
Summary of Technical Capabilities: **The equipment includes 16 lathes, 9 grinders, 22 milling machines, 7 drill presses, 3 band saws, 3 vertical shapers, 2 EDM machines, a jig borer, a cutter, a sander, a power hack saw and miscellaneous smaller tools and materials. This machine shop will be combined with the NAWCADWAR Code 60724 Machine Shop at Patuxent River. The equipment included in these two facilities will be installed in Building 104, rooms 16, 19, and 22 and Building 2186, room 112.**
Keywords: **Machince Shop, R&D Prototyping**

GENERAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**30%**			**70%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**30%**			**70%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

Facility Description; Including mission statement:

To provide test, evaluation and system engineering functions for Navy Airborne Strategic Communications (ASC) aircraft, avionics, and mission systems in support of the NAWCAD mission for RDT&E of aircraft systems during all phases of the ASC system life cycle process.

The ASCET Facility provides the capability to perform RDT&E and to support OT&E/FOT&E and product improvement efforts on E-6 airborne strategic and tactical communications systems. The ASCET Facility is configured with a Tactical Message Processing System (TMPS), Enhanced VERDIN receiver and transmitter terminals, TMPS message simulator and HF/UHF transceivers. The Ground based test site replicates the aircraft mission system thus allowing significant amounts of T&E on both hardware and software to be conducted without a dedicated aircraft asset.

Interconnectivity/Multi-Use of T&E Facility:

The ASCET Facility supports the E-6's Airborne Communication and avionic systems. It is primarily an Integration Laboratory Test Facility unique to the strategic communication mission. In addition to integration, this facility supports the Cognizant Field Activity (CFA) as a Participating Field Activity (PFA) responsible for any and all support for Engineering Investigations (EI), Engineering Change Proposals (ECP), Avionic Changes (AVC), and Airframe Changes (AFC) for the Airborne Strategic Communication System. Provides operational and technical expertise as needed for fleet subsystem fault isolation, mission training requirements, and special monitoring needs. The ASCET Facility communication system can also be utilized with other Joint Chiefs of Staff (JCS) World Wide Military Command and Control System communication sources using compatible down links.

Type of Test Supported:

Software
Mission Avionics Integration
Special Monitoring
In-service Engineering

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

Summary of Technical Capabilities:
The ASCET Facility provides the capability to perform RDT&E and to support OT&E/FOT&E and product improvement efforts on E-6 airborne strategic and tactical communication systems. This facility also supports the CFA as a Participating Field Activity (PFA) responsible for any and all support for Engineering Investigations (EI), Engineering Change Proposals (ECP), Avionic Changes (AVC), and Airframe Changes (AFC) for the Airborne Strategic Communication System.
Keywords:
TACAMO, Strategic, WWMCCS, E-6A, Command & Control.

ADDITIONAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted	4	4	4	4	4	4	4
Civilian	4	4	4	6	6	6	5
Contractor	7	7	7	7	10	10	7
Total	15	15	15	17	20	20	16

Total Square Footage: **6,336**

Test Area Square Footage: **3,036**

Office Space Square Footage: **3,000**

Tonnage of Equipment: **210**

Volume of Equipment: **29,551 cu ft**

Annual Maintenance Cost: **$100K**

Estimated Moving Cost: **$245.5K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded	720	1,400	1,000	1,000	500	385	215

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

AGE: **13 Years** REPLACEMENT VALUE: **$3.0M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **April 1994**

NATURE OF LAST UPGRADE: **E-6A Mission Avionics System installation and upgrade.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **High Power Transmit Set (HPTS) installation**

   TOTAL PROGRAMMED AMOUNT: **$4.5M**
   SUMMARY DESCRIPTION: **To install HPTS system into the ASCET Facility and procure ancillary equipment needed to effectively utilize system.**

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								**26,940**
	TEST HOURS								**6,240**
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

ANNUAL HOURS OF DOWNTIME	1	**576**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**1.6**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**22.4**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Software	**2**	**3**	**6**	**604.8**
Mission Avionics Integration	**2**	**4**	**8**	ANNUAL UNCONSTRAINED CAPACITY
Special Monitoring	**1**	**4**	**4**	
In-Service Engineering	**3**	**3**	**9**	
				9
"TYPICAL"				**220,752**
		TOTAL Σ	**27**	

GENERAL INFORMATION

Facility/Capability Title: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

Facility Description; Including mission statement:

ESTEL's major components are a mobile Joint Tactical Information Display System (JTIDS) data reformat and reduction facility, E-2C tactical computer group (L-304, I/O's, displays, etc), Link 11 (HF and UHF) system, Link-4A system, Link-11 analyzer, mission simulator, and multiple engineering work stations for data analysis. This facility is an essential and integral component in the continuing T&E of E-2C weapons systems upgrades and replacements. ESTEL provides the means to evaluate or assess collected sensor and communications data for an entire outer battle group scenario. ESTEL is government owned and designed to support airborne early warning T&E requirements.

Interconnectivity/Multi-Use of T&E Facility:

LINK II - UHF and HF receive and transmit; 2250 bits/second

LINK 4 - UHF receive and transmit; 5000 bits/second

ACETEF - STU Phone Link; 76,800 bits/second

ESTEL provides a backup capability to NRAD, San Diego's E-2C computer group stimulate by computer simulation for software life cycle support and Grumman's Facility for basic R&D.

Type of Test Supported:

Airborne early warning aircraft, radar, IFF, Passive Detection System, and tactical data link test and evaluation.

Summary of Technical Capabilities:

E-2C data reduction and analysis, Realtime Link 11 and 14, E-2C Mission Reconstruction.

Keywords:

E-2C, Airborne, Radar, Tracking, Surveillance

ADDITIONAL INFORMATION

Facility/Capability Title: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian		3	3	3	5	5	6
Contractor		12	13	15	17	18	19
Total		15	16	18	22	23	25

Total Square Footage: **2,000**

Test Area Square Footage: **1,500**

Office Space Square Footage: **500**

Tonnage of Equipment: **31**

Volume of Equipment: **5,000 cu ft**

Annual Maintenance Cost: **$30K**

Estimated Moving Cost: **$670K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded		$200	$250	$300	$400	$400	$300

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

AGE: **9 Years** REPLACEMENT VALUE: **$5.9M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **May 1992**

NATURE OF LAST UPGRADE: **Facility central processor system replacement.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **E-2C Group II**

   TOTAL PROGRAMMED AMOUNT: **$200K**
   SUMMARY DESCRIPTION: **Integrate E-2C Group II Indicator Group Hardware**

2. UPGRADE TITLE: **Link-16**

   TOTAL PROGRAMMED AMOUNT: **$150K**
   SUMMARY DESCRIPTION: **Provide live Link-16 capability.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	14144	14144	17680	17680	17680	21216	21216	21216
	TEST HOURS	2120	2120	2120	2120	2120	2120	2120	2120
	MISSIONS	*	16	23	40	60	25	89	122
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

*** No records**
Mission - Number of flights supported does not include lab-tests.
Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **E-2C Systems Test and Evaluation Laboratory (ESTEL)**

ANNUAL HOURS OF DOWNTIME	1	**370**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**1**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Flight Test	**1**	**5**	**5**	**437**
Data Reduction/Analysis	**3**	**3**	**9**	ANNUAL UNCONSTRAINED CAPACITY
Mission Reconstruction	**1**	**5**	**5**	
				9
"TYPICAL"				**159,505**
		TOTAL Σ	**19**	

GENERAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**		**10%**	**10%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**80%**		**10%**	**10%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)**

Facility Description; Including mission statement:

The Helicopter Mission Systems Support Center (HMSSC) provides hangar-based facilities for daily support of in-service and new acquisition maritime rotary wing and VTOL aircraft in the areas of mission systems integration, tactical data analysis and ground/fight testing of sensor performance. Special testing equipment and secure facilities provide program sponsors with early-on development and T&E phase engineering insight into integrated mission system problems, and allow engineering investigations to prototype potential fixes. Specific capabilities exist to evaluate magnetic anomaly detection (MAD) sensor systems, acoustic in-water sensors (including dipping sonar rearing and display/processing equipment), tactical digital encrypted data links, MIL-STD 1553A/B data bus performance, tactical data processors and mission tape recorder/playback systems. Dedicated, specialized test equipment including calibrated sonar transducer test tanks, avionics system test benches and data link analysis hardware are available. These facilities and equipment are used to support special unique helicopter test installations needed for participation in technology demonstration development projects and foreign weapons system evaluation programs. For in-service naval helicopters, proposed hardware and software updates are installed and tested on the ground including complete structural integrity certifications, electrical inspections and initial sensor performance. Follow-on inflight performance is evaluated using extensive data playback and analysis workstations. DT/OT aircrews receive operator training in the HMSSC prior to actual flights to review checklists and enhance flight test efficiency and safety. For the executive transport helicopters (VH-60N and VH-3D), an NVH-3A technology test bed helicopter operates in direct support to the HMSSC for avionics/software testing.

Interconnectivity/Multi-Use of T&E Facility:

Interconnectivity with Ship Ground Station, Navy and USCG maritime helicopters under test (ground and flight). Mission post-flight data analysis tools support flight tests. New aircraft tactical software can be data linked (T1 Modem) from the developer to the HMSSC for loading into the helicopters for ground/flight tests in support of software. Specific secure communications provisions and storage support all testing operations. Familiarization of OT and INSURV aircrew is conducted for support of combined test teams on new avionics/software.

TECHNICAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)**

Type of Test Supported: **Laboratory, ground and flight tests of mission systems avionics in Navy, Marine, and Coast Guard helicopters.**
Summary of Technical Capabilities: **MIL-STD-1553A/B Data Bus processing and analysis; Automated LAMPS (SH-60R) Data Integrated Network (ALADIN) data analysis system; NVH-3A Testbed helicopter and Technical Support Facility (TSF); Helicopter Tactical Data Processor (ASN-123/150) System Test Benches; Acoustic Sensors (Sonar/Sonobuoy) integration performance analysis, Mission Tape Recorder/Playback System Post-flight analysis, Secure Test/Data Link/Conference/Fax Facilities.**
Keywords: **Naval, Maritime, Helicopter, Avionics, Integration, Installation, Secure Communications**

ADDITIONAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	4	4	4	4	4	4	4
Contractor	2	2	2	2	2	2	2
Total	6	6	6	6	6	6	6

Total Square Footage: **7800**

Test Area Square Footage: **6500**

Office Space Square Footage: **1300**

Tonnage of Equipment: **20**

Volume of Equipment: **10,000 cu. ft.**

Annual Maintenance Cost: **$80K**

Estimated Moving Cost: **$273K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
I&M	25	25	25	25	25	25	25
Sponsor Funded	415	30	62	523	275	275	275
Total	440	55	87	548	300	300	300

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Helicopter Mission Systems Support Center (HMSSC)**

AGE: **49 Years (Building)**
Equipment: 1-17 Years

REPLACEMENT VALUE: **$11.1M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1991**

NATURE OF LAST UPGRADE: **Addition of engineering and technical support facilities for the Executive Transport Helicopter**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Communications system upgrade**

TOTAL PROGRAMMED AMOUNT: **$38K**
SUMMARY DESCRIPTION: **Acquisition and implementation of communications test equipment in support of ground and flight tests of helicopter integrated communications system. This upgrade is in direct support of and funding by the Executive Transport Helicopter (VH-60N and VH-3D) program manager, and is planned for completion during FY95.**

2. UPGRADE TITLE: **Computer support equipment upgrade**

TOTAL PROGRAMMED AMOUNT: **$54K**
SUMMARY DESCRIPTION: **Upgrade of existing computer resources to support ground, real-time, and post flight data reduction and analysis of helicopter test data. These updates are in direct support of and funded by the NAVAIRSYSCOM Program Managers for the SH-60R and the Executive Transport Helicopters (VH-60N and VH-3D). Completion FY95.**

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Helicopter Mission Systems Support Center (HMSSC)**

3. UPGRADE TITLE: **Executive Transport Helicopter (VH) Life Cycle Avionics/Software Testing Support**

TOTAL PROGRAMMED AMOUNT: **$808K**

SUMMARY DESCRIPTION: **Upgrades to the HMSSC and associated NVH-3A Testbed Helicopter will be necessary to meet CRLCMP and BRAC consolidation schedules, consisting of the installation and acquisition of specific updated aircraft avionics equipment (OSIP for AN/ARC-182 radios, etc), unique data security devices, and directly related special and general laboratory test and testing support equipment (special configured preflight planning and postflight reconstruction data analysis gear, etc) necessary to satisfy established Navy Life Cycle Support test requirements of the VH Program Office (PEO(A)/PMA-261). Funding for this upgrade is fully provided by the VH PMA.**

4. UPGRADE TITLE: **Navy Maritime Helicopters' Life Cycle Avionics/Software Testing Support**

TOTAL PROGRAMMED AMOUNT: **$504K**

SUMMARY DESCRIPTION: **Upgrades to the HMSSC will consist of the acquisition and integration of selected specific updated avionics systems, specialized test data security devices, and associated specialized laboratory/flight line test support assets required and planned for critical testing of the weaponized HH-60H, new SH-60R and other Navy helicopter major systems upgrade programs. Funding will be fully provided by the respective cognizant PEO(A)/PMA's.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Helicopter Mission Systems Support Center (HMSSC)**

T&E FUNCTIONAL AREA		FISCAL YEAR							
		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	9700	9700	9100	9100	8600	8100	8300	7900
	TEST HOURS	5600	5600	5200	6100	5800	3600	3900	4000
	MISSIONS	500	500	450	450	400	350	400	350
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Helicopter avionics, installed systems, flight test support.
All types of tests.
Approximate number of avionics installations, checkouts, ground tests, test flights supported per year.
Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Helicopter Mission Systems Support Center (HMSSC)**

ANNUAL HOURS OF DOWNTIME	1	**73**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**.02**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.8**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Individual Avionics units and software	**7**	**1.5**	**10.5**	**393**
Mission systems flight test support (total helicopter)	**3**	**2**	**6**	ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				**143,445**
		TOTAL Σ	**16.5**	

GENERAL INFORMATION

Facility/Capability Title: **Fixed Wing ASUW & ASW Lab** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**70%**		**30%**				

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles:	**70%**		**30%**				
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Fixed Wing ASUW & ASW Lab**

Facility Description; Including mission statement:

Facility engineering and aircraft assets provide development, test and evaluation capabilities for ASUW/ASW aircraft. The facility includes a generic simulation architecture which provides correlated environmental and platform sensors simulation/stimulation of ASUW/ASW aircraft. The generic architecture is flexible in order to incorporate other target platforms without major changes to software and hardware configurations. The facility provides simulation and simulations for the ASQ-212/SASP version of the P-3 airplane and the S-3A/B airplane.

The fixed wing ASUW & ASW Labs are comprised of the following components: P3/S3 Transitional Software Support Activity (SSA)/, B-MOD SSA, S-3 ATL, Patrol Avionics Test Laboratory/Acoustic Signal Generator (PATL/ASG) and the Navigation Lab.

Interconnectivity/Multi-Use of T&E Facility:

None

Type of Test Supported:

Anti-surface warfare and antisubmarine warfare aircraft and mission system testing.

Summary of Technical Capabilities:

Capabilities provide for development support of the P-3 TACNAVMOD airplane (ending FY94) and for simulation/stimulation test support for the P-3 and S-3 airplanes as well as navigation system RDT&E support for all Navy aircraft. Specific capabilities include full SSA functionality for the P-3 TACNAVMOD (ending FY94) and the P-3 and S-3 platforms (starting late FY95), software development support, data extract/reduction, and generic mission systems simulation capability.

Keywords:

Anti-submarine, ASW, Maritime, Ocean, P-3, S-3

ADDITIONAL INFORMATION

Facility/Capability Title: **Fixed Wing ASUW & ASW Labs Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	3	3	3	6	7	4	4
Contractor	5	5	5	11	10	5	5
Total	8	8	8	17	17	9	9

Total Square Footage: **11,330**

Test Area Square Footage: **6,685**

Office Space Square Footage: **4,645**

Tonnage of Equipment: **94**

Volume of Equipment: **2,842 cu. ft.**

Annual Maintenance Cost:

Estimated Moving Cost: **96K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded	300	150	150	200	200	200	200

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Fixed Wing ASUW & ASW Labs**

AGE: **Multiple Buildings: 50 Years**
Equipment: 1-18 Years

REPLACEMENT VALUE: **$47M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **March 1994**

NATURE OF LAST UPGRADE: **Acoustic rack for sonobuoy simulation.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Fixed Wing ASUW & ASW Labs**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								**26,940**
	TEST HOURS								**6,240**
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS	*	*	*	**139**	**325**	**958**	**627**	**953**
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

*** No utilization data was available for these years. Also, the data shown for FY89-93 is only for the S-3 ATL; no data was available for the other capabilities.**
Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Fixed Wing ASUW & ASW Lab**

ANNUAL HOURS OF DOWNTIME	1	**200**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**.54**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.46**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
S-3 ATL	**3**	*	*	*
Navigation	**1**			ANNUAL UNCONSTRAINED CAPACITY
P3/S3 TSSA	**2**			
BMOD SSA	**1**			
PATL/ASG	**1**			9
"TYPICAL"				*
		TOTAL Σ		

*** This page cannot be completed due to the lack of utilization data and direct labor hour data.**

GENERAL INFORMATION

Facility/Capability Title: **Project Beartrap** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**30%**		**50%**	**20%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**30%**		**50%**	**20%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Project Beartrap**

Facility Description; Including mission statement: **Provide developmental engineering support to NAVAIR in the areas of system engineering, design, development and integration/installation.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Intelligence data collection. Acoustic system development and evaluation.**
Summary of Technical Capabilities: **Two 28 track wide band tape recorders, acoustic system calibration equipment including buss control computer and software. Various test equipment to support unique aircraft acoustic system calibration.**
Keywords: **Acoustic, Calibration, Intelligence, P-3, ASW**

ADDITIONAL INFORMATION

Facility/Capability Title: **Project Beartrap Lab**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	2	2	2	2	2	2	2
Contractor	6	4	4	4	5	5	5
Total	8	6	6	6	7	7	7

Total Square Footage: **1600**

Test Area Square Footage: **780**

Office Space Square Footage: **820**

Tonnage of Equipment: **10**

Volume of Equipment: **6400 sq. ft.**

Annual Maintenance Cost: **$8K**

Estimated Moving Cost: **$750K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded	237	46	25	26	30	60	45

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Project Beartrap Lab - Building 1711**

AGE: **Building: 10 Years**
Equipment: 6 Years

REPLACEMENT VALUE: **$1M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1988**

NATURE OF LAST UPGRADE: **Power Filter/conditioner, 400 Hz Power Converter, Ground Grid and Raised Floor**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Project Beartrap Lab**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR			12376	12376	15912	17680	18564	18564
	TEST HOURS			2400	2400	2960	3080	3120	3120
	MISSIONS			0	0	0	0	0	0

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Project Beartrap Lab**

ANNUAL HOURS OF DOWNTIME	1	**04370**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**1.9**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**22.1**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
A/C Calibration	**2**	**1**	**2**	**884**
Software	**1**	**4**	**4**	ANNUAL UNCONSTRAINED CAPACITY
Rx Sens	**1**	**2**	**2**	
Cal Reducation	**2**	**16**	**32**	
				9
"TYPICAL"				**322,660**
		TOTAL Σ	**40**	

GENERAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities (MF)**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**	**20%**					

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles:	**80%**	**20%**
Armament/Weapons:		
EC:		
Other:		

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility**

Facility Description; Including mission statement:
This facility will provide for testing, development, reliability and fleet service engineering support for air vehicle engines, engine components, and accessories; to provide test and evaluation services, for small engine air-breathing propulsion systems, power drive systems, fuels and lubricants. The Propulsion System Evaluation Facility consists of the Helicopter Engine Test Facility, Altitude Chamber, Accessory Test Area, Fuel Components Facility, Chemistry Laboratory, Rotor Spin Facility, Fuels and Lubricants Area, High Volume Fuel Flow Facility, Infrared Laboratory, and Information Systems Computer Room.
Interconnectivity/Multi-Use of T&E Facility:
The Propulsion System Evaluation Facility suports the Naval Air Systems Command, the Naval Air Warfare Center Navy Program Executives Office, the Fleet, and other U.S. or international customers.
Type of Test Supported:
Helicopter engine and transmission gearbox test facility; small air-breathing engine altitude chamber; engine accessory test area; fuels and lubricants chemistry facility; rotor spin facility, fuels and lubricants area; infrared laboratory; ground firing and aerial refueling facility.

Summary of Technical Capabilities:

Helicopter Engine Test Facility: The test facility is capable of simulating and testing compete helicopter turbine engines and tail drive systems under simulated flight loads. A central control room controls the instrumentation, measuring, and recording devices. The 8,000 horsepower capability of the gear box enables the power systems of current helicopters to be tested over all power ranges. Component efficiencies, vibrations, and other transient data can be recorded. Evaluating the performance of such components as disconnect couplings, oil coolers, tail drive gear boxes and alternate fuels and lubricants, occurs at the same time the drive system is being tested.

Altitude Chamber: The 10x10x17 ft. pressure-sealed chamber is capable of testing small engines while simulating pressures from sea level (14.7 psia) to 19,000 feet (7.0 psia) with an air exhaust capability of 44 lb/sec (sea level) to 21 lb/sec (19,000 feet).

TECHNICAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility**

Summary of Technical Capabilities: (continued)

ATA - Accessory Test Area: The accessory test area is comprised of seven test rooms and associated control room which allow complete testing of engine starting systems, auxiliary power units, ram air turbines, generators, pumps, and air-breathing engine components independent of the engine itself including lubricant qualification tests and high temperature cycling corrosion testing for evaluating gas turbine engine materials.

Fuel Components Facility: This facility is built around F404 engine gearbox mounted accessories testing and consists of an environmental chamber and air room to simulate compressor discharge pressures up to 500 psig for complete testing of fuel components fuel controllers and structural tests of aerial and ground refueling components. A central control room controls the instrumentation, recording, and measuring devices.

Chemistry Laboratory: The chemistry facility completely determines all physical and chemical specification properties for all Naval aviation fuels and lubricants. The chemistry lab is comprised of a chemical analysis area containing advanced instruments such as spectrometers, chromatographs and a scanning calorimeter, a property testing area containing instruments for conducting standardized fuel and lubricant testing to resolve Fleet problems, a balance area containing a wide variety of electronic balances and optical microscopes and a database and records room.

Rotor Spin Facility: The RSF is used to experimentally develop and evaluate the structural and material aspects of gas turbine engine rotor design. Simulated engine conditions are used to investigate rotor stress distribution, low cycle fatigue, crack growth, burst characterization and containment studies. The RSF can test small and large rotor disks and accessories at spin speed up to 150,000 RPM in three test chambers with special high speed camera systems providing detailed pictorial coverage of the tests. New exploratory and advanced development concepts are evaluated as well as demonstration of component life and engine overspeed capability.

Fuels and Lubricants Area: The test rooms are used to assess the deposition characteristics of gas turbine engine lubricants in the liquid and vapor phases as well as engine gearbox lubricant load carrying capacity and thermal stability. Fuel lubricity and systems icing inhibitor tests are conducted along with performance and qualification testing for Naval aviation fuel filtration equipment.

TECHNICAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility**

Summary of Technical Capabilities: (continued)

High Volume Fuel Flow Facility: This facility is used to test ground fueling and aerial refueling components, such as nozzles, couplings, and valves. The HVFFF includes a 2,000 gallon fuel tank and two 100 horsepower engines each driving a 600 gallon per minute pump. The HVFFF includes all the controls and instruments that are required to direct, indicate, and record the activities in the test area.

Infrared Laboratory: The infrared lab encompasses a fully self-contained mobile instrumentation van and an associated calibration laboratory used to acquire infrared emission data on aircraft and gas turbine engines. Equipment includes spectral radiometers, a thermal imaging system, and a data acquisition system with a mini-computer, a tracking pedestal, video and audio equipment, and ranging and weather systems. The calibration lab contains equipment to support the calibration of the Infrared (IR) systems and other van systems.

Information Systems Computer Room: The central computer facility provides resources for acquiring, processing, analyzing, and storing all test data for the entire Propulsion System Evaluation Facility.

Keywords:

Accessory test area (ATA); Rotor Spin Facility (RSF), High Volume Fuel Flow Facility (HVFFF), Infrared (IR)

ADDITIONAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	1	1	1	1	1	1	1
Enlisted							
Civilian	128	128	128	128	128	128	128
Contractor							
Total	129	129	129	129	129	129	129

Total Square Footage: **77,000**

Test Area Square Footage: **73,130**

Office Space Square Footage: **3,870**

Tonnage of Equipment: **560**

Volume of Equipment: **400,000 cu. ft.**

Annual Maintenance Cost: **$1,000K**

Estimated Moving Cost: **$48,000K**

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Propulsion System Evaluation Facility**

AGE: **0 (New)** REPLACEMENT VALUE: **$50.8M (includes $25.0M in Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **No major upgrades**

NATURE OF LAST UPGRADE: *****

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

*** Facility is being relocated from Trenton, NJ to Patuxent River, MD as a result of BRAC-93 under Milcon Project P-953T.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Propulsion System Evaluation Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	**129500**	**129500**	**129500**	**129500**	**129500**	**129500**	**122500**	**117250**
	TEST HOURS	**40425**	**40425**	**40425**	**40425**	**40425**	**40425**	**40425**	**40425**
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Propulsion System Evaluation Facility**

ANNUAL HOURS OF DOWNTIME	1	**1032**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**2.8**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**21.2**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
6W/8W	**1**	**80.8**	**80.8**	**2,289.6**
Lubes/Chem Lens	**10**	**.1**	**1.1**	ANNUAL UNCONSTRAINED CAPACITY
ATA	**2**	**5.5**	**10.9**	
RSF	**1**	**4.7**	**4.7**	
IR	**1**	**10.5**	**10.5**	9
"TYPICAL"				**835.704**
		TOTAL Σ	**108.0**	

GENERAL INFORMATION

Facility/Capability Title: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**90%**		**5%**	**5%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**75%**		**3%**	**3%**			
Armament/Weapons:	**5%**						
EC:	**10%**		**2%**	**2%**			
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability**

Facility Description; Including mission statement:

The Antenna Testing Laboratory Automated System (ATLAS) test facility provides the unique capability to measure the in-flight antenna radiation patterns of airborne antennas with accuracy normally obtainable only under laboratory conditions for frequency ranges between 2 MHz and 18 GHz. This capability ensures reliable and functional antenna systems are sent to or installed in fleet aircraft with the ATLAS laboratory used as a specification range for aircraft antenna systems and for verification of data obtained at other DOD antenna ground ranges and/or contractor antenna test facilities.

The ATLAS facility's capability to measure free-space in-flight antenna patterns and reference them to an isotropic source is unique. The location of the ATLAS facility on the Chesapeake Bay provides its antennas with an unobstructed electromagnetic propagation path over a calm body of water which serves as a reflection surface for RF energy. The calmness of the Bay allows accurate characterization of reflecting electromagnetic energy which is used to determine antenna gains relative to isotropic radiators.

Interconnectivity/Multi-Use of T&E Facility:

The ATLAS facility is interfaced with the Chesapeake Test Range Facilities for radar tracking support during in-flight antenna radiation pattern testing. The interface uses a Synchronous Data Link Control (SDLC) protocol with a data rate of 50 Kbits. Space position data or other data can be exchanged in both directions between the two facilities. Reduced data can be exported in a variety of digital media (9 track & 8 mm tapes, floppy disks) and over the INTERNET system. Patterns measured at the SY100 antenna ground range can be put into ATLAS's graphical analysis tools for comparison to the in-flight patterns on the same antenna.

Type of Test Supported:

In-flight antenna patterns on airborne platforms is the primary measurement conducted with ATLAS. Ship board antenna patterns, Effective Isotropic Radiated Power (EIRP) and minimal detected signal measurements can also be measured. ATLAS also provides the antenna engineer with various analytical tools to supplement the antenna pattern data to fully evaluate the antenna performance. These tools include computer antenna modeling programs used to analytically predict characteristics of antennas mounted on complex structures.

TECHNICAL INFORMATION

Facility/Capability Title: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability**

Summary of Technical Capabilities:

ATLAS consist of ground antennas capable of receiving test signals from 2 MHz to 18 GHz connected to a suite of programmable RF receivers. The receivers interface with an automatic calibration consisting of programmable signal generators that are connected to a set of programmable attenuators and a power meter controllerd by a mini-computer and multi-micro processor system. A suite of peripherals provide a range of data display options with a data reduction and analysis system consisting of UNIX based workstations with a variety of reduction and analysis programs.

Keywords:

In-flight antenna patterns, Effective Isotropic Radiated Power (EIRP), computer antenna predictions, received signal strength

ADDITIONAL INFORMATION

Facility/Capability Title: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability.**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	0	2	2	2	2	2	2
Contractor	1	1	1	1	1	1	0
Total	1	3	3	3	3	3	2

Total Square Footage: **550**

Test Area Square Footage: **550**

Office Space Square Footage: **0**

Tonnage of Equipment: **12**

Volume of Equipment: **3000 cu. ft.**

Annual Maintenance Cost: **$85K**

Estimated Moving Cost: **$180K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$75	$40	$30	$30	$385	$42	$32

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability**

AGE: **11 Years**
Equipment: 1-12 Years

REPLACEMENT VALUE: **$2.6M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1978**

NATURE OF LAST UPGRADE: **This upgrade automated the in-flight antenna measurements system. Computer control of programmable receivers, signal generators, RF attenuators, and other RF equipment. New data reduction and analysis software was developed.**

MAJOR UPGRADES PROGRAMMED

1.UPGRADE TITLE: **Upgrade to aircraft tracking and antenna analysis system.**

TOTAL PROGRAMMED AMOUNT: **FY97 - $385K**

SUMMARY DESCRIPTION: **This upgrade will incorporate differential GPS tracking, eliminating RF radar tracking thus reducing test costs. Improvement to the antenna computer prediction capabilities will conducted. Completion of the graphical antenna database, which will be a repository for all airborne antenna data. This data includes antenna manufacturer data, aircraft data both measured and predicted. Efforts to make this a DOD tool is ongoing.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	540	720	740	810	828	822	600	630
	TEST HOURS	270	360	370	405	414	411	300	315
	MISSIONS	48	71	68	62	65	45	30	32
EC	DIRECT LABOR	18	126	60	36	73	42	164	48
	TEST HOURS	9	63	30	18	36	21	84	24
	MISSIONS	1	7	3	2	4	2	8	2
ARMAMENT/WEAPONS	DIRECT LABOR			36	18				
	TEST HOURS			18	9				
	MISSIONS			2	1				
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability**

ANNUAL HOURS OF DOWNTIME	1	**3160**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**8.67**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**15.34**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
In-flight patterns	**antenna 1 (platform 5 antennas)**	**5**	**5**	**230.1**
EIRP Unconstrained	**1**	**5**	**5**	ANNUAL UNCONSTRAINED CAPACITY
Minimum Signal Strength	**1**	**5**	**5**	
				9
"TYPICAL"	**1**	**2.5**		**83,986.5**
		TOTAL Σ	**15**	

GENERAL INFORMATION

Facility/Capability Title: **Combat Identification Systems** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**55%**		**30%**	**10%**	**5%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**50%**		**28%**	**10%**	**5%**		
Armament/Weapons:							
EC:	**5%**		**2%**				
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Combat Identification Systems**

Facility Description; Including mission statement:

Supports the engineering development and other technical life cycle support, including Test and Evaluation (T&E) and Systems Engineering (S&E), of airborne and ground direct and indirect Identification (ID) Systems from concept definition to full integration in battle force environment Developmental Tests. The facility supports development operational requirements and specifications, contractor selection, system integration, and provides DoD/NATO test capabilities for the conduct of Developmental Test and Evaluation (DT&E) and support of Operational Test and Evaluation (OT&E). The facility is also used to facilitate development of specialized identification systems test methodologies.

Interconnectivity/Multi-Use of T&E Facility:

A DoD/Allied Nations ID test and evaluation facility (NIFFTE) and data analysis facility (CISDAC) for joint and interoperable use. Supports other NAVAIRWARCENACDIV directorates, NAVAIRSYSCOM, SPAWARSYSCOM, Department of the Navy, Air Force, Army and Allied governments.

Type of Test Supported:

Identification Systems performance parameters such as ID range, Range Accuracy, Range Resolution Azimuth Accuracy, Azimuth Resolution, Probability of ID, System Integrity/Jamming, Exploitation, Spoofing, Multipath Effects, Capacity, Interrogation Volume, Mode Prioritization, and Diversity.

Summary of Technical Capabilities:

The NAWCAD Combat Identification Systems test facilities consists of the Navy IFF Test and Evaluation Laboratory (NIFFTE) and Combat Identification Systems Data Analysis Center (CISDAC). The test facilities evaluate air, surface, ground identification, and data link systems. The present NIFFTE lab provides automated, instrumented Interrogator and Transponder Systems. The lab is adaptable to incorporate various developmental Repeatability and Test Data Integrity for test systems. The CISDAC is a Multiple Source Data Fusion/Reduction system for Performance Prediction and Analysis. Also test facilities exist to support laboratory closed loop, parametric, anti-jam, vulnerability and interference testing.

TECHNICAL INFORMATION

Facility/Capability Title: **Combat Identification Systems**

Keywords:

AI	Air Interrogator
AIMS	ATCRBS IFF Mark XII System
ATC	Air Traffic Control
ATCALS	Air Traffic Control and Landing Systems
ATCRBS	Air Traffic Control Radar Beacon System
AWACS	Airborne Warning and Control System
BVR	Beyond Visual Range
CAI	Cooperative Aircraft Identification
CI	Combat Identification
CI/CAI	Combat Identification/Cooperative Aircraft Identification
CISDAC	Combat Identification Systems Data Analysis Center
CIT	Combined Interrogator/Transponder
FRUIT	False Replies Unsynchronized in Time
ID	Identification
IFF	Identification Friend or Foe
PID	Probability of ID
XP	Transponder

ADDITIONAL INFORMATION

Facility/Capability Title: **Combat Identification Systems**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	9	10	11	12	12	12	12
Contractor	20	30	25	30	35	35	35
Total	29	40	36	42	47	47	47

Total Square Footage: **15,624**

Test Area Square Footage: **8,333**

Office Space Square Footage: **7,291**

Tonnage of Equipment: **20 Tons**

Volume of Equipment: **2,550 cu. ft.**

Annual Maintenance Cost: **$150K**

Estimated Moving Cost: **$9,400K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
280	110	150	400	400	400	0

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Combat Identification Systems**

AGE: **50 Years** REPLACEMENT VALUE: **$6M for equipment and software development and building**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1993**

NATURE OF LAST UPGRADE: **Capacity, Capability and User Interface**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Identification Friend or Foe Interrogator/Evaluator**

   TOTAL PROGRAMMED AMOUNT: **$400K**
   SUMMARY DESCRIPTION: **Provides an upgraded IFF and Mode IV Evaluator capability**

2. UPGRADE TITLE: **Lear IFF Emitter Test Tool**

   TOTAL PROGRAMMED AMOUNT: **FY97-$400K, FY98-$400K**
   SUMMARY DESCRIPTION: **Provides an Airborne IFF Interrogator/Transponder capability for new technology Identification Systems.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Combat Identification Systems**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	16,848	16,848	16,848	16,848	16,848	16,848	16,848	16,848
	TEST HOURS	360	90	180	270	180	90	270	180
	MISSIONS	90	22	45	67	45	22	67	45
EC	DIRECT LABOR	1872	1872	1872	1872	1872	1872	1872	1872
	TEST HOURS	40	10	20	30	20	10	30	20
	MISSIONS	10	3	5	8	5	3	8	5
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Combat Identification Systems**

ANNUAL HOURS OF DOWNTIME	1	**18**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**0.05**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.95**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Flight T&E	**3**	**1**	**3**	**215.6**
Bench T&E	**3**	**1**	**3**	ANNUAL UNCONSTRAINED CAPACITY
Ground T&E	**3**	**1**	**3**	
				9
"TYPICAL"				**78,676**
		TOTAL Σ	**9**	

GENERAL INFORMATION

Facility/Capability Title: **Ground Range Antenna Test Facility (GRATF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**70%**		**20%**	**10%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**50%**		**15%**	**5%**			
Armament/Weapons:							
EC:	**20%**		**5%**	**5%**			
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Ground Range Antenna Test Facility (GRATF)**

Facility Description; Including mission statement:

The GRATF utilizes an automated measurement system to perform antenna measurements in the 500 MHz to 18 GHz frequency range. The facility has a 22 ft fiberglass tower which can be slewed in azimuth and/or elevation and which can accommodate antennas and models weighing up to 400 lbs. The tower is movable and can traverse a 500 ft track to obtain far-field antenna radiation patterns on antennas of various physical and aperture sizes. The GRATF functions as a specification range for aircraft antennas and is used for verification of data obtained at other DOD antenna ground ranges and contractor antenna test facilities. The GRATF is also used to perform antenna performance tests prior to flight tests to ensure valid flight tests are performed.

Interconnectivity/Multi-Use of T&E Facility:

GRATF is linked to the Antenna Testing Laboratory Automated System (ATLAS). Data can be transferred from one facility to the other to enhance aircraft antenna system testing.

Type of Test Supported:

Antenna radiation patterns; Antenna gain; Antenna beamwidth/beam shape; Effective radiated power; Radome Transmissivity; Pointing Accuracy; Antenna isolation; Full-scale UAV antenna radiation patterns.

Summary of Technical Capabilities:

The GRATF utilizes a Scientific-Atlanta SA2012 positioner/controller and a Hewlett-Packard 8510B RF Network Analyzer. The positioner/controller and network analyzer are controlled by an HP9000 series computer to automate antenna radiation pattern measurements. In addition, the HP8510 can maintain phase lock from 45 MHz to 26.5 GHz which speeds up data acquisition significantly. The Scientific-Atlanta 5323-7-B-M azimuth-over-elevation positioner supports the SA5362A 22 ft fiberglass tower to support 3-dimensional measurements for antennas, radomes, UAV's and aircraft mock-ups weighing up to 400 lbs.

Keywords:

Antenna, Radome, Network Analyzer, Ground Range, Antenna Radiation Patterns, Transmissivity, Gain, Beamwidth

ADDITIONAL INFORMATION

Facility/Capability Title: **Ground Range Antenna Test Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	1	0	0	0	0	0	0
Contractor	1	2	2	2	2	2	2
Total	2	2	2	2	2	2	2

Total Square Footage: **200**

Test Area Square Footage: **200**

Office Space Square Footage: **0**

Tonnage of Equipment: **4.0**

Volume of Equipment: **1000 cu ft**

Annual Maintenance Cost: **$30K**

Estimated Moving Cost: **$40K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$30	$50	$35	$42	$25	$37	$37

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Ground Range Antenna Test Facility**

AGE: **11 Years**
Equipment: 1-12 Years

REPLACEMENT VALUE: **$2.0M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1988**

NATURE OF LAST UPGRADE: **Implementation of HP8510 Network Analyzer and a March Microwave Automated Measurement System**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Ground Range Antenna Test Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	1500	1550	1480	1240	1040	1780	1460	1420
	TEST HOURS	750	725	740	620	520	890	730	710
	MISSIONS	17	18	15	20	23	25	15	17
EC	DIRECT LABOR	650	650	630	530	560	600	620	610
	TEST HOURS	325	325	315	265	280	300	310	305
	MISSIONS	7	4	3	5	5	10	5	4
ARMAMENT/WEAPONS	DIRECT LABOR	32			48		16		
	TEST HOURS	16			24		8		
	MISSIONS	1			1		1		
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Ground Range Antenna Test Facility**

ANNUAL HOURS OF DOWNTIME	1	**2400 Hours**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**6.6 Hours**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**17.4 Hours**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Antenna Testing	**1**	**1**	**1**	**34.8**
Radome Transmissivity Testing	**1**	**1**	**1**	ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"	**1**	**1**		**12,702**
		TOTAL Σ	**2**	

GENERAL INFORMATION

Facility/Capability Title: **Acoustic Test Facility (ATF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**		**20%**				
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**80%**		**20%**				
Armanent/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Acoustic Test Facility (ATF)**

Facility Description; Including mission statement:

The Acoustic Test Facility (ATF) consists of three separate capabilities; laboratory and mobile Acoustic Test Facilities and the Automated Quick Look (AQL) Land Programmable Acoustic Processor Stimulator (PAPS). The ATF provides realistic and controllable simulation of sonobuoys, ocean acoustic conditions and submarine targets. The facility supports laboratory and flight test evaluations of ASW acoustic sensor processing equipment and computer software programs that are to be used in fixed wing and/or rotary wing aircraft mission systems.

Interconnectivity/Mulit-Use of T&E Facility:

The facility also provides training in ASW acoustic system operation and recognition of acoustic signals in varying ocean environments.

Type of Test Supported:

Applications include tests on acoustic systems, subsystems, and components to establish design specifications, determine performance in various simulated acoustic conditions using various ocean target models, verify and validate ASW acoustic system software acoustic data processor simulations for ASW system-aircraft platform integration, verify, and validate the acoustic signature library and auto detect software routines, evaluate aircrew performance and system human factor aspects.

Summary of Technical Capabilities:

The Acoustic Test Facility provides simulation and stimulation to support testing of all acoustic sensor processing equipment and computer software programs used in aircraft mission systems.

Keywords:

ASW, Acoustic Sensor, Sonobuoy

ADDITIONAL INFORMATION

Facility/Capability Title: **Acoustic Test Facility (ATF)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	2	1	1	1	1	1	1
Contractor	1	1	1	1	1	1	1
Total	3	3	3	3	3	3	3

Total Square Footage: **2,295**

Test Area Square Footage: **1,947**

Office Space Square Footage: **168**

Tonnage of Equipment: **40**

Volume of Equipment: **12,627 cuft**

Annual Maintenance Cost: **$30K**

Estimated Moving Cost: **$92.5K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded	95	0	0	0	0	0	0

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Acoustic Test Facility (ATF)**

AGE: **Building: 50 Years** REPLACEMENT VALUE: **$2.635M (Building and Equipment)**
Equipment: 1-18 Years

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **FY93**

NATURE OF LAST UPGRADE:

AQL relocated and reconfigured with different computer and disk array.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Acoustic Test Facility (ATF)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	**	**	4854	2766	2214	2217	3195	8649
	TEST HOURS	**	**	1,618	922	738	739	1,065	2,883
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

****No data could be found for test hours for fiscal years 86 - 87. However, the ATF has been consistantly utilized since its inception in 1975 - 1976 for a multitude of ASW projects.**

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Acoustic Test Facility (ATF)**

ANNUAL HOURS OF DOWNTIME	1	**80**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**.21**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.79**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Acoustic Processing	**3**	*	*	*
Mission Avionics Reconstruction	**1**			ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				*
		TOTAL Σ		

*** This could not be completed due to the lack of data for direct labor hours and test hours from preceding Historical Workload page.**

GENERAL INFORMATION

Facility/Capability Title: **Communications Test and Evaluation Laboratory (COMTEL)**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**85%**	**5%**		**10%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**80%**	**3%**		**8%**			
Armament/Weapons:							
EC:	**5%**	**2%**		**2%**			
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Communications Test and Evaluation Laboratory (COMTEL)**

Facility Description; Including mission statement:

The purpose of this facility is to provide assets for evaluation of High Frequency (HF), Very High Frequency (VHF), Ultra High Frequency (UHF), Electronic Counter-counter Measures (ECCM) communications, Satellite communications (SATCOM), Radio Frequency (RF) information data links and their antenna systems integrated in fixed and rotary wing aircraft. The facility provides the unique capability for testing airborne communications over the HF, VHF, and L frequency bands in an unobstructed over-the-water test environment limited only by line of sight propagation conditions. The facility has capabilities to conduct tests in secure (COMSEC), SATCOM and SATCOM DAMA nodes, and to test susceptibility of communication systems to Electronic Counter Measures (ECM) systems.

Interconnectivity/Multi-Use of T&E Facility:

The test facility can provide interconnectivity with other SATCOM T&E facilities such as Naval Underwater Warfare Center (NUWC), New Loudon, CT., Naval Command, Control and Ocean Surveillance Center In-service Engineering and RDT&E Division. The facility also can provide normal and ECCM communication signals to evaluate ECM and ESM systems as well as conduct joint interoperability tests with Air Force and Army ECCM communications systems such as SINOGARS, JTIDS, HAVE QUICK I and II.

Type of Test Supported:

Communications performance tests such as normal and COMSEC communication mode verification, ECCM communications interoperability verification, voice intelligibility, message throughout, message error rate, Bit Error rate, SATCOM carrier to noise (C/No) measurement, SATCOM Non-DAMA and DAMA interoperability verification, maximum communication ranges and coverage tests.

TECHNICAL INFORMATION

Facility/Capability Title: **Communications Test and Evaluation Laboratory (COMTEL)**

Summary of Technical Capabilities:

The facility provides capabilities and assets to evaluate HF, VHF, UHF, ESCM, SATCOM, RF information data lank communication systems and their antenna systems as integrated in fixed and rotary wing aircraft.

Instrumentation/Assets: Facility assets include transceiver test benches (Signal generators, audio analyzer, modulation analyzer, audio power meter, RF power meters), ARC-182/ARC-120 test bench, HF, VHF, and UHF Transceivers, HAVE QUICK radio sets (ARC-164, ARC-182 and ARC-210), SINOGARS radio sets (PRC-119 and ABC-2101, Non-DAMA UHF SATCOM ground station, and DAMA SATCOM (WSC-3/TD1271) ground station, audio recorder, BER analyzers, spectrum analyzers, ECM RF sources, REPEAT Data recorder, MIL-STD-1553 Mux Bus analyzer. COMSEC equipment, data link analysis system, HF, VHF, UHF, and SATCON antenna systems.

Keywords:

HF, VHF, UHF, SATCOM, ECCM, HAVE QUICK, SINOGARS, JTIDS, COMSEC, ARC-182/ARC-210, DAMA, aircraft communications, and flight test.

ADDITIONAL INFORMATION

Facility/Capability Title: **Communications Test and Evaluation Laboratory (COMTEL)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	1						
Enlisted	1						
Civilian	4	5	5	5	5	5	5
Contractor	3	2	2	3	3	3	3
Total	9	7	7	8	8	8	8

Total Square Footage: **1500**

Test Area Square Footage: **500**

Office Space Square Footage: **1000**

Tonnage of Equipment: **3.0**

Volume of Equipment: **1000 cu. ft.**

Annual Maintenance Cost: **$50K**

Estimated Moving Cost: **$3,500K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
250	80	150	135	80	110	95

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Communications Test and Evaluation Laboratory (COMTEL)**

AGE: **12 Years** REPLACEMENT VALUE: **3.4M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **September 93**

NATURE OF LAST UPGRADE: **Upgrade includes increased SATCOM DAMA test capabilities. Improvements included BER Analyzers, SATCOM antenna, OTCIXS I and II interfaces and REPEAT data recording capability. Upgrade was completed and operational on September 1993.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Communications Test and Evaluation Laboratory (COMTEL)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	2000	2200	2300	2700	6000	5000	4000	6000
	TEST HOURS	300	350	350	360	1000	1000	500	1000
	MISSIONS	5	5	5	6	8	8	7	8
EC	DIRECT LABOR	200	100	100	100	1000	1000	500	300
	TEST HOURS	20	20	30	30	200	200	100	50
	MISSIONS	1	1	1	1	2	3	2	1
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Communications Test and Evaluation Laboratory (COMTEL)**

ANNUAL HOURS OF DOWNTIME	1	**20**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**.05**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.85**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Flight Ground	**1**	**4.0**	**4.0**	**95.4**
				ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				**34,821**
		TOTAL Σ	**4.0**	

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Electrical Evaluation Facility (AEEF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Hardware In the Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**90%**		**5%**	**5%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**90%**		**5%**	**5%**			
Armanent/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Electrical Evaluation Facility (AEEF)**

Facility Description; Including mission statement:

To perform test and evaluation on aircraft electrical systems in support of the NAWCAD mission for RDT&E of aircraft systems.

Conducts T&E of aircraft electrical systems and components of primary, secondary and emergency power generation systems. Includes test facilities for power conversion equipments, emergency and auxiliary power units, constant speed drives or transmissions, engine starters, battery chargers, power distribution and control equipments, electrical wiring and wiring installations, drive shafts and couplings, hydraulic motor-generators, hydraulic pumps, avionic cooling and environmental phenomena.

Interconnectivity/Multi-Use of T&E Facility:

The AEEF's environmental chambers can and are used to conduct tests of non-electrical components on an as needed basis.

Type of Test Supported:

Aircraft electrical power generating system performance, MIL-STD-810 Environmental, MIL-STD-461 EMI, and aircraft electrical wiring testing, Salt/Fog, Fungus

Summary of Technical Capabilities:

Temperature/Altitude Facilities - Ten chambers with work space from 1 cubic foot to 343 cubic feet, altitude capability from sea level to 150,000 ft, and temperature ranges from -73 deg to 177 deg C. Large walk in chamber (343 cubic feet) provisions for up to 40 lbs/min of conditioned equipment cooling air.

Environmental Facilities - Salt fog/all salinities and 80 cu. ft. sulfur dioxide, Sand, Dust, Fungus and relative humidity (20 to 100 percent) chamber.

Dynamic Test Facilities - 4,500 to 24,000 lb force sine and random vibration from 10 to 2,000 Hz.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Electrical Evaluation Facility (AEEF)**

Summary of Technical Capabilities:

Shock Facilities - Half-sine or saw tooth shock pulses of 3 ms to 30 ms duration on test articles up to 350 lb.

Mechanical Interface Test Facilities - Capability to perform fatigue and wear testing of drive couplings up to 1.525 inch pitch diameter at torques to 500 lb ft, at misalignment to 0.5 degree and at 28,000 RPM.

Accessory Drive strands - 13 test stands, loads to 150 KVA, speed to 30,000 RPM, accelerations/decelerations to 1800 RPM/sec, power to 300 HP, oil or air cooling interface, programmable operations.

Electromagnetic Interference Facility - MIL-STD-461/462 narrowband and broadband emissions and susceptibility testing. Two shielded enclosures, one interfaced with a 200 HP drive, filtered power, load sources and CSS-750 computer controlled spectrum surveillance system to analyze and record data from 10 KHz to 18 GHz. RS03 to 200 V/meter.

Wind Tunnel - Open circuit subsonic wind tunnel with a 3 ft dia by 6 ft long cylindrical test section capable of testing various component equipment including emergency electrical/hydraulic power packages at speeds ranging from 12 to 230 KTS.

Jet Engine Simulator - Provides jet engine simulation of various engine drag torque vs speed profiles for testing electric starter and starter generators.

Combined Environment Testing (CET) Facility - Consists of two 64 cubic feet chambers capable of providing programmable temperature, humidity, cooling air and vibration conditions.

Keywords:
Electrical, Mechanical, Environmental, Temperature, Altitude, Electromagnetic Interference (EMI), Salt/Fog, Fungus

ADDITIONAL INFORMATION

Facility/Capability Title: **Aircraft Electrical Evaluation Facility (AEEF)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	32	34	34	34	34	34	34
Contractor	13	13	13	13	13	13	13
Total	45	47	47	47	47	47	47

Total Square Footage: **38,329**

Test Area Square Footage: **27,214**

Office Space Square Footage: **11,115**

Tonnage of Equipment: **388**

Volume of Equipment: **24,000 ft^3**

Annual Maintenance Cost: **$785.6K**

Estimated Moving Cost: **$2,628.8K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
195	234	533	674	306	315	315

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Aircraft Electrical Evaluation FAcility (AEEF)**

AGE: **23 Years** REPLACEMENT VALUE: **$35M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE:

FY90 - Replaced furnance, FY91 - Replaced Air Conditioning System.

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Electrical & Environmental Test Upgrade**

TOTAL PROGRAMMED AMOUNT: **$2,572K**

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
TEMP/ALT CHAMBER	$195K	$234K	$533K	$674K	$306K	$315K	$315K

SUMMARY DESCRIPTION: **Provides upgrades to temperature/altitude test capability of an aircraft generator on existing drivestands. Portable chamber will use existing drevestand facilities and significantly reduce test costs. Replaces outdated motor generators which supply high voltage DC for Drive Stand operation with solid state power supplies. This upgrade automates existing drivestands, replaces aging load banks and gearboxes, and adds a 500 horsepower drivestand and 270 VDC load bank to meet the need to T&E of larger capacity and high voltage DC aircraft electrical power systems.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Aircraft Electrical Evaluatin Facility (AEEF)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	**63,336**	**63,366**	**63,366**	**63,366**	**63,366**	**63,366**	**63,366**	**63,366**
	TEST HOURS	**70,080**	**70,080**	**70,080**	**70,080**	**70,080**	**70,080**	**70,080**	**70,080**
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Aircraft Electrical Evaluation Facility (AEEF)**

ANNUAL HOURS OF DOWNTIME	1	**1050 hours**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**2.9**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**21.1**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Electrical	**12**	**2.0**	**24**	**2005**
				ANNUAL UNCONSTRAINED CAPACITY
Environmental	**16**	**2.0**	**32**	
Electrical/ Mech	**12**	**2.5**	**30**	
EMI	**3**	3	**9**	9
"TYPICAL"	**6**	**4**		**731,825**
		TOTAL Σ	**95**	

GENERAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Hardware-in-the-Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**60%**		**40%**				
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**60%**		**40%**				
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility**

Facility Description; Including mission statement:

Aircrew Systems Test Facility (8 labs) provide the capabilities required for test and evaluation of life Support Systems, Environmental Control Systems, Escape and Survival Systems, Internal and External Lighting, Night Vision Systems and Human Factors/Man-Machine Interface Factors resulting from the integration of all the mechanical, avionic, and environmental sub-systems of the total aircraft.

Interconnectivity/Multi-Use of T&E Facility:

Chemical intrusion testing with Dugway Army Proving Grounds. Mobile Vertical/Short Take Off and Landing (VSTOL) Downwash Lab supports all DOD branches, NASA, and FAA test requirements.

Type of Test Supported:

Aircraft Life Support Systems, Environmental Control System, Escape and Survival Systems, Internal and External Lighting, Night Vision, Human Factors Test and Evaluation, and aircraft Cockpit Crewstation Integration.

Summary of Technical Capabilities:

Eight different laboratories contain fixed lab test equipment as well as portable test fixtures to allow lab tests, aircraft ground tests and flight tests.

<u>Aircrew Escape and Survival Systems Laboratory</u>

This lab is used to test aircraft escape systems, survival equipment (helmets, protective clothing, etc.), helicopter emergency flotation systems, chemical defense ensembles, fixed/crashworthy seating systems, negative-g restraint systems and aircrew inflight physiological responses. The laboratory has specialized test fixtures, equipment, and instrumentation to perform the specialized tests. The lab also supports Navy aircraft chemical intrusion tests.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility**

Summary of Technical Capabilities: (continued)

Environmental/Electronics Laboratory

The laboratory contains equipment to measure aircraft induced environmental effects on personnel such as radiation hazards; acoustical noise; VSTOL downwash flowfields; cockpit/cabin temperatures, pressure, toxic gas; physiological performance; and speech intelligibility. The facility also supports instrumentation build up, calibration of test equipment, and reduction of acoustic data.

Life Support/Fluid Flow and Gas Lab

This lab is used to test aircraft life support (oxygen) systems as well as their integration with other aircraft or personal systems. Complete aircraft oxygen systems are prototyped or mocked-up for testing system modifications or preliminary system design. Compressed air sources are available to simulate aircraft engine bleed air and two mechanical breathing machines simulate a wide range of aircrew breathing profiles. A microcomputer, with special analog I/O circuitry, provides data storage and analysis capability. The laboratory is also certified to perform trace contaminant analysis of aviator breathing oxygen and is used to calibrate all types of fluid flow equipment used in airborne flight testing.

Mobile VSTOL Downwash Laboratory

This is a portable facility/capability that provides test fixtures, a remote control survey vehicle, portable flight director station/measurement/data analysis capability to measure the wind characteristics and flowfield of vertical takeoff aircraft. This is the only such facility in the U.S. and performs work for DOD, FAA, and NASA. Equipment is also available to map engine exhaust plumes.

Crewstation Lighting and Night Vision Goggle Laboratory

This laboratory is used to test aircraft display lighting and night vision systems, aircraft transparencies, and aircraft exterior lighting. The lab contains a large variety of automatic and manual photometric equipment for use both in the lab and in the aircraft. The lab also contains specialized photometers for evaluating night lighting which effect night vision systems.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility**

Summary of Technical Capabilities: (continued):

Aircrew Crew Systems Integration Laboratory (AIL)

AIL is a general man-machine integration laboratory providing Aircrew Systems project engineers with both engineering support and specialized test equipment for ground and inflight testing. This test equipment is used for Cockpit Field-of-View, Crew Accommodation, and control/display evaluations. This laboratory is currently being upgraded to include a test capability for Night Vision system performance characteristics.

Crewstation Technology Laboratory

This is a behavioral test development facility. Its functions are to refine, develop, and validate new methods and procedures to meet unique Navy T&E requirements for human factors. Crewstation control and display equipment tests are expanded to cover helmet mounted displays. Computational methods are developed for modeling crewmen and crewstation geometry, and for modeling man-machine interactions, both with visual depiction of results. Test-based verification of spatial models and of task analysis results emphasize video based techniques. Improvements in performance observation, scoring, data reduction and depiction are emphasized to match the tempo of ground, flight and simulation testing. Resources include mainframe and advanced graphics workstation computers, extensive unique software, behavioral test apparatus, custom video equipment, and a helmet mounted display test facility.

Keywords:

Aircrew, Escape, Aviation, Life Support, Lighting, Night Vision, Downwash, control/display

ADDITIONAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	3	4	4	4	4	4	4
Enlisted	4	5	4	4	4	4	4
Civilian	40	38	38	38	38	38	38
Contractor	5	10	5	5	4	4	3
Total	52	57	51	51	50	50	49

Total Square Footage: **16,348**

Test Area Square Footage: **11,241**

Office Space Square Footage: **5,107**

Tonnage of Equipment: **58**

Volume of Equipment: **24,657**

Annual Maintenance Cost: **$34K**

Estimated Moving Cost: **$989K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
895	338	422	380	385	400	425

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Aircrew Systems Test Facility**

AGE: **4 Years (Building and Equipment)** REPLACEMENT VALUE: **$10.7M (Building and Equipment)**
MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **None**

NATURE OF LAST UPGRADE: **N/A**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Night Attack Facility**

TOTAL PROGRAMMED AMOUNT: **FY94-$338K, FY95-$422K, FY96-$380K**
SUMMARY DESCRIPTION: **This laboratory capability is used to test night vision system (NVS) and aircraft NVS compatible cockpit upgrades. Facility was funded under MRTFB I&M and is in the final year of funding to completion. The laboratory is completed and only technical upgrades will be done. The upgraded equipment is housed in a light tight aircraft hanger facility.**

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Aircrew Systems Test Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA	.	86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	**90205**	**90708**	**94752**	**101972**	**94128**	**92167**	**92320**	**91485**
	TEST HOURS	**12350**	**13850**	**16220**	**17850**	**17240**	**15480**	**16540**	**16848**
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Aircrew Systems Test Facility**

ANNUAL HOURS OF DOWNTIME	1	**340 Hrs Per Shift**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**.93**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**24 - 3 Shifts x .93 = 21.2**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Night Systems	**1**	**6**	**6**	**890**
Life Support	**2**	**3**	**6**	ANNUAL UNCONSTRAINED CAPACITY
Escape Systems	**2**	**2**	**4**	
Chem/Bio	**1**	**2**	**2**	
Env Haz	**2**	**5**	**10**	
Lighting	**1**	**2**	**2**	
HMD	**2**	**2**	**4**	
Down Wash	**1**	**8**	**8**	9
"TYPICAL"				**324,850**
		TOTAL Σ	**42**	

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Support Systems Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Hardware-in-the-Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**90%**		**5%**	**5%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**90%**		**5%**	**5%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Support Systems Test Facility**

Facility Description; Including mission statement: **This facility provides the necessary integrated test facilities to develop, test, and evaluate all aviation common and peculiar Support Equipment (SE) within its simulated or real operational environment.**
Interconnectivity/Multi-Use of T&E Facility: **Highly dependent on the use of Naval and Marine Corps aircraft and enlisted military personnel assigned to other units at Patuxent River. Utilize electromagnetic test and evaluation capabilities of the Systems Test Directorate at NAWCAD-Patuxent River and NAVSURFWPNSCEN, Dahlgren, VA.**
Type of Test Supported: **Operational Suitability and Supportability of SE.**
Summary of Technical Capabilities: **Consolidated Automated Support Systems (CASS) Laboratory containing five (5) CASS stations. Uninstalled Engine Test Facility containing two (2) test pads, holdback facilities, operation and instrumentation systems, wiring, and fuel capabilities.**
Keywords: **Support Equipment (SE), Supportability Evaluation (SUPEVAL), Consolidated Automated Support System (CASS), Peculiar SE (PSE), Common SE (CSE), Avionics SE (ASE), Automatic Test Equipment (ATE), Test Program Set (TPS), Propulsion SE, Aircraft Engine Test Systems (AETS), Armament and Weapons SE (AWSE).**

ADDITIONAL INFORMATION

Facility/Capability Title: **Aircraft Support Systems Test Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	1	1	1	1	1	1	1
Enlisted	9	11	11	11	11	11	11
Civilian	56	49	49	49	49	49	49
Contractor	14	26	38	42	46	51	56
Total	80	87	99	103	107	112	117

Total Square Footage: **17,281**

Test Area Square Footage: **9,505**

Office Space Square Footage: **7,776**

Tonnage of Equipment: **210**

Volume of Equipment:

Annual Maintenance Cost:

Estimated Moving Cost: **$2,200K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
372	558	724	334	348	0	0

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Aircraft Support Systems Test Facility**

AGE:

Bldg. 1405	**25 Years**
Bldg. 2705	**8 Years**
Bldg. 2093	**7 Years**
Bldg. 2117	**5 Years**
Bldg. 2121	**5 Years**
Bldg. 2131	**4 Years**
Equipment:	**1-31 Years**

REPLACEMENT VALUE: **$17.5M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1994**

NATURE OF LAST UPGRADE: **Major Roof Replacement/Repair on Building 1405, Major Electrical Update to Uninstalled Engine Test Facility, New Jet Engine Test Pad Installed at Uninstalled Engine Test Facility.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Aircraft Support Systems Test Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	119600	127900	154700	136300	137700	147300	165523	138927
	TEST HOURS	59800	63950	77350	68150	68580	73650	82762	69494
	MISSIONS	60	60	67	53	49	69	57	35
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Aircraft Support Systems Test Facility**

ANNUAL HOURS OF DOWNTIME	1	**288**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**0.789**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.21**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Technical Evaluation	**34**	**2.0**	**68**	**1764**
Developmental Assist	**2**	**2.0**	**4**	ANNUAL UNCONSTRAINED CAPACITY
In-Service Evaluation	**2**	**2.0**	**4**	
				9
"TYPICAL"	**7**	**2.0**		**643,845**
		TOTAL Σ	**76**	

GENERAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle And Electronic Combat** UIC = **00421**

T&E Test Facility Category: **Installed System Test Facility**

	T&E	S&T	D&E	IE	T&D	OTHER =100%
PERCENTAGE USE:	**77%**	**1%**	**15%**	**3%**	**3%**	**1%**
BREAKOUT BY T&E FUNCTIONAL AREA (%)						
Air Vehicles:	**41%**	**1%**	**14%**	**2%**	**3%**	**1%**
Armament/Weapons:	**8%**					
EC:	**26%**		**1%**	**1%**		
Other:	**2%**					

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Facility Description; Including mission statement:

The Air Combat Environment Test & Evaluation Facility (ACETEF) is a fully integrated ground test facility that allows full spectrum test & evaluation of highly integrated aircraft and aircraft systems in a secure and controlled engineering environment. The facility uses state-of-the-art simulation and stimulation technologies to provide test scenarios that reproduce the conditions of actual combat. ACETEF facilities are divided into Simulation & Analysis, Electronic Combat Stimulation, Manned Flight Simulation, and Electromagnetic Environmental Effects departments which support "bench" tests of simulations & uninstalled systems as well as tests of fully installed systems in a shielded hangar, anechoic chamber and/or other local and remote sites. ACETEF is a one of a kind facility which provides an integration of wargaming, man-in-the-loop, hardware-in-the-loop, and electromagnetic environmental effects test capabilities.

Simulation & Analysis Department

Operations & Control Center (OCC)

The Operations & Control Center provides the cornerstone for total integrated multi-platform ground testing in the ACETEF. Threat generation is provided by the Simulated Warfare Environment Generator (SWEG). SWEG is the core of the OCC, generating the threat scenarios and maintaining control of red and blue players. Test execution, data distribution, and test instrumentation are also controlled by the OCC.

Aircrew Systems Evaluation Facility (ASEF)

The Aircrew Systems Evaluation Facility provides the tools necessary to evaluate the man-machine interface and crew workload during ACETEF testing. Controls, displays, and cockpit layouts are rapidly prototyped and evaluated early in the development process to reduce the cost of correcting design errors. In addition, ASEF provides a low fidelity man-in-the-loop capability through multiple desktop crewstations to support tests in other ACETEF labs.

EC Stimulation Department

The ACETEF Electronic Combat Stimulation Department consists of four separate functional laboratories. These labs can work independently or as integrated systems to provide an RF/EO signal rich environment to aircraft located in test areas at Patuxent River or off site.

Electronic Warfare Integrated Systems Test Laboratory (EWISTL)

The Electronic Warfare Integrated Systems Test Laboratory (EWISTL) provides multispectral open loop stimulation to aircraft EW systems. These systems consist of radar warning receivers, jamming systems, electronic support measures, laser warning, and passive missile approach warning. EWISTL provides this stimulation to bench and installed systems at RF through direct injection, close coupled hats, or free space radiation

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Facility Description; Including mission statement: (continued)

The Threat Air Defense Laboratory (TADL)

The Threat Air Defense Laboratory (TADL) provides closed loop radar/missile stimulation to aircraft EW systems. TADL currently has one surface to air weapon system and one early warning/acquisition radar. Connecting TADL to aircraft jamming systems provides test engineers with jamming effectiveness data such as missile miss distance, tracking break lock errors, burn through, and sector coverage.

Communications, Navigation, Identification Laboratory (CNIL)

The Communications, Navigation, Identification Laboratory (CNIL) provides open and closed loop stimulation of DoD CNI systems and EW surveillance systems. CNIL has a GPS simulator, a multi-emitter open loop simulator, several closed loop radio systems, a PROFORMA simulator, a Link 16 simulator and other data link equipment.

Offensive Sensors Laboratory (OSL)

The Offensive Sensors Laboratory (OSL) provides RF target generation and IR scene generation to Navy aircraft offensive sensor systems. These include air to air radar, air to ground radar, forward looking infrared (FLIR), infrared search and track (IRST), and active missile approach warning systems. OSL currently has an air to air radar target simulator (RTS) that can generate sixteen simultaneous targets to an aircraft fire control radar.

Manned Flight Simulator

MFS is a full flight and avionics systems laboratory used to support the development and test of all categories of aircraft including support for vehicle management and mission managegment systems, mission critical computer resources, man-machine interface and performance, software development and test, and T&E methodology development. It features a six-degree-of-freedom motion base, a 40 foot diameter dome, and two medium fidelity lab station. Out the window visuals are provided by a Compuscene IVA and a Compuscen IV and a stand-alone Silicon Graphics System. Roll-in/roll-out cockpits permit rapid reconfiguration of all simulation stations. Cockpits presently in the MFS inventory include V-22, F/A-18A, F/A-18C/D/E/F, F-14D front seat, AH-1W procedures trainer, and Multiple Reconfigurable cockpits with touch sensitive front displays for rapid reconfiguration of cockpit instruments. MFS is used independently to support flying qualities and performance and high fidelity MMI evaluation tasks and integrated with other labs to provide a high fidelity man-in-the-loop capability.

Electromagnetic Environmental Effects Department

Navy Electromagnetic Pulse Test Facility:

This facility subjects Navy and other DoD aircraft and weapons to the High Altitude Electromagnetic Pulse Threat

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Facility Description; Including mission statement: (continued)

Navy Lightning & P-Static Test Facility

This facility subjects Navy and other DoD aircraft and weapons to Lightning and P-Static Threats.

TEMPEST/COMSEC (Communications Security) Test Facility

The TEMPEST/COMSEC Test Facility is used to support the Navy, Marine Corps and Coast Guard in the RDT&E and Fleet suport of Airborne classified information processing system. The facility supports three main functional areas: TEMPEST Test and Evaluation, the COMSEC cetification Program, and RDT&E and Fleet support of COMSEC systems.

Naval Electromagnetic Radiation Facility (NERF)

The NERF consists of a 1500 square foot lab building, vault, two ground planes (100' x 240' surface mounted steel deck and 200' x 400' imbedded grid under the hangar 144 apron) with all required electrical services and high powered transmitters required to generate simulated operational electromagnetic environment for purposes of conducting radiated susceptibility tests for the Navy, Army, Air Force, FAA, and commercial customers.

Anechoic Chamber/Shielded Hangar

Shielded Hangar

A 300' x 150' x 60' shielded hangar used for test and evaluation of aircraft electronic combat (mission) system and electromagnetic environmental effects.

Anechoic Chamber

A tactical aircraft sized anechoic chamber (100' x 60' x 35') designed to accomodate fixed and rotary wing aircraft. A 30 ton traveling hoist suspends the test article in a flight configuration. a 15' x 10' x 8' pit allows for special access to electronic test equipment. The chamber has 120dB of shielding from the outside environment, allowing tests to be conducted in a secure and uncontaminated RF environment. The chamber provides a near free-space environment over a very wide frequency range (10kHz - 40 GHz), providing for more efficient use of limited flight test time and resources.

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Interconnectivity/Multi-Use of T&E Facility:

Interconnectivity

ACETEF laboratories are able to operate both independently (to provide a stand alone test capability) and integrated with other local and remote facilities (to provide a more complex test capability). For multi-lab operations within ACETEF, the OCC provides scenario control & coordination to any combination of simulation labs & stimulation labs which may be supporting the test of systems on a bench within the lab or installed in an aircraft in the anechoic chamber or shielded hangar. Linking of ground based systems under test and airborne seaborne assets has been accomplished using both tactical data links and test support data links. The local architecture is centered around a fiber-optic network supporting shared memory within each lab. Labs were built adjacent to the anechoic chamber/shielded hangar to reduce signal latency/propagation loss problems.

The OCC is also ACETEF's portal for interconnectivity with external facilities, both local (NAWCAD Patuxent) and off site locations. This is done via the Defense Simulation Internet (DSI) and a series of dedicated point-to-point connections. To date, ACETEF has successfully connected externally to the REDCAP facility, various facilities participating in WARBREAKER exercises, the X-31 Rockwell simulator, and multiple Defense Interactive Simulation (DIS) projects Locally ACETEF is connected to all facilities via Patuxent River's fiber-optic local area network. Local facilities which have been integrated into various tests include the Chesapeake Test Range, E-2C Systems Test and Evaluation Facility, Ship Ground Station, and Fixed Wing ASUW and ASW Labs.

Multi-Use

The ACETEF concept provides for maximum flexibility in efficient use of test resources. Laboratories are capable of stand-alone and integrated testing in multiple combinations. By combining the various labs, ACETEF provides the ability to accomplish test tasks in all areas of air combat. ACETEF labs share tools & instrumentation, as well as test sites--the anechoic chamber and shielded hangar. The facility is capable of operating on a three shift basis in whichever labs are required to support a given test.

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Type of Test Supported:

ACETEF's primary function is to support installed systems test. Secondary functions include support of modeling & simulation tests, hardware-in-the-loop tests, and measurement tests. Specific examples include:

Simulation & Analysis

Operations & Control Center

The Operations & Control Center supports testing which requires a high fidelity wargaming environment and those tests which require coordination of multiple labs. As a standalone facility, OCC supports various types of operational effectiveness analyses. In conjunction with other labs, OCC provides scenario generation and simulation, instrumentation, data analysis, laboratory integration, and integration with remote facilities.

Aircrew Systems Evaluation Facility (ASEF)

The Aircrew Systems Evaluation Facility provides display prototyping in support of human factors testing including Aircrew Systems Advisory Panels, Design Advisory Groups, Controls & Displays Working Groups, and training. In addition, ASEF provides a low fidelity man-in-the-loop capability in support of other labs test objectives.

EC Stimulation

Generally the EC Stimulation Department operates as an Installed System Test Facility (ISTF) for the test and evaluation of aircraft EC, Offensive sensors, and CNI systems. In this role, the facility supports both developmental installations and retrofit installations. This department can support EC system integration, E^3 evaluation, weapons integration, and safety of flight for advanced technology demonstrators, developmental test, and operational test. These tests can be supported in anechoic chambers, shielded hangers, aircraft hangers, flight lines, contractor facilities, off-site DoD facilities, and on operational platforms (land, air, and sea).

Manned Flight Simulator

MFS supports testing of vehicle management and mission managegment systems, mission critical computer resources, man-machine interface and performance, software developmenta and test, and T&E methodology development for existing and notional aircraft.

Electromagnetic Environmental Effects

Navy Electromagnetic Pulse Test Facility

The Navy Electromagnetic Pulse Test Facility supports horizontal and vertical electromagnetic pulse testing of aircraft and aircraft systems.

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Type of Test Supported: (continued)

Navy Lightning & P-Static Test Facility
The Navy Electromagnetic Pulse Test Facility supports lightning and P-static testing of aircraft and aircraft systems.

TEMPEST/COMSEC Test Facility
The TEMPEST/COMSEC Test Facility supports test and evaluation of TEMPEST/COMSEC systems. In addition, the facility supports COMSEC certifications, R&D of COMSEC systems, and fleet support.

Naval Electromagnetic Radiation Facility (NERF)
The Naval Electromagnetic Radiation Facility supports any form of radiated susceptibility test including Electromagnetic Vulnerability test, Intersystem Electromagnetic Compatibility test, Hazardous Electromagnetic Radiation to Ordnance, Hazardous Electromagnetic Radiation to Fuel, MIL-STD-461 RS03 tests, and High Intensity Radiated Fields tests for FAA certification of commercial aircraft.

Anechoic Chamber/Shielded Hangar

The anechoic chamber and shielded hangar support all aspects of ACETEF testing including: E3, EC system integration, antenna isolation, TEMPEST, and RF emission signature measurement.

Summary of Technical Capabilities:

Combat Environment Simulation Department
The Simulation & Analysis Dept provides the following capabilities:
Simulated Warfare Environment Generator
8 channel data bus instrumentation & data analysis
Interlaboratory and interfacility integration
8 Mini-crewstations
Cockpit prototyping system

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Summary of Technical Capabilities: (continued)

EC Stimulation Department

The EC Stimulation Dept. provides the following capabilities:
Dynamic multi-emitter open loop RF threat environment
Dynamic multi-emitter open loop CNI threat environment
Dynamic closed loop simulation of EW/ACQ and SAM threat systems
Dynamic closed loop simulation of Blue CNI systems (GPS, tactical data links, strategic data links)
Dynamic multi-target stimulation of Blue fire control radar(APG-71,APG-73)
Open loop EO stimulation (laser, missile plume, simple IR targets)
Open loop target simulation of anti radiation missiles (for aircraft avionics integration)

Manned Flight Simulator

MFS features a six-degree-of-freedom motion base, a 40 foot diameter dome, and two medium fidelity lab stations. Out-the-window visuals are provided by a Compuscene IVA, a Compuscene IV and a stand-alone Silicon Graphics System. Roll-in/roll-out cockpits permit rapid reconfiguration of all simulation stations. Cockpits presently in the MFS inventory include V-22, F/A-18A, F/A-18C, F/A-18F, F-14D pilot, AH-1W procedures trainer, and a Multiple Reconfigurable cockpit with touch sensitive front display for rapid reconfiguration of cockpit instruments. It provides hardware-in-the-loop testing capability of flight control computers and mission control computers.

Electromagnetic Environment Effects Department

Navy Electromagnetic Pulse (EMP) Test Facility:
The EMP Test Facility provides the following capabilities:
Full Threat Electromagnetic Pulse Simulation.
Vertical and Horizontal Polarization.
Thirty channels of high speed instrumentation.
Above threat direct injection capability.

Navy Lightning & P-Static Test Facility:
The Lightning & P-static Test Facility provides the following capabilities:
Full Threat Lightning Capability
Full Threat P-Static Capability

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Summary of Technical Capabilities: (con't)

TEMPEST/COMSEC Test Facility
The TEMPEST/COMSEC Test Facility provides the following capabilities:
Test equipment to support 3 simultaneous aircraft TEMPEST tests
Test equipment to support 4 simultaneous aircraft COMSEC certifications
Various test equipment, benches, racks, wiring harnesses and mobile test vehicles to support RDT&E and Fleet support of COMSEC systems.

Naval Electromagnetic Radiation Facility (NERF)
The NERF facility is capable of accommodating test articles from box size to Boeing 747 aircraft size and generating simulated operational electromagnetic fields as follows:
Discrete radars from 200Mhz through 35 GHz
0 - 120,000 mW/cm^2 Peak E-fields
Swept communication/EW signals from 10 KHz through 18 GHz
0 - 250 V/M CWE-fields

<u>Anechoic Chamber/Shielded Hangar</u>
The anechoic chamber and shielded hangar provide the following capabilities:
Isolation from the external environment
Aircraft testing in a shielded enclosure
Aircraft support services including electrical, hydraulic, and coolant at six spots in the hangar and one in the chamber

In addition, the anechoic chamber provides a near free space radiation capability.

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Keywords:

Simulation, Instrumentation, Defense Simulation Internet (DSI), Distributed Interactive Simulation (DIS), Rapid Prototype, Simulated Warfare Environment Generator (SWEG), ACETEF, Modeling, Aircrew Systems Advisory Panel, Design Advisory Group, Controls & Displays, EC Stimulation, Electronic Combat (EC), Electronic Warfare (EW), RF Stimulation, IR Stimulation, Threat Air Defense Laboratory (TADL), Electronic Warfare Integrated Systems Test Laboratory (EWISTL), Communication, Navigation, Identification Laboratory (CNIL), Offensive Sensors Laboratory (OSL), Manned Flight Simulator, Six-degree-of-freedom, motion base, dome, hardware-in-the-loop, man-in-the-loop, integrated system test facility, aircraft simulation, aero modeling, avionics modeling, Electromagnetic Environmental Effects (E3), Navy Electromagnetic Pulse Test Facility, Electromagnetic Pulse (EMP), Vertically Polarized Dipole (VPD), Horizontally Polarized Dipole (HPD), Navy Lightning & P-Static Test Facility, Precipitation Static (P-Static), Lightning, Anechoic Chamber, Shielded Hangar, AATF, TEMPEST, EMC/EMI, Radiated Susceptibility, Electromagnetic Vulnerability, Intersystem Electromagnetic Compatibility, Hazardous Electromagnetic Radiation to Ordnance, Hazardous Electromagnetic Radiation to Fuel, MIL-STD-461 RS03, and High Intensity Radiated Fields

ADDITIONAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	1	1	1	1	1	1
Enlisted	2	2	1	1	1	0	0
Civilian	133	135	144	145	146	116	79
Contractor	135	109	111	111	110	75	55
Total	270	247	257	258	258	192	135

Total Square Footage: **97,431**

Test Area Square Footage: **74,048**

Office Space Square Footage: **23,383**

Tonnage of Equipment: **926**

Volume of Equipment: **2,999,902 cu ft**

Annual Maintenance Cost: **$5,290K**

Estimated Moving Cost: **$17,084K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$12,450	$14,690	$24,250	$20,150	$21,950	$21,760	4,960

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Air Combat Environment Test & Evaluation Facility**

(Building	Age:	Replacement Value: & Equipment)
Simulation & Analysis Dept	3 Years	$11.8M
Operations & Control Center		
Aircrew Systems Evaluation Facility		
EC Stimulation Dept	14 Years	$106.35M
CNI Lab		
EW Integrated Systems Test Lab		
Offensive Sensors Lab		
Manned Flight Simulator	8 Years	$52.3M
Electromagnetic Environmental Effects Dept		
Navy Electromagnetic Pulse Test Facility	11 Years	$30.0M
Navy Lightning & P-Static Test Facility	22 Years	$10.0M
TEMPEST/COMSEC Test Facility	25 Years	$5.0M
Naval Electromagnetic Radiation Facility	31 Years	$1.2M
Anechoic Chamber/Shielded Hangar		
Anechoic Chamber	11 Years	$15.0M
Shielded Hangar	46 Years	$45.0M

MAINTENANCE AND REPAIR BACKLOG: (See Attachment 1 for Facility Maintenance and Repair and Facility Upgrades)

DATE/NATURE OF LAST UPGRADE:

Combat Environment Simulation Dept:	FY94
Digital Radar Landmass Simulator	
Simulation Enhancements	
Instrumentation Upgrade	

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Air Combat Environment Test & Evaluation Facility**

EC Stimulation Dept	FY94
Advanced Tactical EW Environment Simulator (ATEWES) Frequency Extension (Millimeter/Low Band)	
Communication Environment Simulator (CES)	
IR Stimulator	
Anti-Radiation Missile Stimulator	
Manned Flight Simulator	FY94
Processor Upgrade	
Electromagnetic Environmental Effects Dept	
Navy Electromagnetic Pulse Test Facility	FY88
Instrumentation Upgrade	
Navy Lightning & P-Static Test Facility	FY93
Power upgrade	
TEMPEST/COMSEC Test Facility	FY86
Space renovation	
Naval Electromagnetic Radiation Facility	FY94
Addition of 200' x 400' Ground Plane	
Anechoic Chamber/Shielded Hangar	
Anechoic Chamber	FY94
Replacement of Anechoic Floor	
Shielded Hangar	FY94
Painted floor	

MAJOR UPGRADES PROGRAMMED:

Combat Environment Simulation Dept

Upgrade Title: Simulation Software Upgrade
Total Programmed Amount: $5.0M
Description: Upgrade simulation software to ADA, obtain full documentation, ensure compliance with all current standards

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Air Combat Environment Test & Evaluation Facility**

EC Stimulation Dept:
Upgrade Title: Air To Ground Radar Target Generator
Total Programmed Amount: $15M
Description: RF Stimulator To Provide Ground Mapping Input To Airborne Radar System.

Upgrade Title: Infrared Scene Generator
Total Programmed Amount: $15M
Description: Processor And Projection System To Provide Dynamic Infrared Scene Capability To Infrared Search And Track (Irst), Forward Looking Infrared (Flir), and Passive Missile Approach Warning Systems. 1994 Completion Of Los Alamos Study For System Specification

Manned Flight Simulator
Upgrade Title: Helmet Mounted Display System
Total Programmed Amount: $0.8M
Description: Add ability to integrate helmet mounted display viauals

Upgrade Title: Independent Lab Stations
Total Programmed Amount: $2.5M
Description: Develop self contained simulation stations

Electromagnetic Environmental Effects Dept
Navy Electromagnetic Pulse Test Facility
Upgrade Title: Horizontally Polarized Dipole Pulsar Upgrade
Total Programmed Amount: $0.26M
Description: Increases simulator rise time, and bandwidth.

Upgrade Title: Direct Injection Simulation Upgrade
Total Programmed Amount: $0.14M
Description: Increases direct injection amplitude and bandwidth.

Navy Lightning & P-Static Test Facility
Upgrade Title: Crow Bar Switch
Total Programmed Amount: $0.25M
Description: Add capability to generate unipolar waveform.

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Air Combat Environment Test & Evaluation Facility**

Upgrade Title: Long Arc Generator
Total Programmed Amount: $0.10M
Summary Description: Improve radome testing capability.

TEMPEST/COMSEC Test Facility
None

Naval Electromagnetic Radiation Facility
None

Anechoic Chamber/Shielded Hangar
Anechoic Chamber
Upgrade Title: Anechoic Material Replacement
Total Programmed Amount: $0.34M
Description: Replace anechoic material as part of scheduled maintenance (effort is funded thru cost distribution vice institutional, funds)

Shielded Hangar
None

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	53826	63642	73050	102866	134898	164329	152730	143150
	TEST HOURS	16135	20274	21068	18942	19675	18434	18815	21393
	MISSIONS						30	125	87
EC	DIRECT LABOR					26291	35579	27317	24342
	TEST HOURS	3047	3720	3669	3079	4169	4893	4293	4198
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR					2629	3558	2732	2034
	TEST HOURS	528	457	573	543	764	767	803	931
	MISSIONS								
OTHER T&E	DIRECT LABOR	2314	3738	4450	5874	8503	9432	9496	8798
	TEST HOURS	324	560	600	592	511	561	625	527
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

Determination of Unconstrained Capacity

Facility/ Capability Title:	Naval Electromagnetic Radiation Facility	Navy Electromagnetic Pulse Test Facility	Navy Lightning & P-Static Test Facility	TEMPEST/ COMSEC Test Facility	Anechoic Chamber	Shielded Hangar	EW Integrated Systems Test Lab	Offensive Sensors Lab	CNI Lab	Manned Flight Simulator	Operations & Control Center	Aircrew Systems Evaluation Facility
Annual Hours of Downtime:	2920.00	2880.00	500.00	100.00	720.00	720.00	325.00	320.00	145.00	712.00	410.00	352.20
Average Downtime per Day:	8.00	7.89	1.37	0.27	1.97	1.97	0.89	0.88	0.40	1.95	1.12	0.96
Average Hours Available Per Day:	16.00	16.11	22.63	23.73	22.03	22.03	23.11	23.12	23.60	22.05	22.88	23.04

Determination of Unconstrained Capacity

Test Type	Facility	Tests at one time	Workload per test per facility hour	Workload per facility hour	Unconstrained per day	Annual unconstrained capacity
Any form of radiated susceptibility	Naval Electromagnetic Radiation Facility	2.00	7.00	14.00	224.00	81760.00
Horizontal EMP	Navy Electromagnetic Pulse Test Facility	1.00	15.00	15.00	241.64	88200.00
Vertcal EMP	Navy Electromagnetic Pulse Test Facility	1.00	8.00	8.00	128.88	47040.00
Direct Injection	Navy Electromagnetic Pulse Test Facility	1.00	5.00	5.00	80.55	29400.00
Lightning	Navy Lightning & P-Static Test Facility	1.00	7.00	7.00	158.41	57820.00
P-Static	Navy Lightning & P-Static Test Facility	1.00	3.00	3.00	67.89	24780.00
TEMPEST	TEMPEST/ COMSEC Test Facility	5.00	2.00	10.00	237.26	86600.00
COMSEC	TEMPEST/ COMSEC Test Facility	5.00	2.00	10.00	237.26	86600.00
EW	EW Integrated Systems Test Lab	10.00	3.00	30.00	693.29	253050.00
Offensive Sensors	Offensive Sensors Lab	2.00	3.00	6.00	138.74	50640.00
CNI	CNI Lab	5.00	3.00	15.00	354.04	129225.00
High fidelity Man-in-the-Loop	Manned Flight Simulator	3.00	3.00	9.00	198.44	72432.00

Environment generation	Operations & Control Center	2.00	4.00	8.00	183.01	66800.00

Determination of Unconstrained Capacity

Rapid prototyping	Aircrew Systems Evaluation Facility	1.00	3.00	3.00	69.11	25223.40
Low fidelity Man-in-the-Loop	Aircrew Systems Evaluation Facility	8.00	3.00	24.00	552.84	201787.20
Installed System Test	Shielded Hangar	6.00	7.00	42.00	925.15	337680.00
Installed System Test (Anechoic)	Anechoic Chamber	1.00	7.00	7.00	154.19	56280.00

GENERAL INFORMATION

Facility/Capability Title: **Test & Evaluation Data Processing (Software & Applications)**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Open Air Range**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**95%**		**5%**				
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**85%**		**5%**				
Armament/Weapons:	**5%**						
EC:	**5%**						
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Test & Evaluation Data Processing (Software & Applications)**

Facility Description; Including mission statement:

The T&E Data Processing (Software & Engineering Applications Department) Facility consists of workstations, film readers, and video data extraction equipment. The facility provides data analysis for real-time and post-event processing, performance of requirements analysis with computer aided tools, modeling for structural analysis, and project management support. Flight test and modeling data are analyzed and/or made available to project personnel to support the T&E of aircraft weapon systems. The facility provides photogrammetric analysis of data retrieved from recordings of carrier suitability tests as well as weapon separation testing. The facility provides independent verification and validation, configuration management, and quality assurance functions integrated with the data analysis.

Interconnectivity/Multi-Use of T&E Facility:

The facility supports classified and non-classified data processing with results presented in various formats and media including magnetic, optical, or electronic trans-mission over networks. The facility is interconnected with other workstation servers both locally and remotely. The facility can and has provided reconstruction of aircraft mishaps based on analog, digital, or photogrammetric information recovered from crash sites.

Type of Test Supported:

The facility provides support of Flying Qualities and Performance, Flutter and Vibration Analysis, Carrier Suitability, Avionics Analysis, Weapon Separation, Weapons Delivery Accuracy, and Structural Analysis tests. The facility provides results during real-time, post-event, and near-real-time (quick-look) phases. The systems-under-test include the air vehicles within the Fleet, such as F-14, F/A-18, AV-8, CH-53, AH-1, P-3, E-2, and V-22; the avionics systems, such as mission computers, data buses, and cockpit configurations; as well as, ground support systems, including the Automated Carrier Landing System.

TECHNICAL INFORMATION

Facility/Capability Title: **Test & Evaluation Data Processing (Software & Applications)**

Summary of Technical Capabilities:

At least 10 workstations (plus several multi-processor servers) with strategically located storage at several local sites comprising more than 35 gigabytes for storing both raw and calculated results. Each of these processors is capable of at least 25 million instructions per second.

The four film readers are Telereadex compliant with one upgraded to assist pointing up of data from degraded quality film. The Semi-Automatic Film/Video Reader can digitize information for playback in both VHS and 3/4 inch formatted tape.

Various and sundry desktop processors provide software (both commercial-off-the-shelf and in-house) technical analysis, consultation, and reduction of test data for the local, joint-service, and commercial customer-base.

Keywords:

Datareduction, Telemetry, Real-time, Post-flight, Photographic, Structure

ADDITIONAL INFORMATION

Facility/Capability Title: **Test & Evaluation Data Processing (Software & Applications)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	62	60	58	61	61	61	61
Contractor	27	30	41	37	36	35	37
Total	89	90	99	98	97	96	98

Total Square Footage: **2,000**

Test Area Square Footage: **750**

Office Space Square Footage: **1,250**

Tonnage of Equipment: **2.5**

Volume of Equipment:

Annual Maintenance Cost: **$193K**

Estimated Moving Cost: **$75K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
	500	500	800	400	500	700

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Test & Evaluation Data Processing (Software & Applications)**

AGE: **Bldg. 2118** **5 Years**
Bldg. 1403 **25 Years**
Bldg. 1406 **25 Years**
Equipment **1-11 Years**

REPLACEMENT VALUE: **$2M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **FY94 (Additional 25MIPS Machine Plus 15GB Store)**

NATURE OF LAST UPGRADE: **Computational Upgrade**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Test & Evaluation Processing II**

TOTAL PROGRAMMED AMOUNT: **$3.4M**
SUMMARY DESCRIPTION: **Improve desktop data anlaysis through increased storage; software development improvement, enhancements and upgrades; and purchase of high density mass storage devices and additional engineering/user workstations.**

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Test & Evaluation Data Processing (Software & Applications)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	53550	61895	80550	107324	101924	101924	123975	137250
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR	2975	3437	4475	5968	5663	5663	6887	7625
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	2975	3437	4475	5968	5663	5663	6887	7625
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Test & Evaluation Data Processing (Software & Applications)**

ANNUAL HOURS OF DOWNTIME	1	**55**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**.15**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.85**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Flying Quality and Performance (FQ&P) Test Support	**1**	**2**	**4**	**226.58**
Carrier Suitability (CVS) Test Support	**2**	**.5**	**1**	ANNUAL UNCONSTRAINED CAPACITY
Avionics Test Support	**1**	**2**	**2**	
Structural Analysis Test Support	**1**	**2**	**2**	
Weapon Separation Test Support	**1**	**.5**	**.5**	9
"TYPICAL"				**82,702**
		TOTAL Σ	**9.5**	