DCN 1384

Book I

NAWC, Aircraft Division,
Patuxent River, MD

Book I

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

125

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:

<u>Temperature/Altitude Facilities</u> - 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.

<u>Environmental Facilities</u> - Salt fog/all salinities and 80 cu. ft. sulfur dioxide, Sand, Dust, Fungus and relative humidity (20 to 100 percent) chamber.

<u>Dynamic Test Facilities</u> - 4,500 to 24,000 lb force sine and random vibration from 10 to 2,000 Hz.

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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

h25

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

525

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.

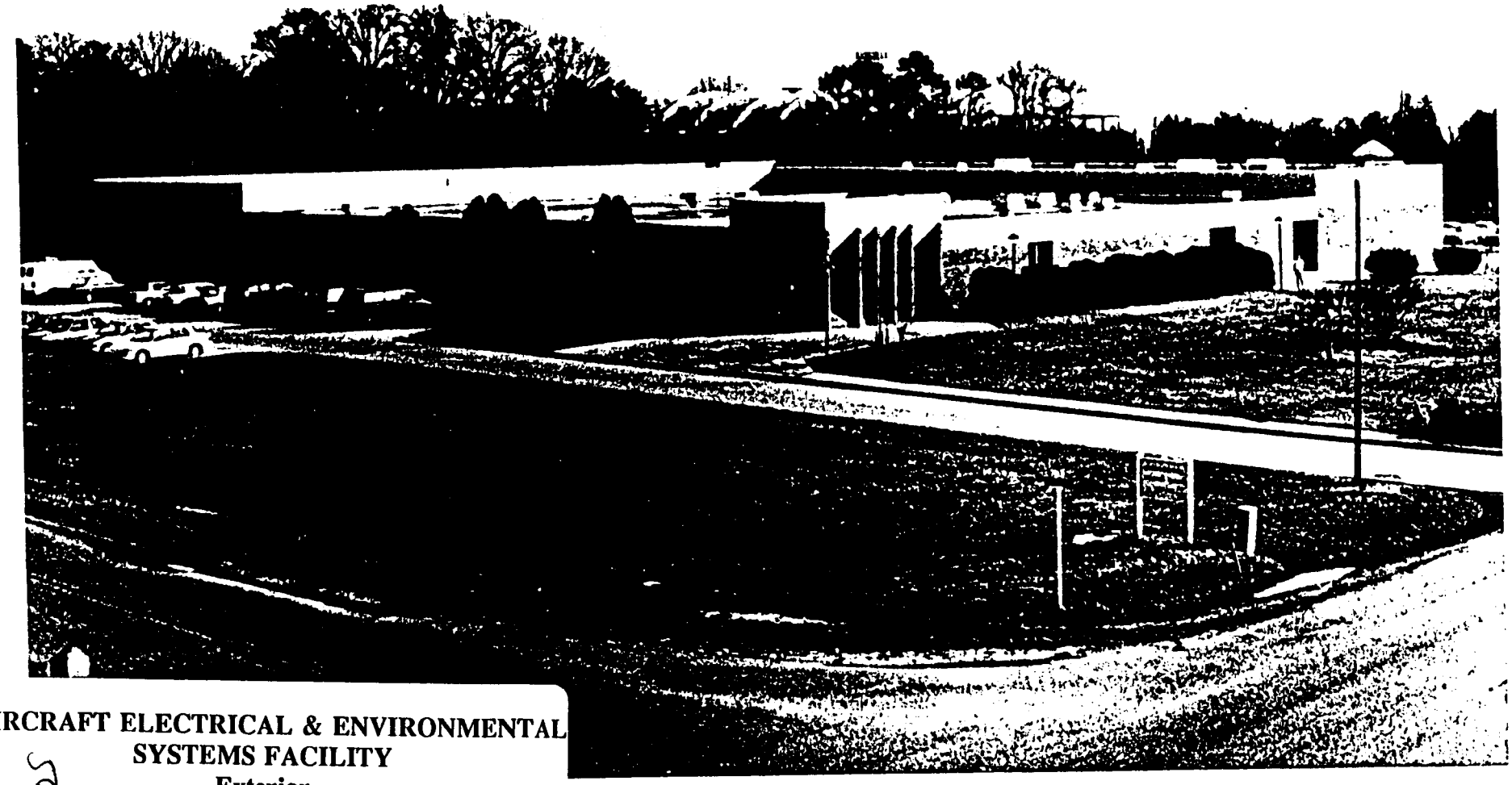
DETERMINATION OF UNCONSTRAINED CAPACITY

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**

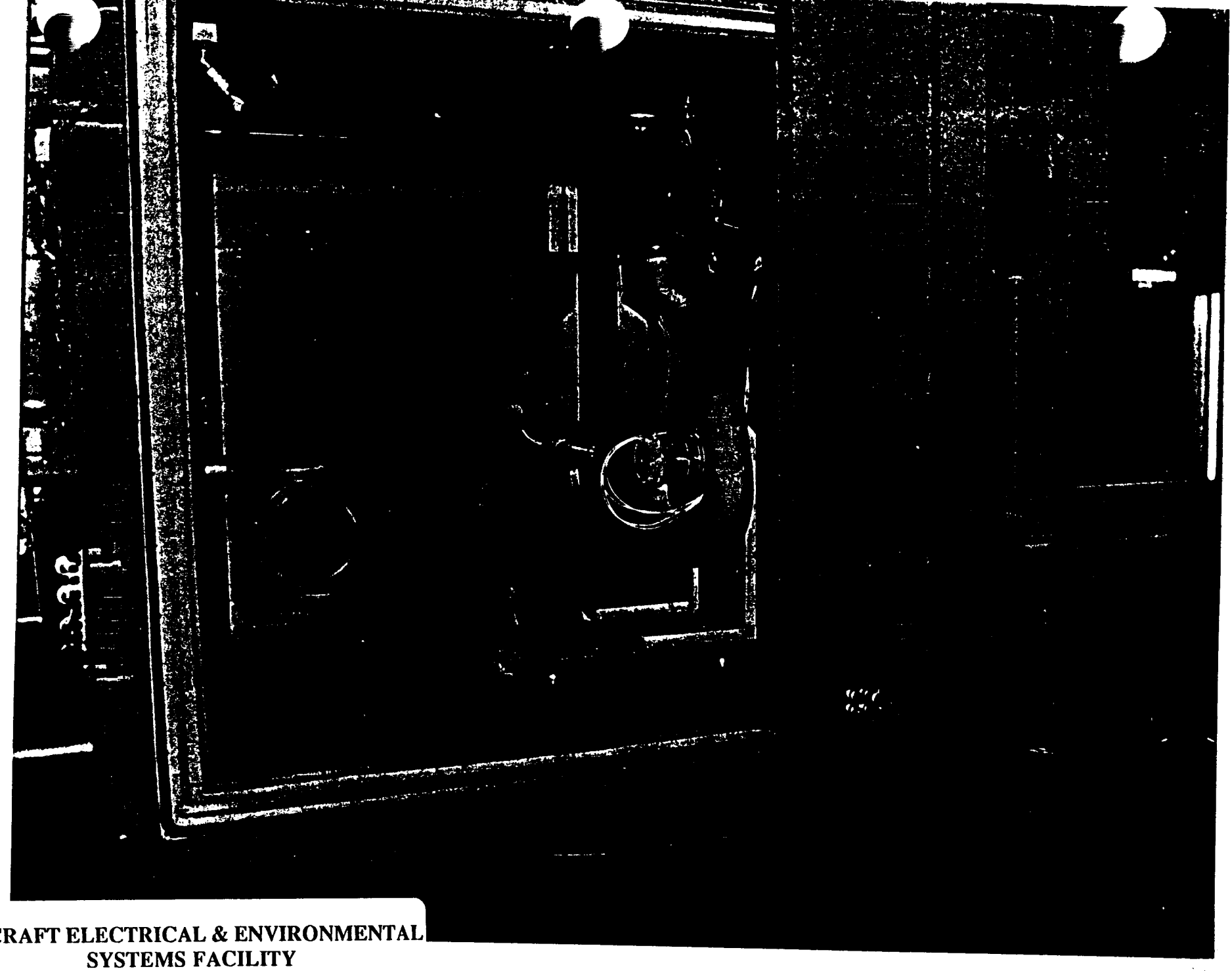
TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Electrical	**12**	**2.0**	**24**	**2005**
				ANNUAL UNCONSTRAINED CAPACITY
Environmental	**16**	**2.0**	**32**	
Electrical/ Mech	**12**	**2.5**	**30**	
EMI	**3**	3	**9**	9
"TYPICAL"	**6**	**4**		**731,825**
		TOTAL Σ	**95**	

825

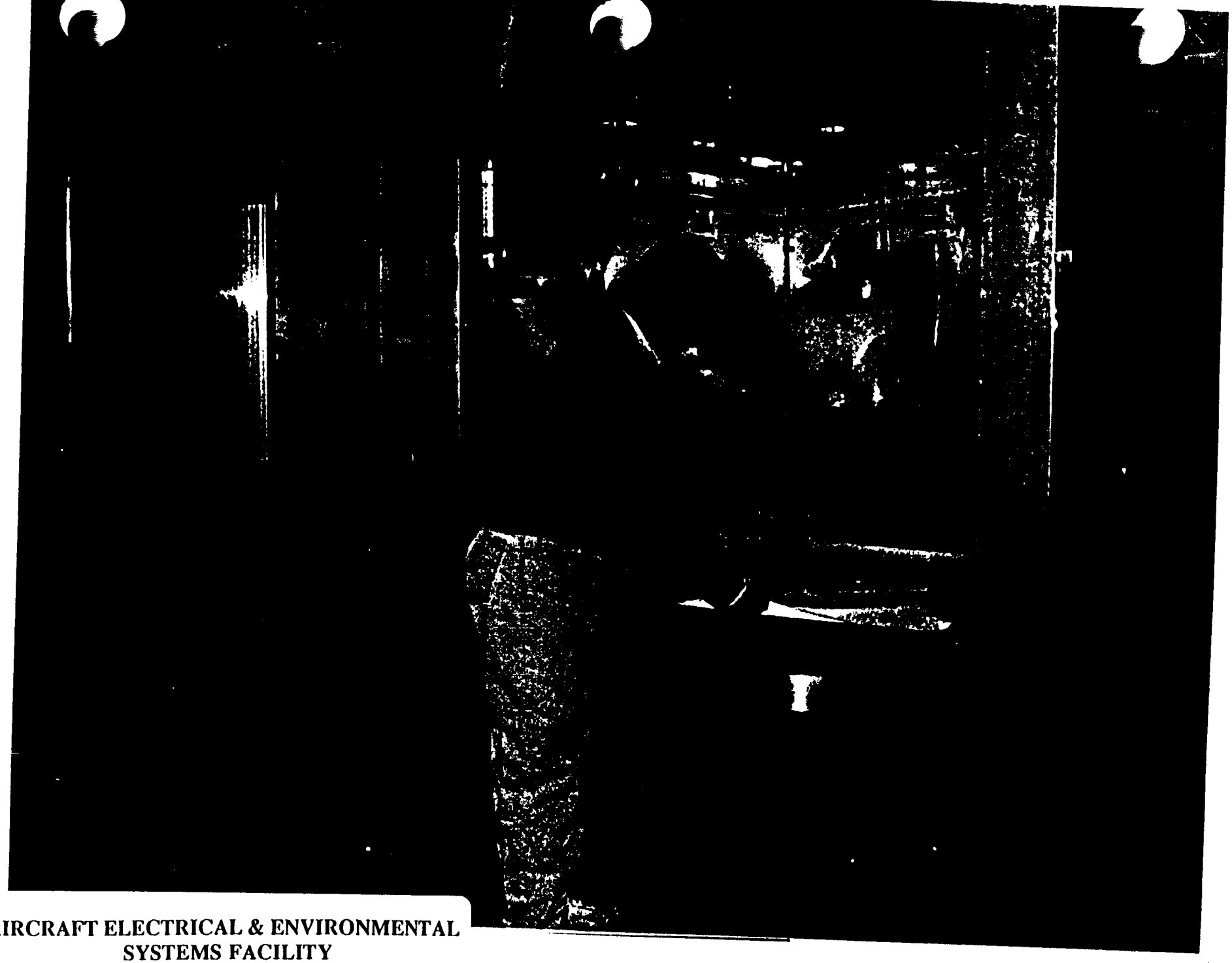


AIRCRAFT ELECTRICAL & ENVIRONMENTAL SYSTEMS FACILITY
Exterior

525



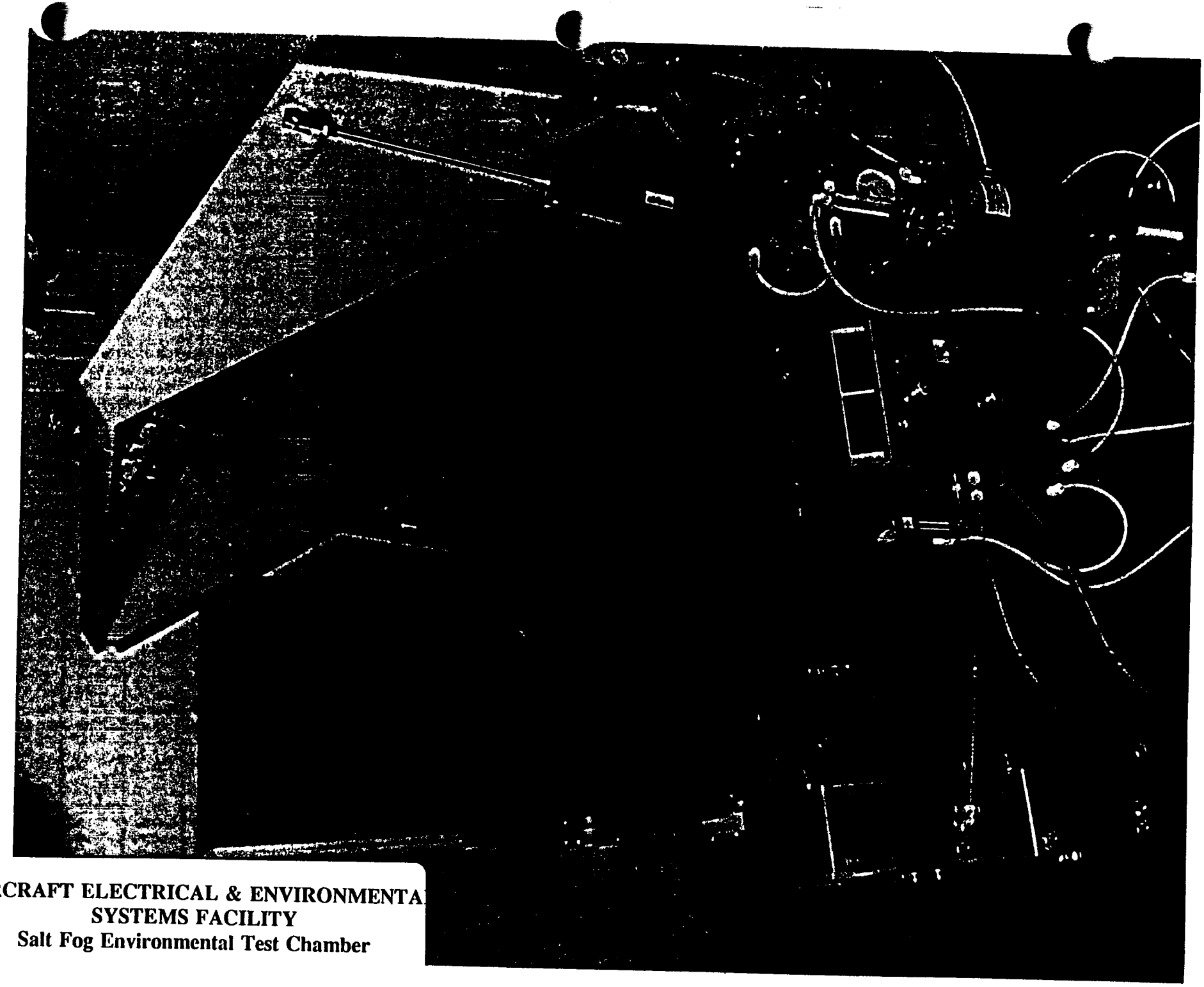
AIRCRAFT ELECTRICAL & ENVIRONMENTAL SYSTEMS FACILITY
Large Environmental Test Chamber



AIRCRAFT ELECTRICAL & ENVIRONMENTAL SYSTEMS FACILITY

Combined Environmental Test Facility

14S



AIRCRAFT ELECTRICAL & ENVIRONMENTA
SYSTEMS FACILITY
Salt Fog Environmental Test Chamber

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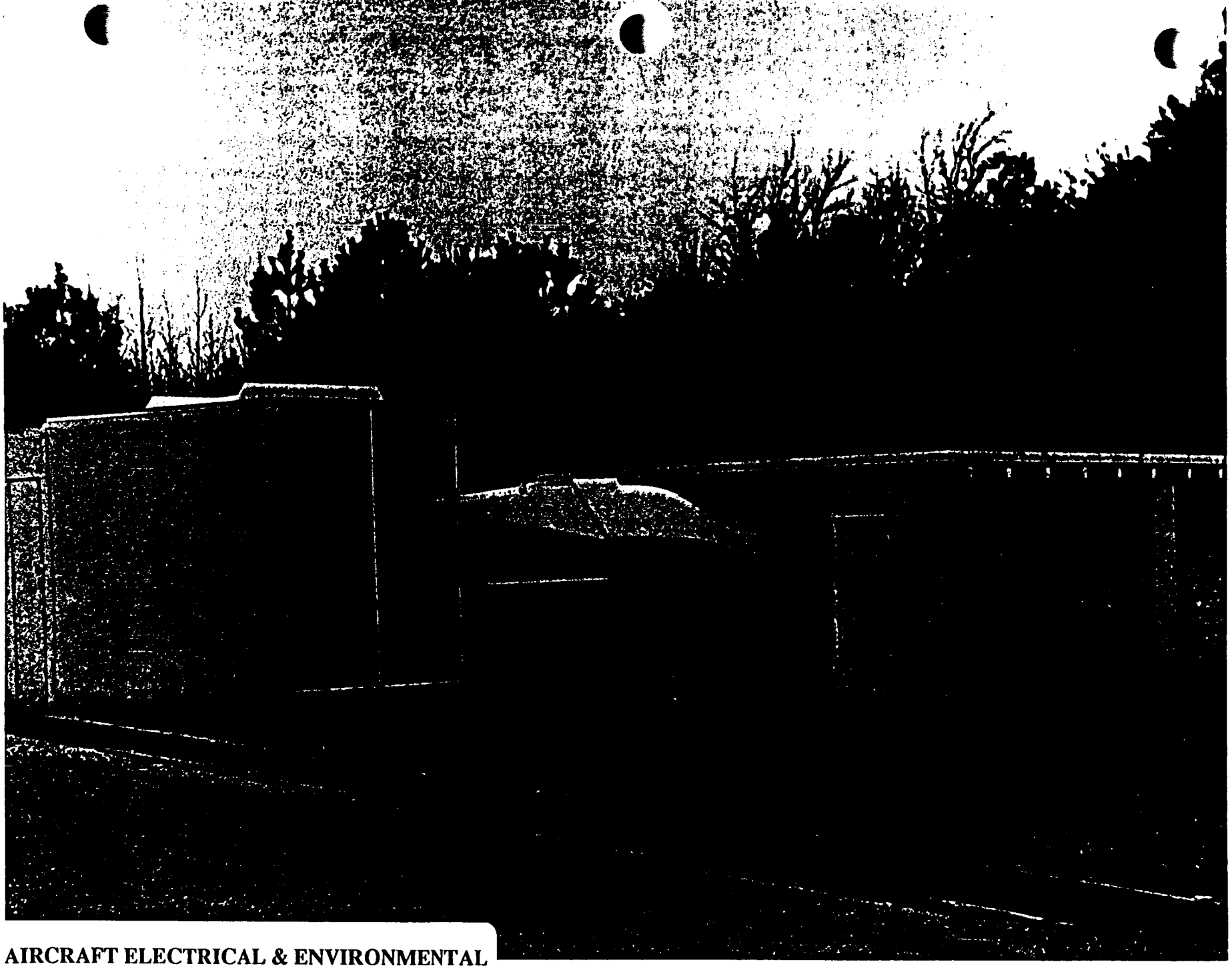

AIRCRAFT ELECTRICAL & ENVIRONMENTAL SYSTEMS FACILITY
Wind Tunnel

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

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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.

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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

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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.

580

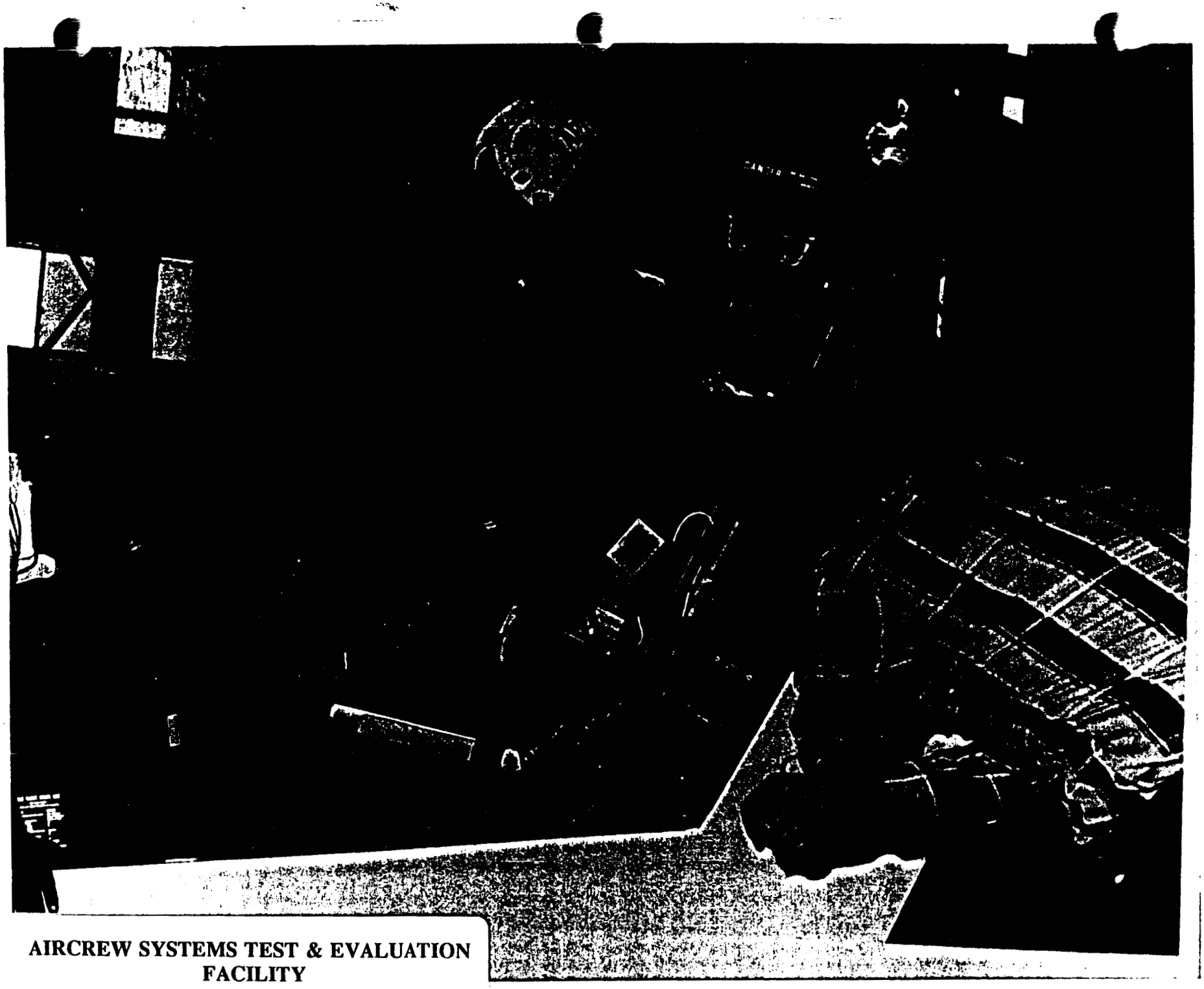
DETERMINATION OF UNCONSTRAINED CAPACITY

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**

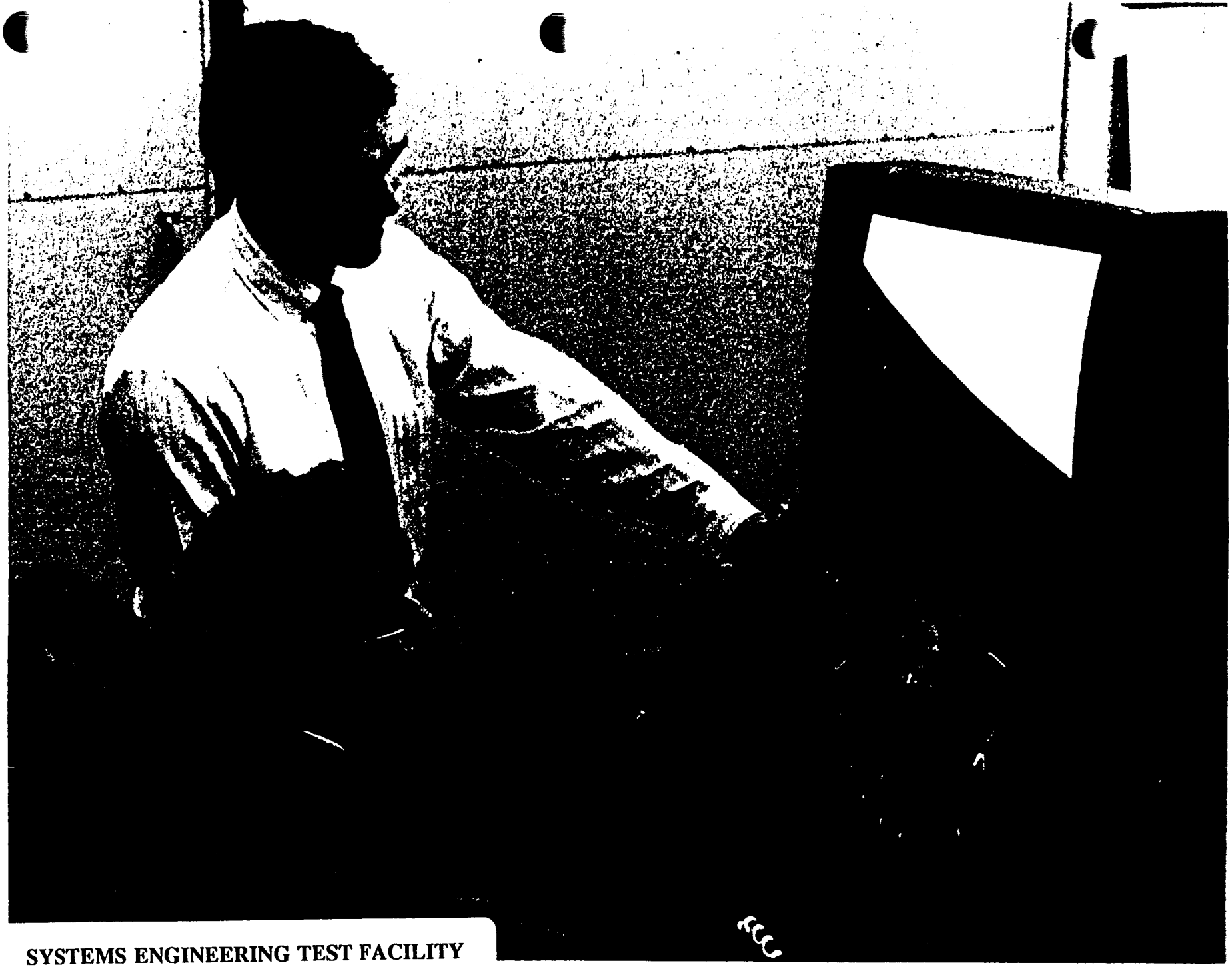
TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ)
4	5	6	7	8
Night Systems	**1**	**6**	**6**	**890**
Life Support	**2**	**3**	**6**	ANNUAL UNCONSTRAINED CAPACITY
Escape Systems	**2**	**2**	**4**	
Chem/Bio	**1**	**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**	

185

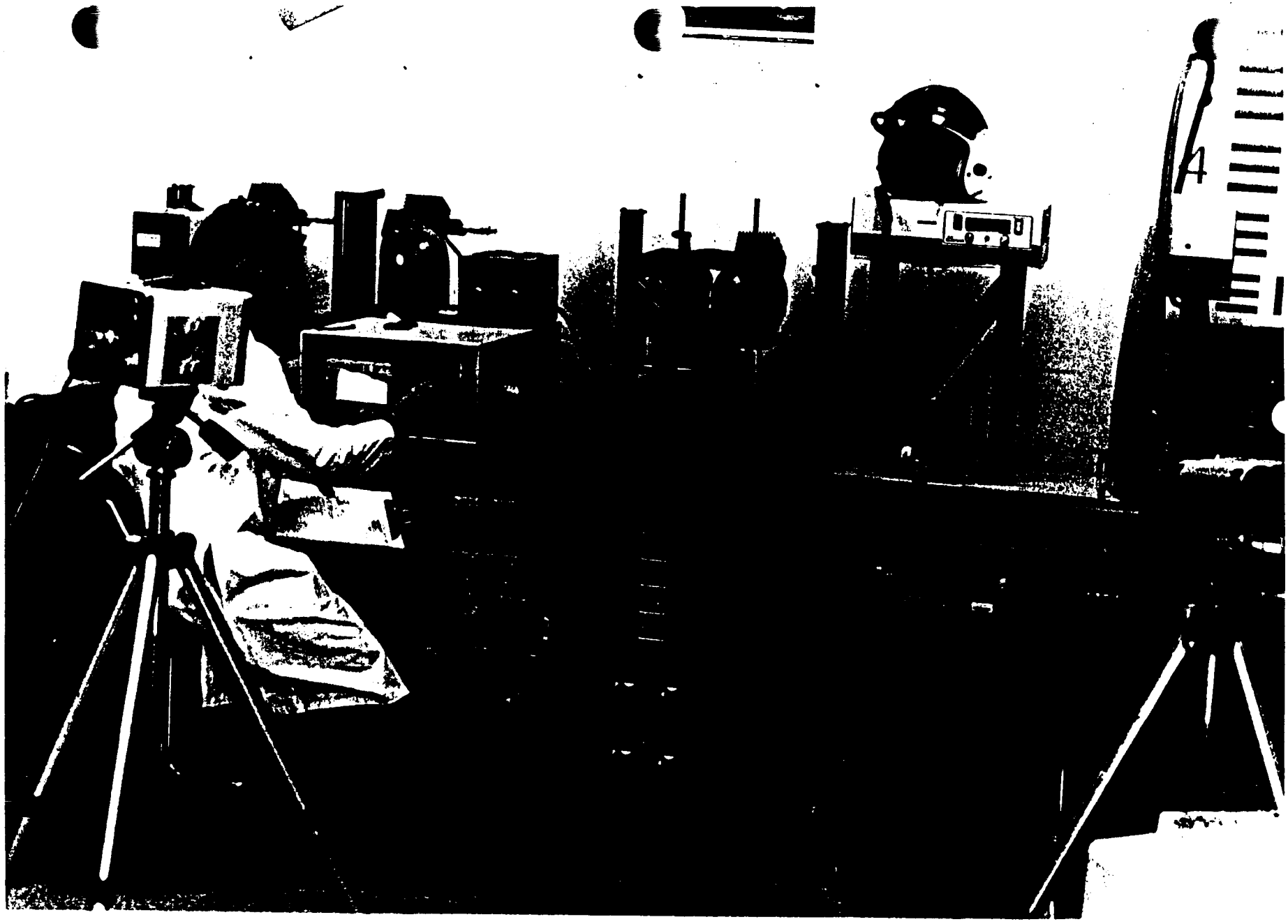


AIRCREW SYSTEMS TEST & EVALUATION FACILITY
Ejection Seat Evaluation

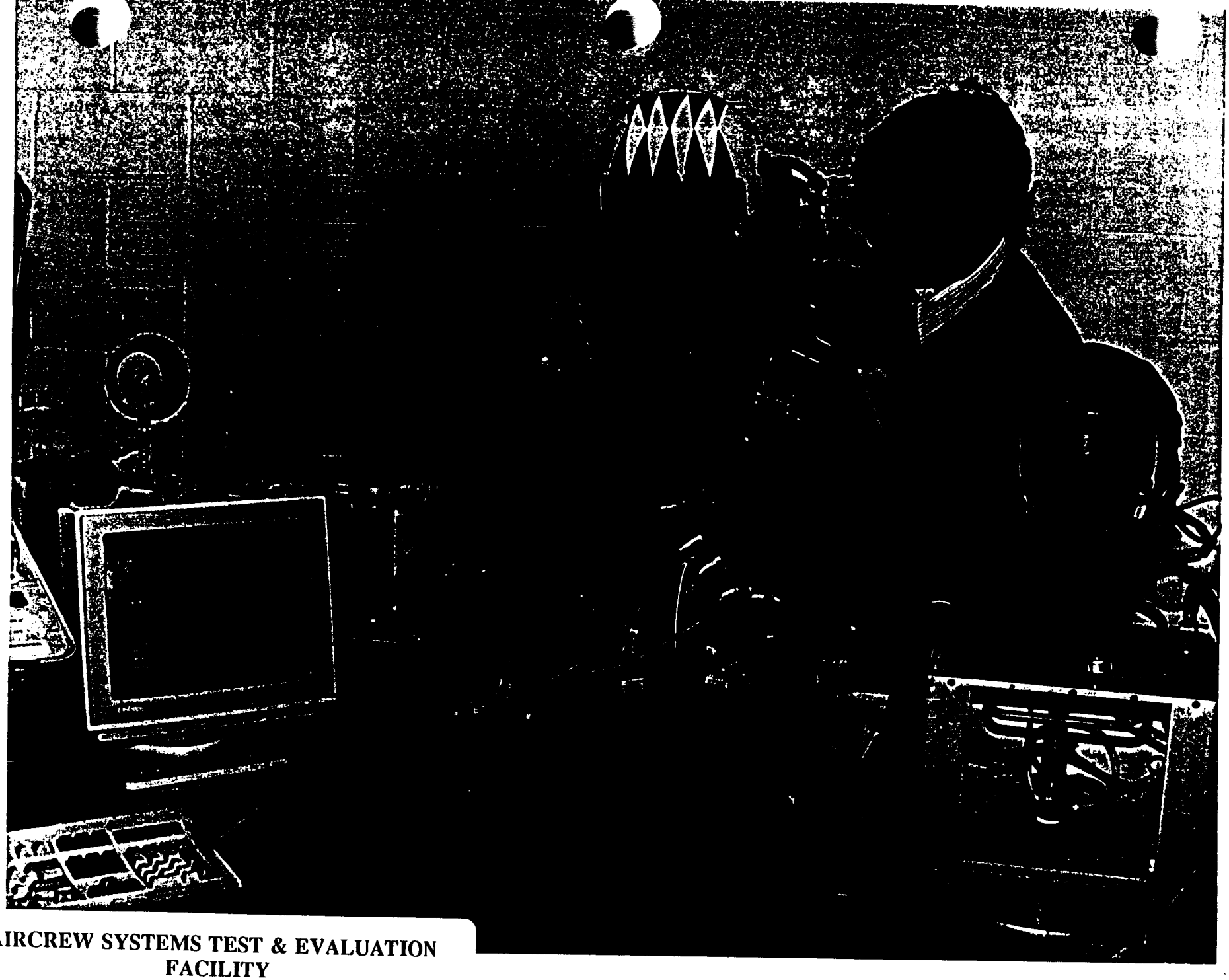
582



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



AIRCREW SYSTEMS TEST & EVALUATION FACILITY
Aircraft Lighting Lab



AIRCREW SYSTEMS TEST & EVALUATION FACILITY
Aircrew Gas & Fluid Lab

CERT

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification 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:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

285

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification Test Facility**

Facility Description; Including mission statement:

The Aircraft stores certification test facility provides the capability to conduct test and evaluation of fixed and rotary wing aircraft/armament compatibility including armament/stores management systems; suspension and release equipment; physical fit; store captive carriage and separation test build up; interface with loading and ship installation equipment; internal gun installations and external gun pods; towed and powered targets; and verification of technical manuals and procedures for fleet use. Ballistic characteristics of rocket, gun and bomb ordnance are determined and weapon delivery, fuzing and safe escape data provided for fleet use in tactical manual format. Major facilities include:

Munition/Store Laboratories: These laboratories include 2 enclosed concrete structures (Firing Tunnels) 300 ft X 40 ft X 25 ft high which are used for internal and external gun firing tests. Measurements can be made of muzzle velocity, cyclic rate of gun fire, projectile dispersion, boresight retention, boresight adjustment procedures, gun gas concentration and gun gas temperatures. Evaluations of ammunition feed and spent case ejection systems are conducted.

Totally enclosed construction allows for live ground firing of all fixed aircraft guns as well as all crew served systems. Data can be collected via 96 real-time channels from a remote control room allowing instant review and correlation with closed circuit TV.

Mass Properties Laboratory: This facility is used to acquire accurate weight, center of gravity, and 3-axis moment of inertia measurements for air launched munitions armament equipment. It is new facility capable of fast turn around store measurements of missiles, bombs, pods, or any other external weapon/store unit. Data are recorded by a stand-alone suite of electronic recording equipment with rapid data retrieval and correlation capability.

Indoor Ground Ejection Facility: This facility is used to evaluate bomb racks to determine ejection velocities, store pitch rates, arming wire and device system function and reliability. Repeated store ejections may be conducted in a short time frame in order to evaluate store or rack characteristics.

Ordnance Electrical Systems Laboratory: This laboratory provides the capability to simulate input and output for all weapon release system components including multiple ejector racks, intervalometers, arming and fuzing functions and other factors essential to aircraft/armament compatibility tests.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification Test Facility**

Facility Description; Including mission statement: (continued)

The Rocket Test Stand allows direct observation of the test range and the capability to fire all rockets up to 5 inch diameter with inert or non-explosive warheads at safe angles into the test range area. It is linked to Chesapeake Test Range personnel and safety craft via radio to ensure safe operations. The facility provides for the recording of instrumentation output and interface with the real-time telemetry processing system.

Interconnectivity/Multi-Use of T&E Facility:

The Mass Properties Laboratory resource provides complete mass properties for 100% of the stores used by NAWCAD aircraft. Data are also provided for instrumentation packages, electronic equipment, and flight helmets, all of which serve the needs of engineers throughout NAWC and the tri-service.

Type of Test Supported:

Aircraft stores certification testing including guns, rockets, missiles, and droppable external stores. Additional tests include weapon systems electrical compatibility and mass property measurements.

Summary of Technical Capabilities:

Aircraft stores certification test facilities provide the capability to conduct test and evaluation of fixed and rotary wing aircraft/armament compatibility including armament/stores management systems; suspension and release equipment; physical fit; captive flight and separation characteristics; interface with loading and ship installation equipment; internal gun installations and external gun pods; towed and powered targets; and verification of technical manuals and procedures for fleet use.

INSTRUMENTATION ASSETS:

HP data recording system (96 channel). Continuous wave doppler radar ballistics system.

Two 300 ft firing tunnels.

KGR 3500 + KGR 350 mass properties instruments. Floor and crane scales. Center of gravity positioners. Related computers for data recording and record keeping.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification Test Facility**

Summary of Technical Capabilities: (continued)

Protective blast walls and screens. Hardened control and observation room. Azimuth and elevation adjustable rocket firing stand.

Test stand with 4000 lb capacity, adjustable height from 4-14 ft. Full array of data recording and retrieval equipment.

Keywords:

Stores Certification, Weapon Separation, Firing Tunnel
Aircraft Interface, Electrical Compatibility, Stores, Guns, Rockets, Mass Properties

ADDITIONAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification 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	10	10	10	12	12	12	12
Contractor	4	5	5	3	3	3	3
Total	14	15	15	15	15	15	15

Total Square Footage: **34,397**

Test Area Square Footage: **33,577** Office Space Square Footage: **820**

Tonnage of Equipment: **1,073** Volume of Equipment: **23,960 cu ft**

Annual Maintenance Cost: **$250K** Estimated Moving Cost: **$1,080K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Aircraft Stores Certification Test Facility**

AGE: **Ordnance Stores: 26 Years**
Ordnance Electric Lab: 8 Years
Rocket Firing Test Stand: 23 Years
Test Firing Tunnel: 46 Years

REPLACEMENT VALUE: **$11.7M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **October 1992**

NATURE OF LAST UPGRADE: **Addition of Indoor Test Stand Facility and improved accessibility to part of Mass Properties Laboratory**

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 Stores Certification Test Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	**26000**	**26000**	**26000**	**26000**	**26000**	**26000**	**28000**	**28000**
	TEST HOURS	**8600**	**8600**	**8600**	**8600**	**8600**	**8600**	**9300**	**9300**
	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								

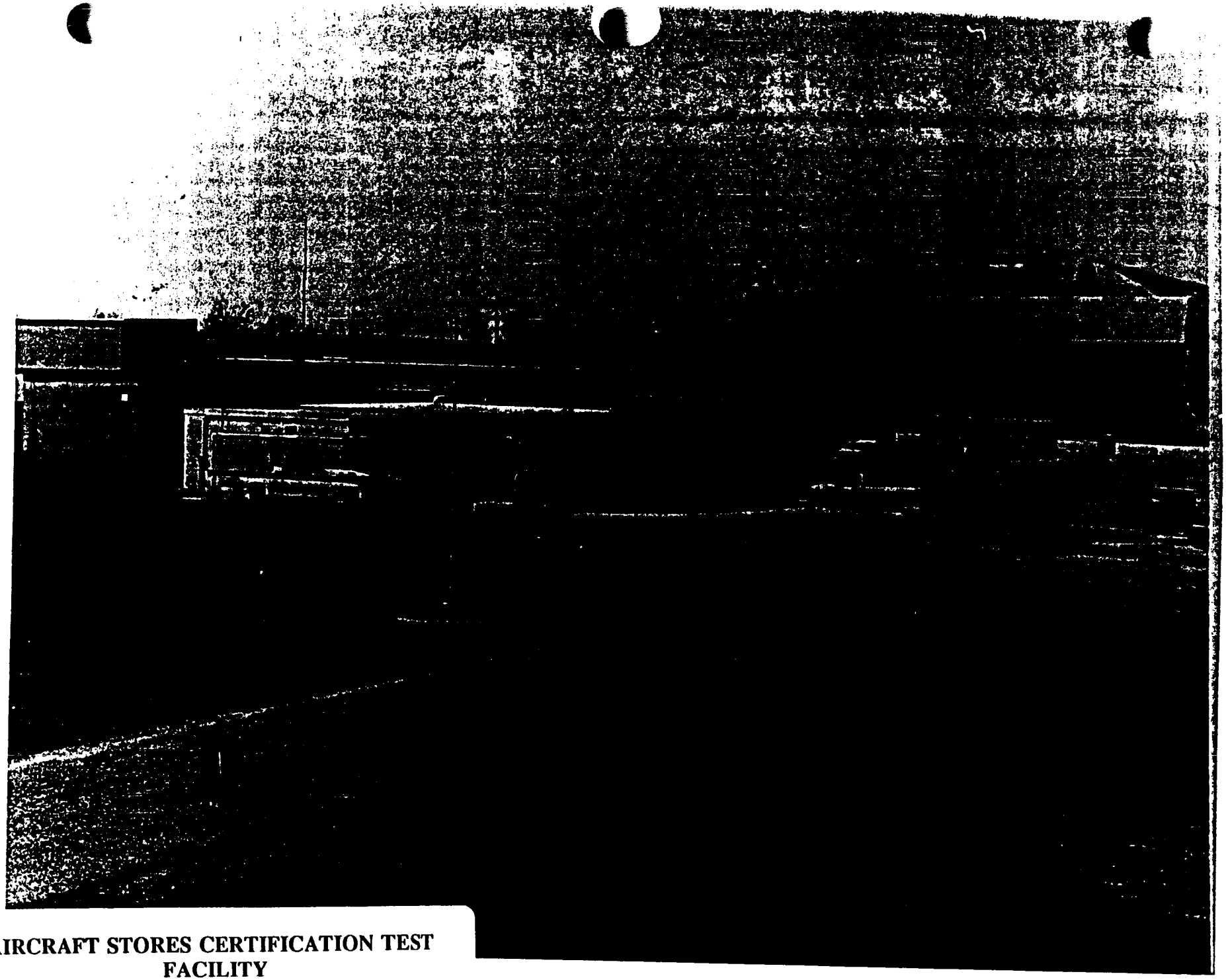
Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

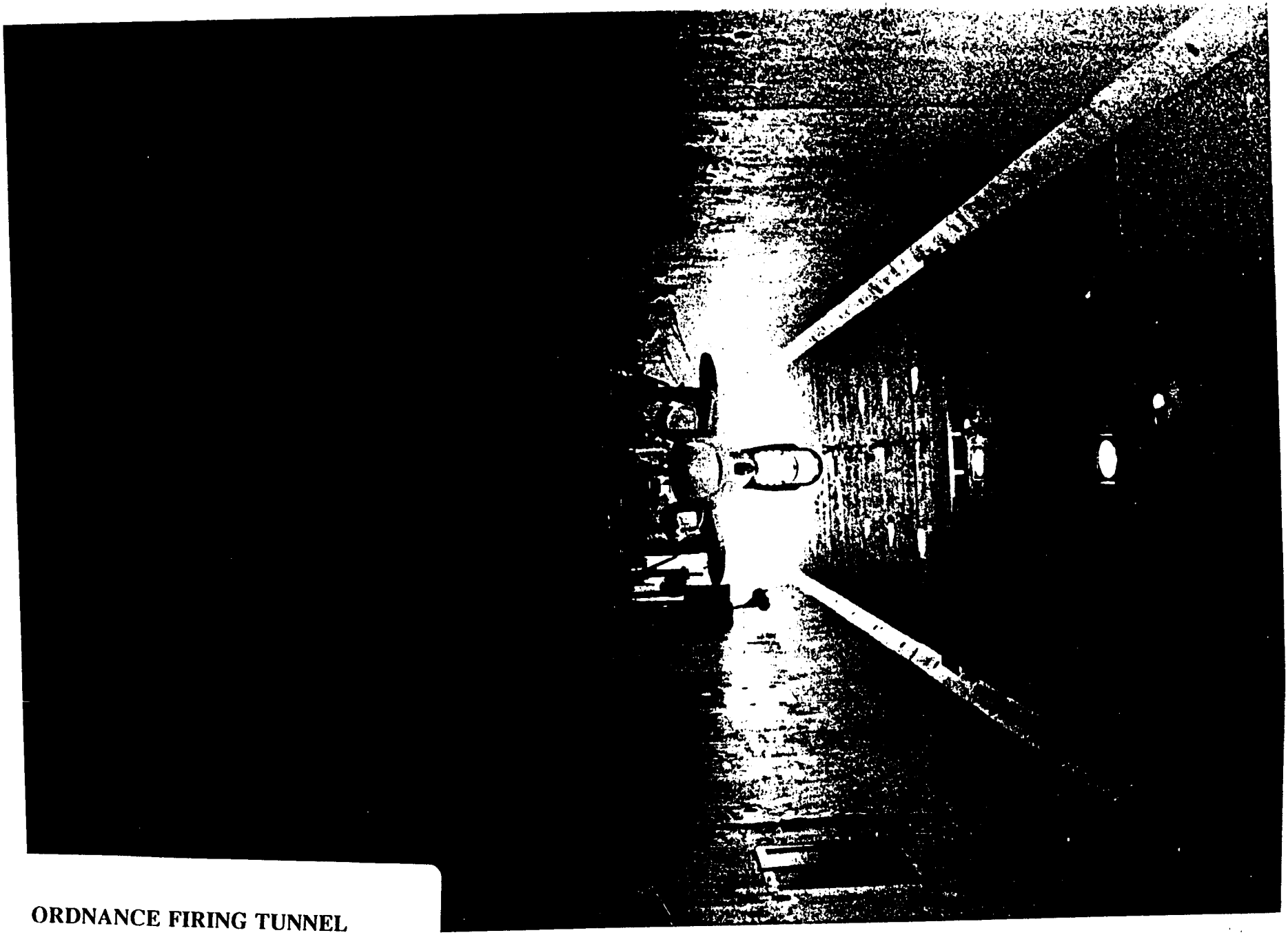
FACILITY/CAPABILITY TITLE: **Aircraft Stores Certification Test Facility**

ANNUAL HOURS OF DOWNTIME	1	**78**
AVERAGE DOWNTIME PER DAY (LINE 1 + 365)	2	**0.21**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.79**

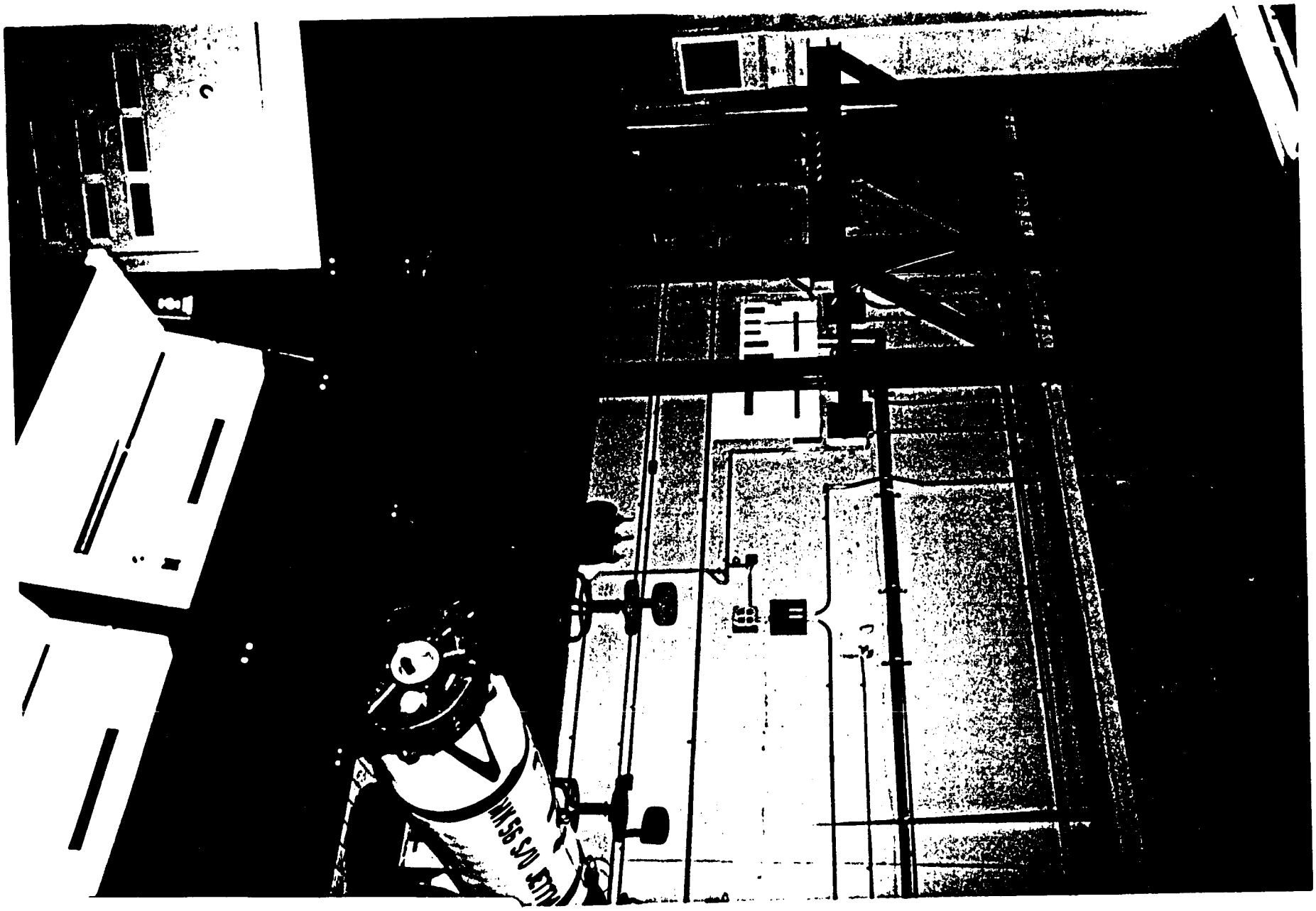
TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
gun firing	**2**	**3**	**6**	**571**
rocket launch	**1**	**5**	**5**	ANNUAL UNCONSTRAINED CAPACITY 9
ground ejection	**1**	**5**	**5**	
mass prop	**2**	**2**	**4**	
functional	**2**	**2**	**4**	
"TYPICAL"				**208,400**
		TOTAL Σ	**24**	



AIRCRAFT STORES CERTIFICATION TEST FACILITY

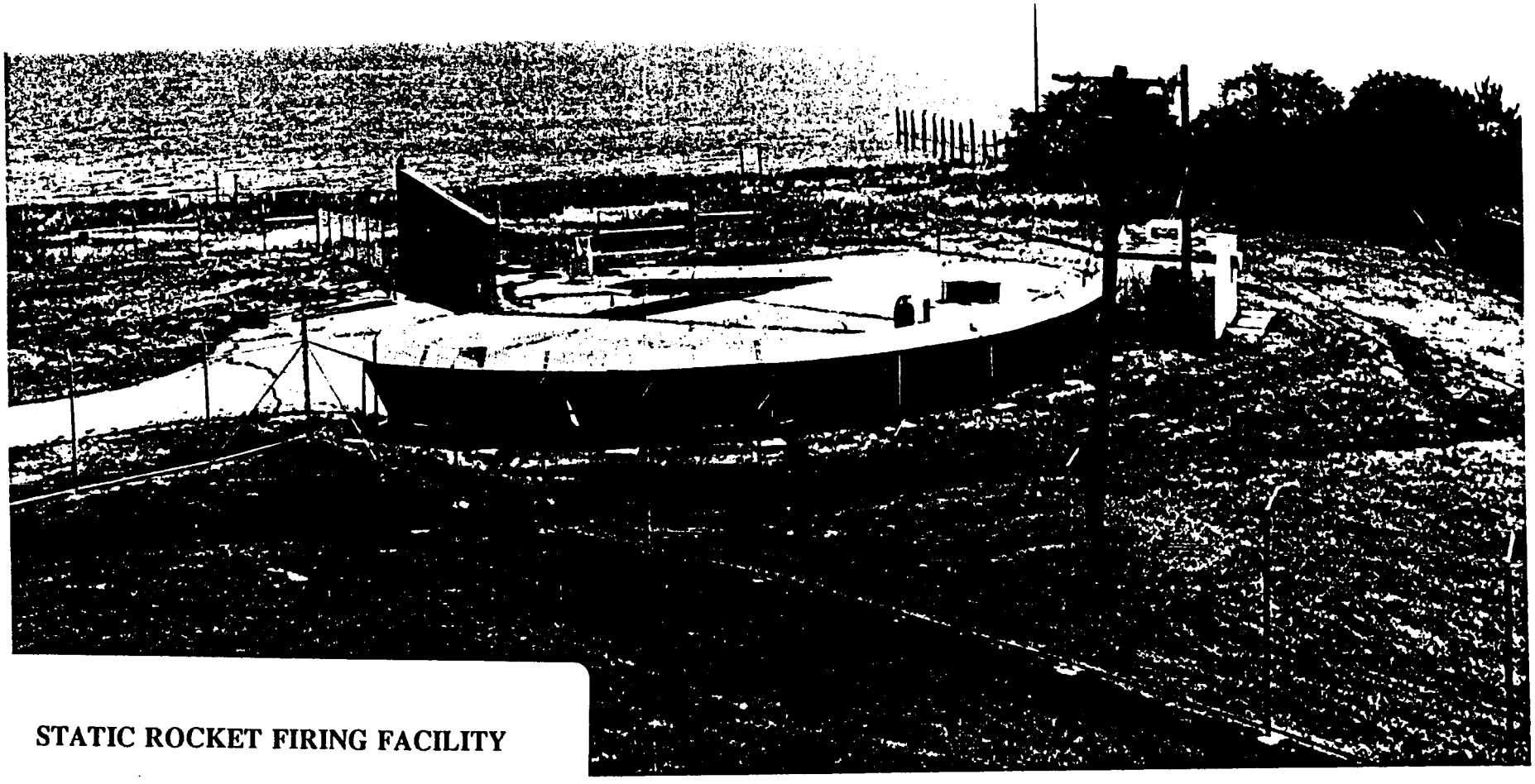


ORDNANCE FIRING TUNNEL



ORNANCE SYSTEMS TEST FACILITY

Indoor Test Stand



STATIC ROCKET FIRING FACILITY

CPM

GENERAL INFORMATION

Facility/Capability Title: **Flight Control Computer Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Hardware-in-the-Loop** UIC = **00421**

T&E Test Facility Category: **Air Vehicle**

	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

365

TECHNICAL INFORMATION

Facility/Capability Title: **Flight Control Computer Test Facility**

Facility Description; Including mission statement:

The Flight Control Test facility provides the capability to support the acquisition process for all modern digital flight control systems (DFCS). The test facility utilizes a generic architecture that can support any aircraft using a digital flight control system and shared resources among different projects to increase efficiency and cost effectiveness. The laboratory is interfaced with the Manned Flight Simulator (MFS) for high fidelity man-in-the-loop simulations and with the Air Combat and Environmental Test and Evaluation Facility (ACETEF) for full flight systems simulations.

The Manned Flight Simulator (MFS) is a full flight and avionics simulation facility used to support the acquisition process for all categories of Navy aircraft. The Simulation and Control Technology department maintains and operates high fidelity flight dynamics, flight control and avionics systems simulations for a wide spectrum of aircraft types at the MFS. The piloted simulation aspects are highlighted by four simulation stations: a 40 feet diameter dome, a six degree of freedom motion base and two fixed base lab stations. Facilities and most hardware are independent of aircraft type and are shared resources. Advanced flight control capability consists of state-of-the-art analysis and design computer programs and a F/A-18 flight control computer test station.

The test facility has four major components: Flight Control Computer Test Stations (FCCTS), computational resources, flight control computer interfaces and piloted simulation stations. Major equipment components include flight control computers, and mission computers as well as the simulation resources (cockpit, visual system, aerodynamic models, etc.).

Interconnectivity/Multi-Use of T&E Facility:

All piloted simulations make use of roll in/roll out cockpits and can be reconfigured for different aircraft types in minimal time.

Type of Test Supported:

Flight Control System Testing

TECHNICAL INFORMATION

Facility/Capability Title: **Flight Control Computer Test Facility**

Summary of Technical Capabilities:

Current capabilities include: one fully functional F-18 flight control computer test station and two test stations in development. The engineering analysis capabilities include flight control laws, redundancy management, flying qualities, evaluation of fleet incidents, flight test planning, flight test data analysis and parameter identification. Flight control computer (FCC) hardware and software development support include operational flight program analysis, IV&V, fleet incident evaluation, configuration control, tracking of FCC and fleet problems and flight test planning using personal computers for selected engineering analysis.

The Flight Controls test Facility provides the technical capabilities needed to test current and future advanced DFCS for programs such as F-18, V-22, F-14, EA-6B, A-6, AV-8B, E-2C, T-45, and H-60. The phases of the acquisition process which are supported are concept exploration, engineering manufacturing and development, production, fleet introduction and in-service use. These DFCS systems are increasing in complexity with an ever increasing amount of code to test making it difficult if not impossible to test all logic paths. Advanced DFCS include new concepts for integrated DFCS-avionic-sensor architecture's, thrust vectoring, canards, control surface allocation and integrated fire and flight control (IFFC) requiring an increased Navy capability to support development and provided IV&V. Since we cannot create in flight test the total environment needed to test the DFCS throughout its flight envelope, a simulation and stimulation capability are needed to create this environment in a laboratory setting. An increased technical capability is also needed to address significant flight test issues associated with testing these advanced control concepts.

INSTRUMENTATION ASSETS:

The assets of the Flight Controls Test Facility include the F/A-18 FCCTS, V-22 FCCTS, F-14 DFCS Engineering Tests Station (ETS) and the EA-6B Standard Automatic Flight Control System (SAFACS) Development Test Equipment (DTE). FCC assets for each platform include two F/A-18 FCCs, three V-22 FCCs, three F-14 DFCS computers, and one EA-6B SAFCS computer. Each test station shares generic lab equipment and instrumentation among the different platforms which include AD100, AD10, and Real-Time Station parallel processor computers. The stations utilize a set of strip chart recorders, multi-meter and oscilloscope electronics cart, IOCP input/output rack, two SUN SPARC Station, and two DEC VAX stations.

Keywords:

Simulation, Digital Flight Control Systems, Manned Flight Simulator, Flight Control Computer

609

ADDITIONAL INFORMATION

Facility/Capability Title: **Flight Control Computer Test Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	65	76	65	55	54	31	28
Contractor	12	24	15	11	10	6	6
Total	77	100	80	66	64	37	34

Total Square Footage: **20,197**

Test Area Square Footage: **4,847**

Office Space Square Footage: **15,350**

Tonnage of Equipment: **5**

Volume of Equipment: **2000 cubic feet**

Annual Maintenance Cost: **$50K**

Estimated Moving Cost: **$40K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
		220	220	435	70	

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Flight Control Computer Test Facility**

AGE: **9 Years (Building and Equipment)** REPLACEMENT VALUE: **$23.9M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **3/18/94**

NATURE OF LAST UPGRADE: **The F-14 Engineering Test Station (ETS) was installed to support the development, integration and test requirements of the new digital flight control systems (DFCS) for the F-14 aircraft. The F-14 ETS is capable of supporting an adaptive, real-time, man-in-the-loop, hardware and software simulation environment, and high fidelity aerodynamic propulsion and flight control simulations for the development of advanced flight control system design, integration, test and analysis methods, and digital flight control system software life cycle support methods. The F-14 ETS became available 3/18/94.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **FCC Software Support Activity Facility Installation**

TOTAL PROGRAMMED AMOUNT: **$875K (over 3 years)**
SUMMARY DESCRIPTION: **This facility will provide full life-cycle support for the digital flight control computers for the V-22, F-18, and F-14 aircraft. The facility shall develop new test procedures to meet the requirements of integrated adaptive aircraft systems involving the inner-action of flight stability and control, flight and engine control systems, aircraft performance and propulsion systems. Development test and evaluation for new aircraft software and support for in-service digital flight control systems shall be performed as well as the verification and validation of contractor engineering changes to the digital flight control systems.**

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

602

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Flight Control Computer Test Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	76066	99840	84448	111218	121243	117603	103771	160555
	TEST HOURS	0	0	1460	1460	1460	1460	1460	1460
	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.

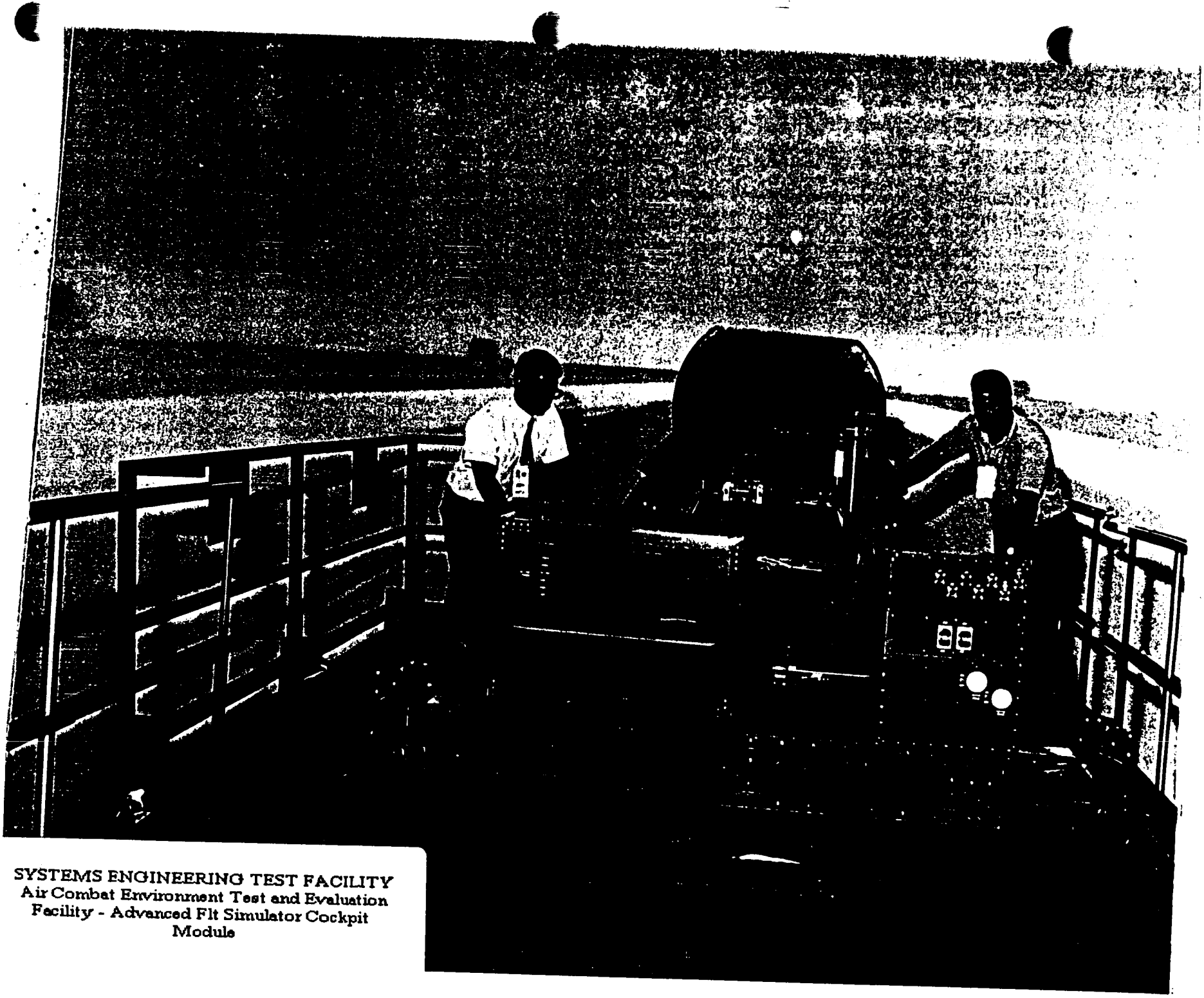
603

DETERMINATION OF UNCONSTRAINED CAPACITY

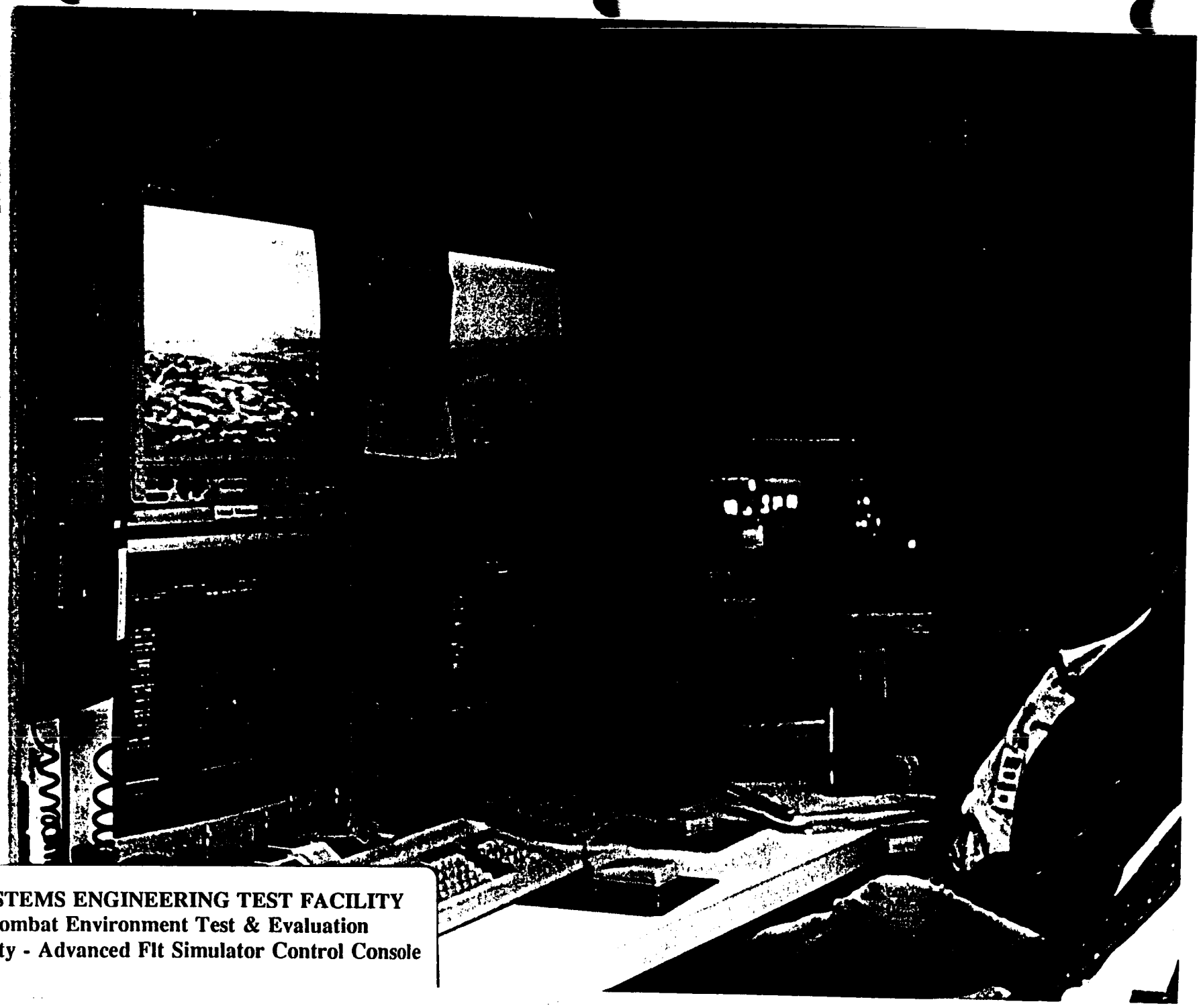
FACILITY/CAPABILITY TITLE: **Flight Control Computer Test Facility**

ANNUAL HOURS OF DOWNTIME	1	**1040 hours**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**2.85**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**21.15**

TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ)
4	5	6	7	8
FCS IV&V	**5**	**5**	**25**	**1,903.50**
FCS Control Lab	**5**	**2**	**10**	ANNUAL UNCONSTRAINED CAPACITY
FCS Software Analysis	**5**	**3**	**15**	
FCS Design	**5**	**2**	**10**	9
SIM DEV	**6**	**3**	**18**	
Realtime SIM	**4**	**3**	**12**	**694,777.50**
"TYPICAL"				
		TOTAL Σ	**90**	



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



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

GENERAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)** Origin Date: **May 9, 1994**

Service: **NAVY** 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: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

607

TECHNICAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)**

Facility Description; Including mission statement:

The IATL provides a facility for the development, test and evaluation of avionics systems during the integration process into tactical aircraft, and supports technology demonstrator aircraft. The laboratory provides the environment and assets to develop, test, and evaluate new or upgraded avionics systems during the integration process using common commercial instruments and automated test equipment by having their associated interfaces stimulated via either simulated or prerecorded inputs. Automated test equipment allows avionics subsystem integration performance assessment and trouble shooting of Weapon Replaceable Assemblies (WRA) interface problems. Individual WRA performance can also be determined and Shop Replaceable Assembly (SRA) failure analysis conducted, in addition to automated aircraft instrumentation and wiring checkout. The laboratory supports current and future F-14, F/A-18, A-6, AV-8 avionics integration projects in addition to the future aircraft avionics integration tasks.

One of the two IATL components is the Radar System Test and Evaluation Roof-Top Laboratory (RASTERL). RASTERL is a ground test facility designed to support both ground and flight testing of current and future radar systems, and to demonstrate advanced radar system technologies. The laboratory facility is used to support programs in all acquisition phases including engineering demonstration/validation of new radar systems and radar system technologies. One of the primary attributes of the laboratory is the ability to conduct actual RF transmission tests, which can be radiated into free space with or without a radome. The laboratory utilizes free space, open air test conditions for roof-top T&E of radar components, integrated radar system performance and is capable of supporting multiple programs simultaneously.

The second IATL component, the Avionics Systems Integration Laboratory (ASIL), like the RASTERL, is located in an aircraft hangar, which allows either to support direct stimulation of avionics systems either in the laboratory, in test aircraft via umbilical connection, or a through mix of both.

TECHNICAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)**

Interconnectivity/Multi-Use of T&E Facility:

An important laboratory characteristics is its flexibility to support multiple and various types of projects (radar and avionics) and project requirements. The facility includes generic capabilities which it adapts and utilizes to support each project, as required. These generic capabilities include: radomes/garage door windows for free space RF transmissions; power and cooling; test equipment for systems integration and testing; tools and soldering capabilities to support systems integration efforts; technicians and engineers; and accessibility to other on base resources.

The lab is linked with the Aircraft Armament Systems Simulation Engineering Test Station.

Near term plans include the incorporation of data/voice link to Chesapeake Test Range (CTR) to support cooperative testing. Long term plans include data links with the Air Combat Environment Test and Evaluation Facility (ACETEF).

Type of Test Supported:

Radar and Avionics System Testing:
- System Integration Testing
- System Performance Testing
- Hardware and Software Design, Development, Integration, and Test
- Life Cycle Support
- Fleet Training
- Software Verification and Validation (V&V)
- Technology Demonstration

609

TECHNICAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)**

Summary of Technical Capabilities:

The laboratory facility can radiate actual RF transmissions allowing full end-to-end radar system testing. The facility is approximately 33 ft above ground level situated looking out over the Chesapeake Bay, providing an excellent field-of-view including various types of air and surface targets of opportunity (military and commercial). The location also allows for cooperative testing with controlled surface and air targets.

This laboratory has direct access to aircraft so that test equipment and aircraft Weapon Replaceable Assemblies (WRA) can be easily moved to/from the laboratory and aircraft. The laboratory provides the environment and assets to develop, test, and evaluate avionics systems during the integration process using common commercial instruments and automated test equipment. New or upgraded avionics equipment being developed or evaluated in this laboratory have their associated interfaces stimulated via either simulated or prerecorded data. Automated test equipment provides the tools necessary for assessing avionics subsystem integration performance and trouble shooting WRA interface problems. This laboratory also provides the capability to determine individual WRA performance with Shop Replaceable Assembly (SRA) failure analysis, in addition to automating aircraft instrumentation and wiring checkout. Test equipment for this laboratory is generic, reconfigurable, and computer controlled. This lab supplements the capabilities of the current Air Combat Environment Test and Evaluation Facility (ACETEF).

Instrumentation Assets:
- Various test measurement equipment (up to 18 GHz)
- HP70000 multi-measurement system
- ALR computer with IEEE 488 and 1553 interface
- HP90000 computer system with VXI chasis
- Mainframe VXI chasis (HP E1401A)
- Signal generators (programmable)
- Analog and digital O-scopes
- Power meters
- Signal analyzer (HP35660A)
- Reflectometer (TK1502)
- Micropotomer system (EG&G Gamma Science DRZ)
- Range source (DBA System Inc 202A)
- Logic Analyzer (HP1651B)

Keywords:

Radar, Avionics, Roof-Top, Lab, RASTERL, ASIL, Open-Air, Integration

610

ADDITIONAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	5	4.0	3	3	3	3	3
Contractor	1	1.0	1	1	1	1	1
Total	6	5.0	4	4	4	4	4

Total Square Footage: **6,458**

Test Area Square Footage: **6,458**

Office Space Square Footage: **0**

Tonnage of Equipment: **12.95**

Volume of Equipment: **4,653 cu ft**

Annual Maintenance Cost: **$5K**

Estimated Moving Cost: **$13.2K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Integrated Aircraft Test Laboratory (IATL)**

AGE:

Avionics Systems Integration Lab	**50 Years**
Radar Lab	**49 Years**
Radar Systems T&E Roof Top Lab	**49 Years**
Structures Lab:	**50 Years**
Equipment	**1-4 Years**

REPLACEMENT VALUE: **5.1M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **9/93 - 1/94**

NATURE OF LAST UPGRADE: **Facility rehab**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

219

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Integrated Aircraft Test Laboratory (IATL)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR					**7208**	**7208**	**8109**	**9749**
	TEST HOURS					**1802**	**1802**	**2703**	**4343**
	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.

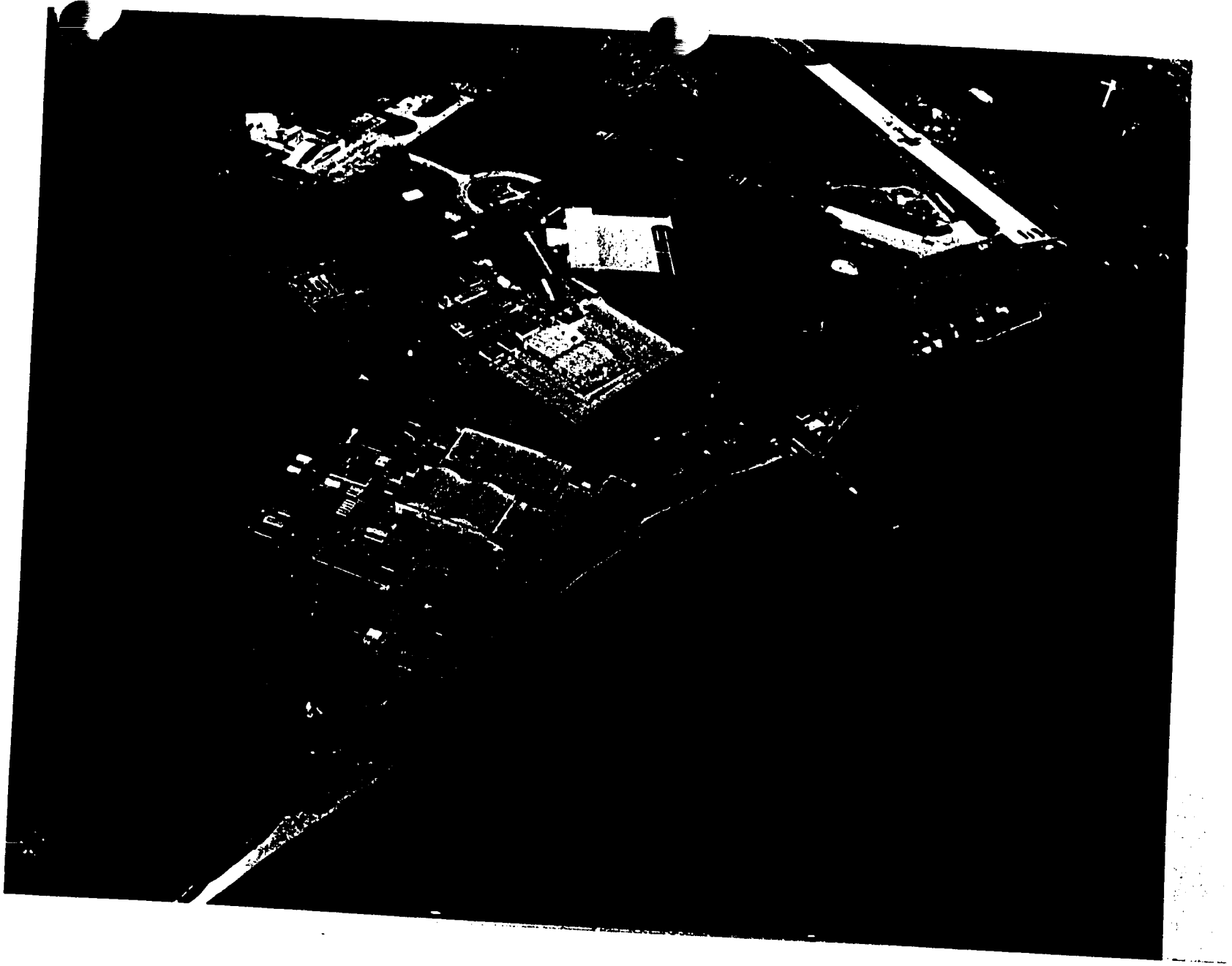
DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Integrated Aircraft Test Laboratory (IATL)**

ANNUAL HOURS OF DOWNTIME	1	**182**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**.5**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.5**

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
				282
				ANNUAL UNCONSTRAINED CAPACITY 9
				102,930
"TYPICAL"	**3**	**4**	**12**	
		TOTAL Σ	**12**	

h/3



INTEGRATED AIRCRAFT TEST LAB (IATL)

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

8/3

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.

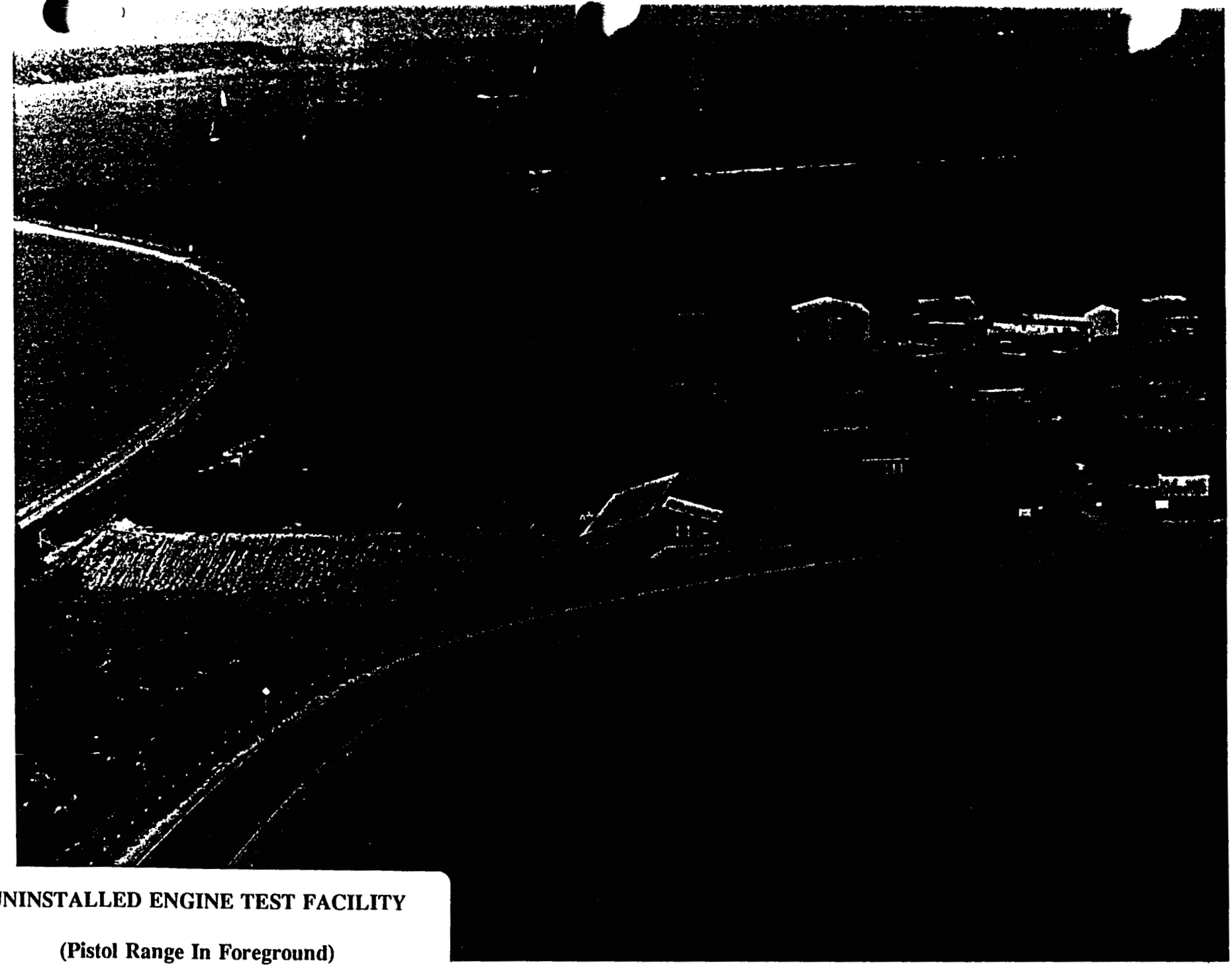
DETERMINATION OF UNCONSTRAINED CAPACITY

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**	

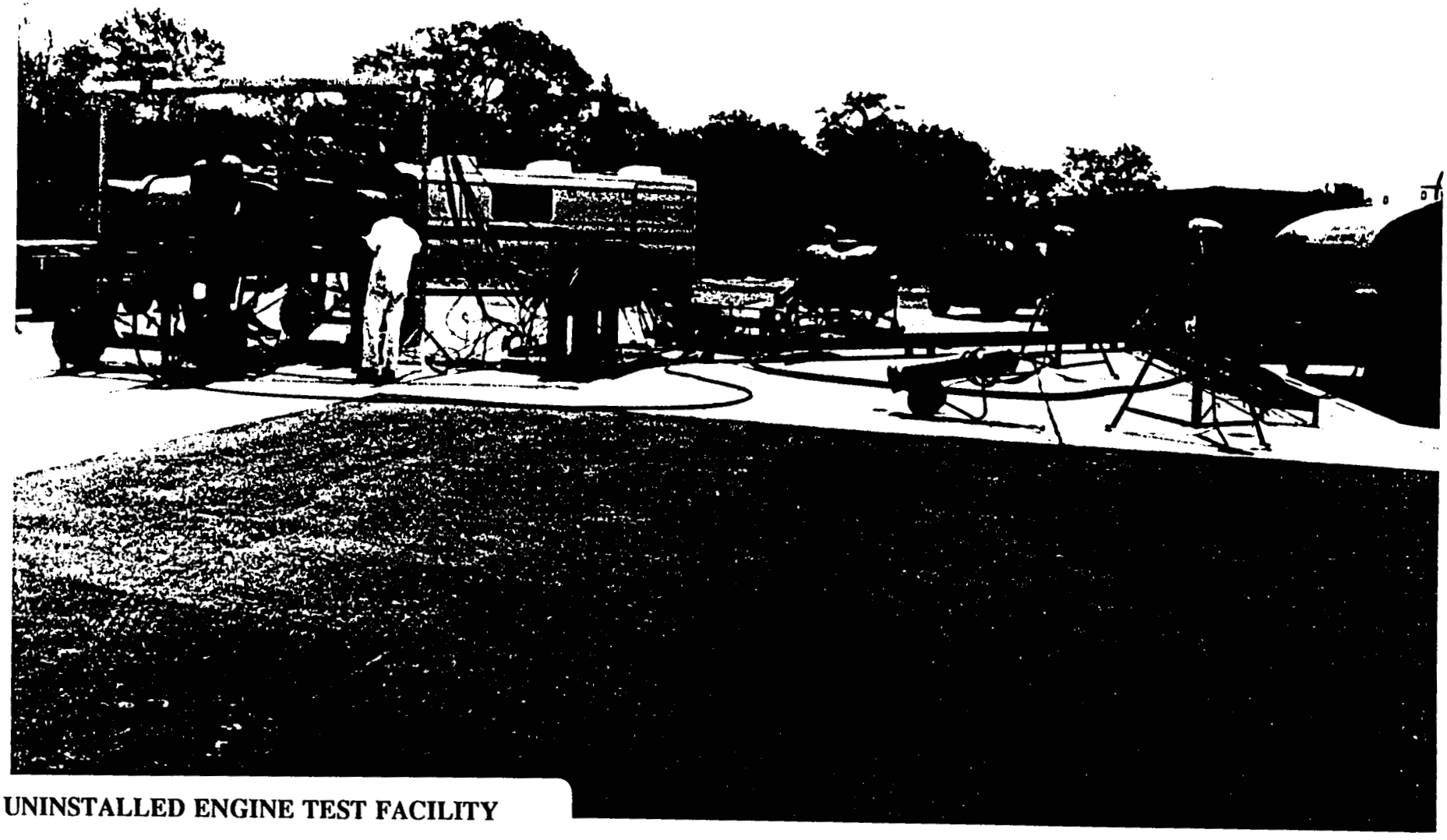
123



UNINSTALLED ENGINE TEST FACILITY

(Pistol Range In Foreground)

622



UNINSTALLED ENGINE TEST FACILITY

(Propulsion Support Equipment Test)

623

TEST FACILITES

T+E

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
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%					

=100%

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.

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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.

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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

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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

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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

Anechoic Chamber/Shielded Hangar
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

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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: **299,902 cu ft R**

Annual Maintenance Cost: **$5,290K** Estimated Moving Cost: **$18,962.28K R**

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

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NAWCHQ Changes
Lines NAWC-21
9/19/94

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

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FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Air Combat Environment Test & Evaluation Facility**

	Age:	Replacement Value: (Building & Equipment)
Simulation & Analysis Dept Operations & Control Center Aircrew Systems Evaluation Facility	3 Years	$11.8M
EC Stimulation Dept CNI Lab EW Integrated Systems Test Lab Offensive Sensors Lab	14 Years	$106.35M
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: Digital Radar Landmass Simulator Simulation Enhancements Instrumentation Upgrade	FY94

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.

UIC N00421

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

ACETEF can perform a maximum of 33 test simultaneously. (In response to EC-027 BSAT Request for Clarification dated 9 Sep 94.

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NAWCHQ Change
ans NAWC-21
9/19/94

TAB 26 (page 2)
R (9-16-94)

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

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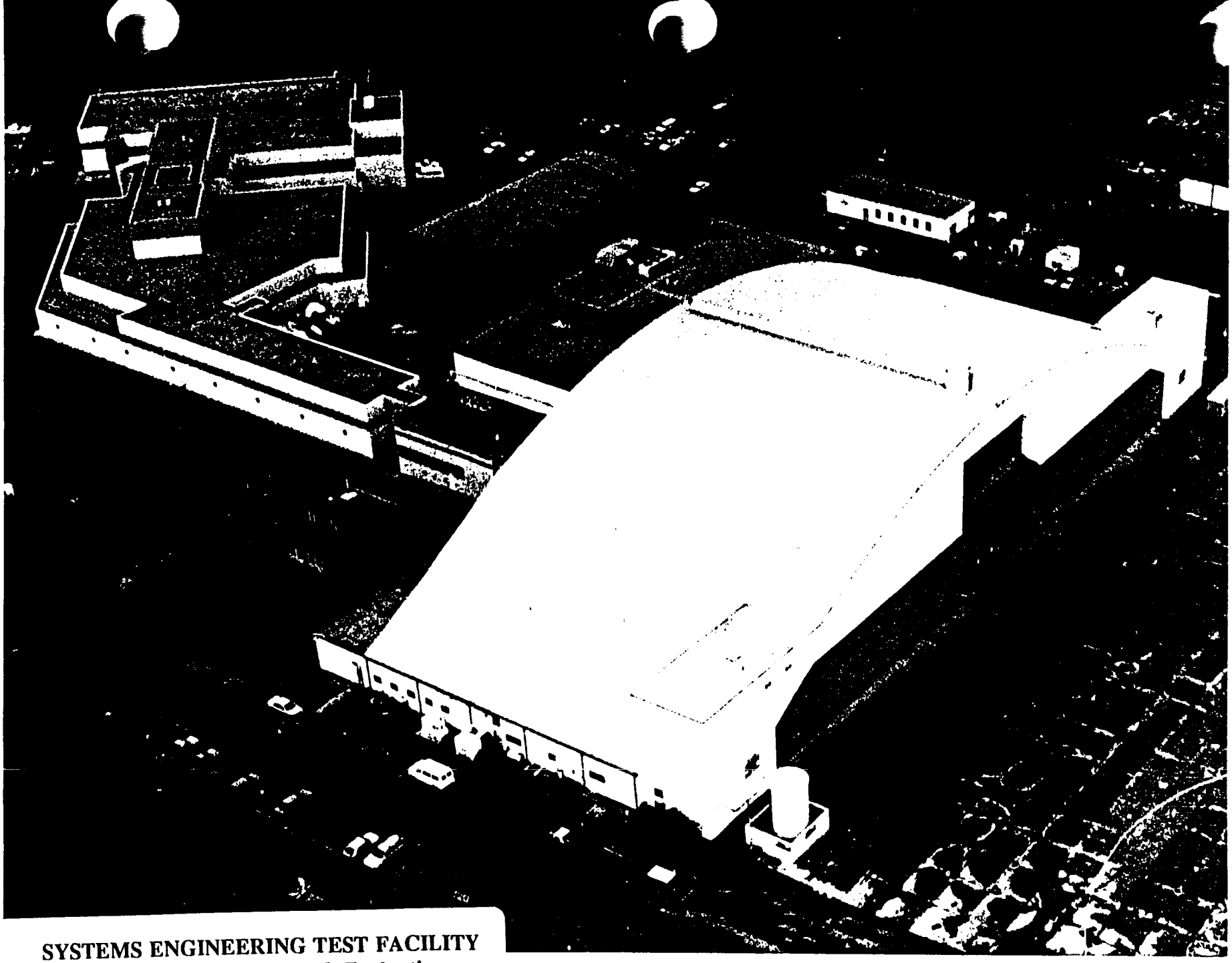
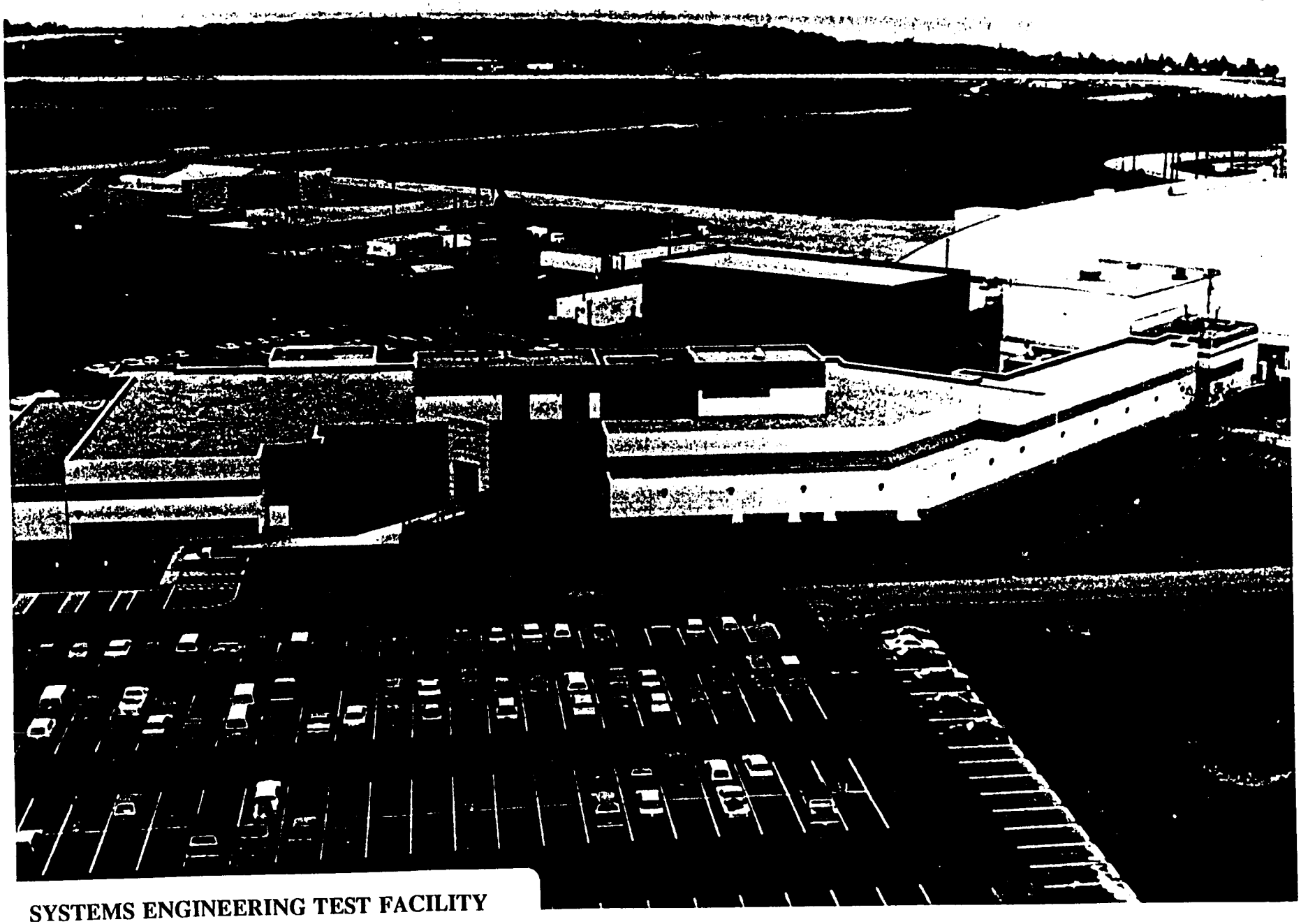
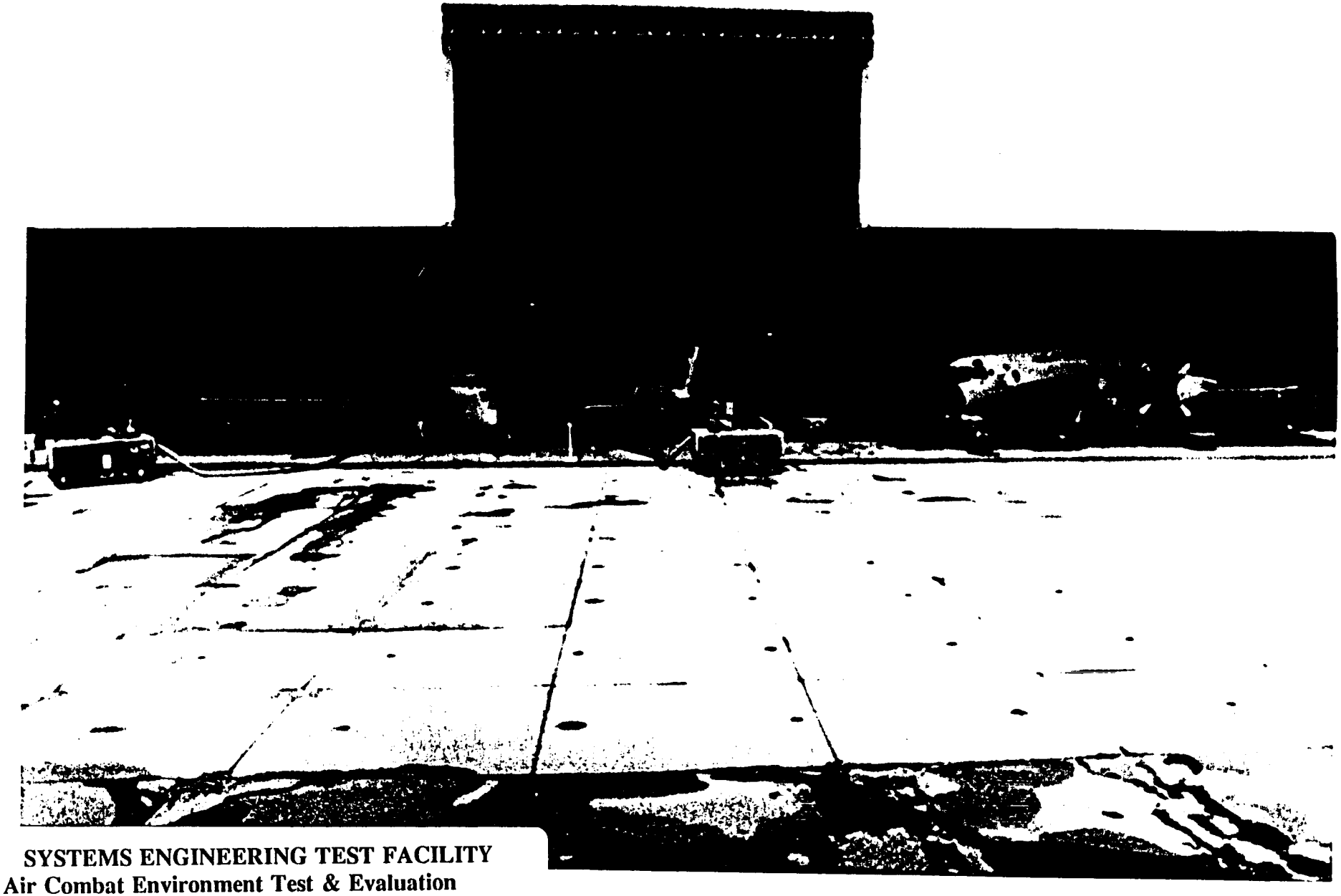


SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation Facility - Entire Complex



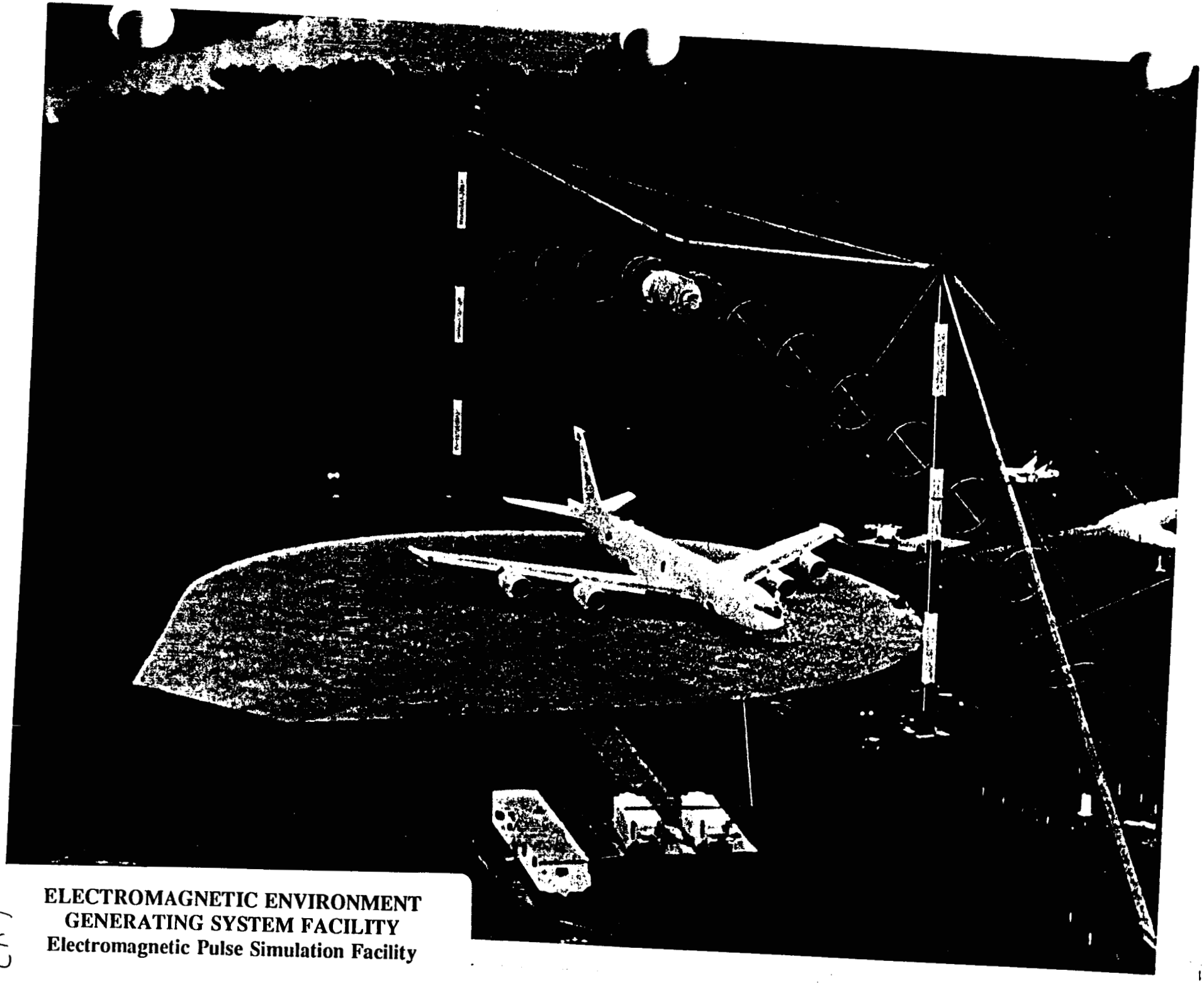
SYSTEMS ENGINEERING TEST FACILITY

Main Complex

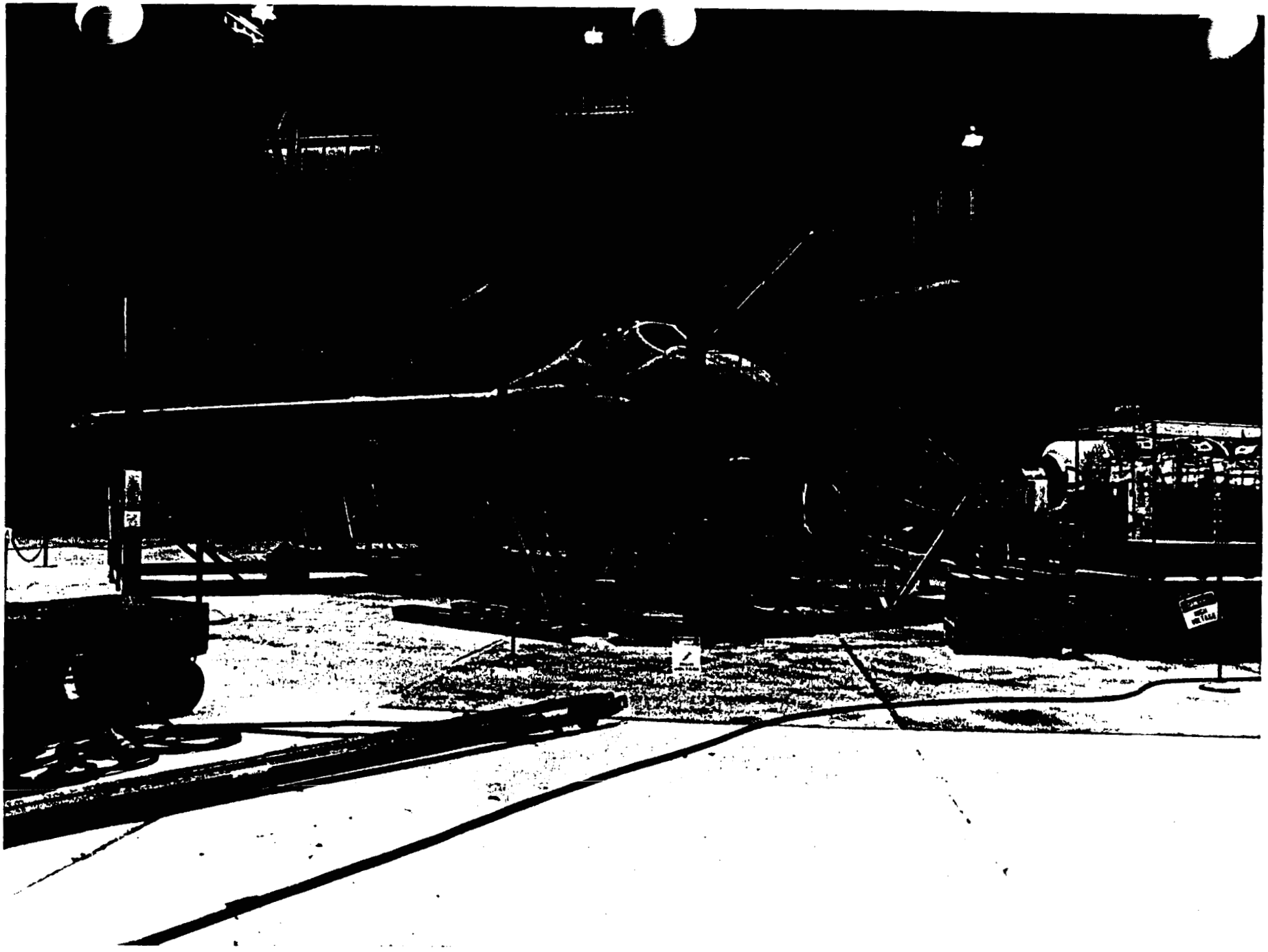


SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation Facility - Copper Shielded Hangar

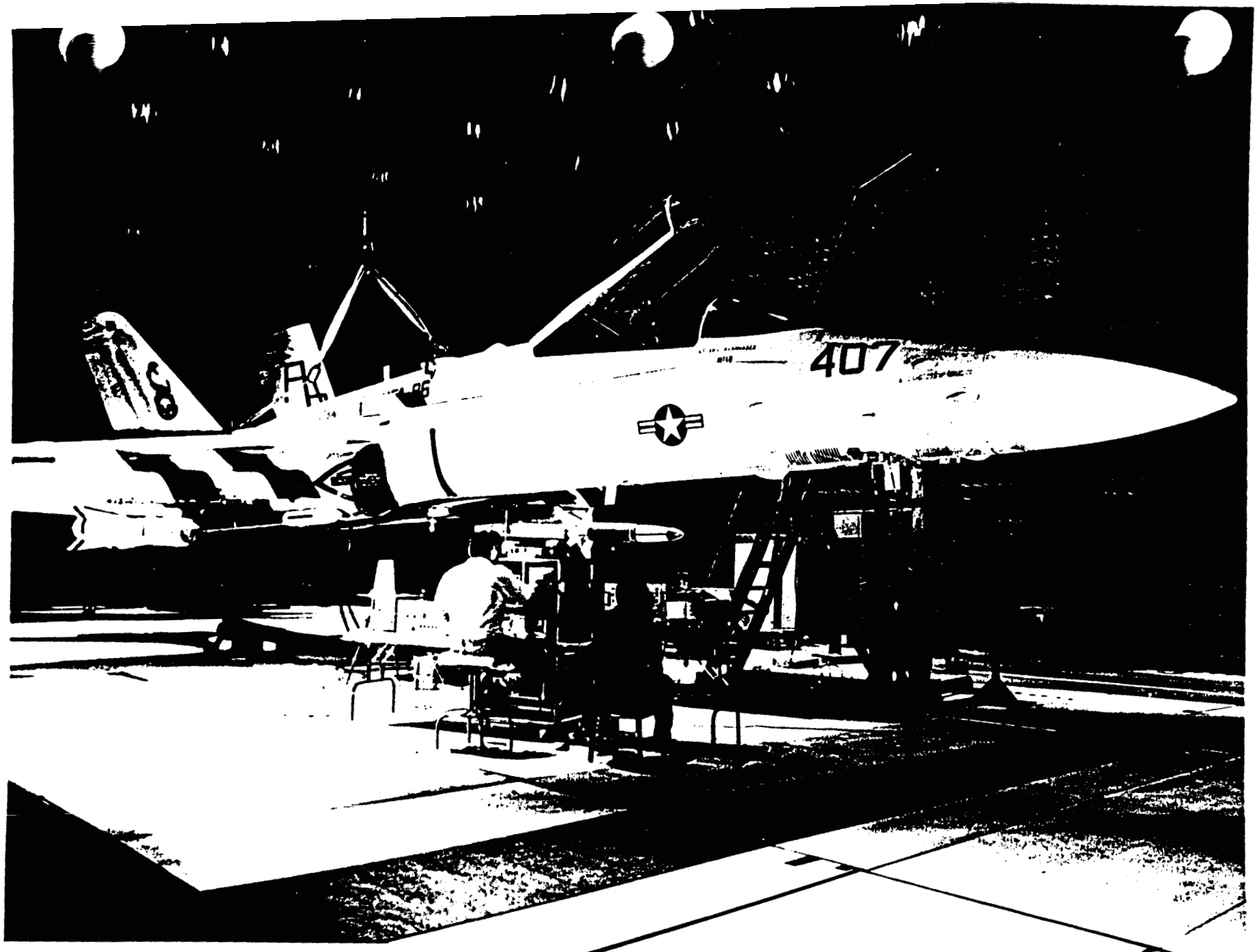
SYSTEMS ENGINEERING TEST FACILITY
Air Combat Environment Test & Evaluation Facility - Anechoic Chamber



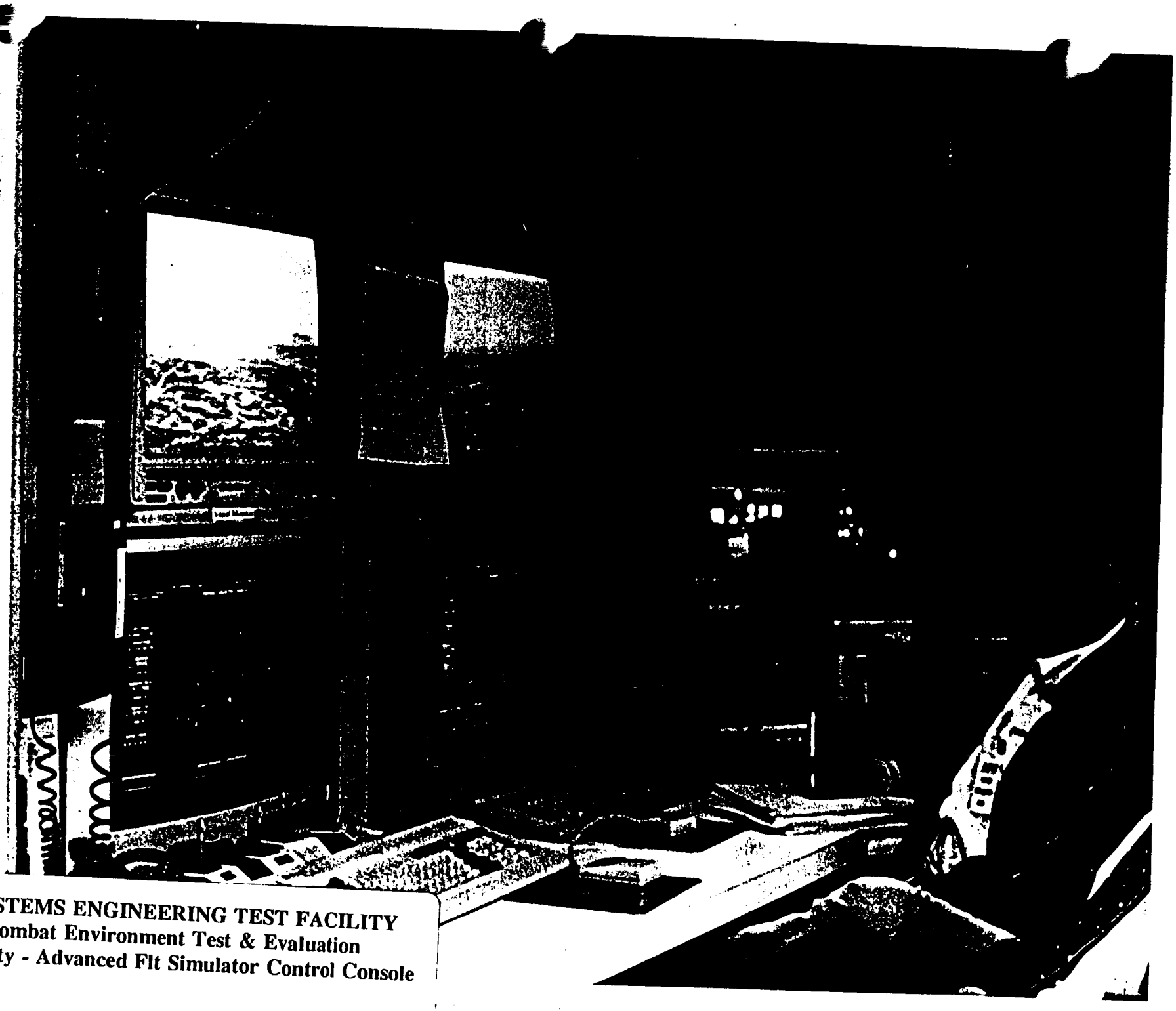
ELECTROMAGNETIC ENVIRONMENT GENERATING SYSTEM FACILITY
Electromagnetic Pulse Simulation Facility



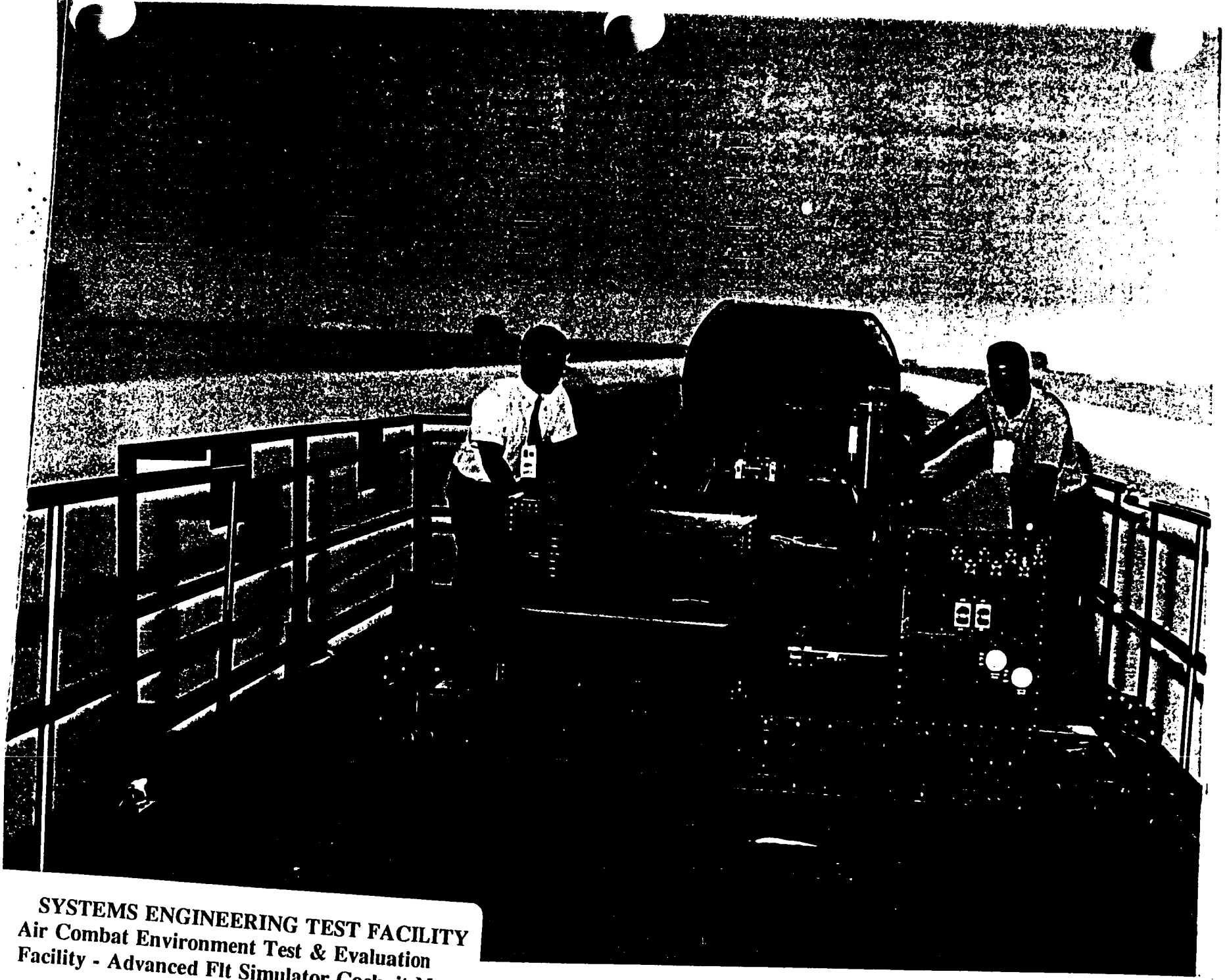
ELECTROMAGNETIC ENVIRONMENT GENERATING SYSTEM FACILITY
Electrostatic Effects Facility (Lightning Test)



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



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



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

159

RANGES

RNG

GENERAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range (CTR)** 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: **OAR**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**95%** = 11,500				**5%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**85%**				**3%**		
Armament/Weapons:	**5%**						
EC:	**5%**						
Other:					**2%**		

Total in Breakout Must Equal "Percentage Use" On First Line

WC

059

TECHNICAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range**

Facility Description; Including mission statement:

The range facilities located in the Chesapeake Bay and Atlantic Ocean operating areas provide aircraft tracking, data acquisition and relay, range surveillance, targets and communication/control of multiple aircraft test events. An integrated network of phototheodolites, laser, and radar trackers along the western Chesapeake shore are linked to commutation and control facilities at NAWCAD Patuxent River. A microwave data lank with NASA Wallops Island facilities permits utilization of NASA precision radars in the Atlantic operating areas and relay of telemetry to NAWCAD Patuxent River. Multi-object trilateration tracking and Range GPS systems provide multiple air/surface test vehicles with time space position information. Special purpose instrumentation includes radar for Electronic Warfare (EW) Systems simulation, videographic and photographic instrumentation, mobile instrumentation, and instrumentation for shipboard test of aircraft. Air/Surface seaborne targets, short range missile fire areas, direct fire areas and sonobuoy drop/recovery areas are integrated with range facilities. Range tracking and target data are integrated in the range computation and control center which then provide space position, EW data lank, and meterological data to the Real-time Telemetry Processing system for correlation with aircraft telemetry data. Area frequency coordination for the Mid-Atlantic Area is performed which includes coordination/scheduling of frequency assignments for EW test operations and shared radio frequency usage in the 3MHz to 35GHz spectrum. Major testing capabilities include surface targets, aerial targets, subsonic and supersonic air space and operating areas to support a wide variety of aircraft weapon systems testing. Major test functions include flying qualities and performance, weapon separation and delivery system performance, aircraft installed avionics performance, aircraft and mission systems performance, aircraft propulsion system flight tests, aircraft carrier suitability and ship dynamic interface testing.

Interconnectivity/Multi-Use of T&E Facility:

CTR is a key component of open air testing at NAWCAD Patuxent River. It has interconnectivity with virtually all flight test activities at NAWCAD Patuxent River as well as interconnectivity with the major ground test facilities. CTR has the ability to support flight test for the full spectrum of aircraft test and evaluation types through flexible application of resources to the required open air test. It has the ability to provide simultaneous capability to support a number of different test requirements. CTR resources, when coupled with the other extensive open air range facilities, ground test facilities, and measurement facilities, provide a unique capability to conduct full spectrum navy aircraft and support of Atlantic Navy fleet training exercises test and evaluation.

TECHNICAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range**

Interconnectivity/Multi-Use of T&E Facility: (continued)

Physical data links include CTR links to:

- NASA Wallops Flight Facility (WFF) - Real-time bidirectional - microwave link at 12.9Mbps (DSA)
- Fleet Area Control & Surveillance Facility (FACSFAC), Virginia Capes - Real-time unidirectional - encrypted dedicated link at 56Kbps
- Naval Warfare Assessment Division (NWAD),
- Naval Warfare Assessment Division (NWAD), Corona - encrypted telephone link at 9.Gkbps
- Acoustical Underwater T&E Complex (AUTEC), Bahamas (via West Palm Beach, FL) - at 56kbps (DSO)
- NISE-East (Webster Field) - microwave link at 6Mbps (DS2)
- ATLAS - real-time unidirectional landing link at 56Kbps
- Telemetry Data Center - real-time bidirectional wire link at 1.5Mbps (DS1)
- Landing Site Test Facility (LSTF) - real-time unidirectional landline link at 56kbps
- Ships Ground Station (SGS) - real-time bidirectional encrypted fiber optic link at 1.5Mbps (DS1)
- Coast Guard Vessel Traffic Control System (CGVTS) development facility - 56kbps
- Real-time unidirectional CATV coaxial link for transmission of video and data to multiple sites throughout the Patuxent River complex - Broadband (up to 100Mbps)
- Air Combat Environment T&E Facility (ACETEF) - real-time bidirectional encrypted at 1.5Mbps (DS1)

Type of Test Supported:

Types of Tests Supported Include:

Airspeed and Altitude Calibrations
Antenna Patterns
High Angle-of-Attack Evaluations
Weapon Delivery Accuracy
Navigation Systems Evaluations
Landing and Takeoff Performance Testing
Acoustic Systems Testing
Weapons Separation Evaluations
Electronic Warfare Systems Test and Evaluations
Communications, Command, and Control Jamming

TECHNICAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range**

Type of Test Supported:

- Sea Surface Sensor Analysis
- Structural and Vibration Analysis
- Aircraft Engine Performance
- Shipboard/Carrier Suitability
- Aircraft Flying Quality and Performance Tests
- Fixed Wing Aircraft out of Control Flight Tests (Spin Tests)

Summary of Technical Capabilities:

CTR operates a wide variety of Range System Instrumentation required to support the above noted test efforts. Following is a list of current instrumentation/assets:

Space Position & Velocity Measurement Systems

- Radars
- Phototheodolites
- Automatic Laser Tracking System (ALTS)
- Mid-Atlantic Tracking Systems (MATS)
- GPS

Photographic/Video Tracking Systems

- Fixed
- Portable
- Shipboard
- Aerial Photographers

Voice/Data Communications Systems

- UHF
- VHF

Keywords:

CTR - Chesapeake Test Range, Radar, Laser, OAR - Open Air Range, T&E - Test and Evaluation, CINE theodolite, Weapon Separation, Flight Test

ADDITIONAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	75	74	73	72	71	72	72
Contractor	66	66	65	65	64	63	63
Total	141	140	138	137	135	135	135

Total Square Footage: **47,518**

Test Area Square Footage: **25,660** Office Space Square Footage: **21,858**

Tonnage of Equipment: **339** Volume of Equipment:

Annual Maintenance Cost: **$2,800K** Estimated Moving Cost: **$338K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
5,700	7,700	7,900	9,300	3,600	1,800	1,500

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FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Chesapeake Test Range**

AGE: **Multiple Buildings: 5-44 Years** REPLACEMENT VALUE: **$150M (Building and Equipment)**
Equipment: 1-24 Years

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **FY89**

NATURE OF LAST UPGRADE: **MILCON new control room**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Range Computation & Control System II**

   TOTAL PROGRAMMED AMOUNT: **$5M**
   SUMMARY DESCRIPTION: **New Range Command, Control and Computation System**

2. UPGRADE TITLE: **GPS Upgrade**

   TOTAL PROGRAMMED AMOUNT: **$23M**
   SUMMARY DESCRIPTION: **Increase State Vector Accuracy of all Range participants.**

3. UPGRADE TITLE: **Range OPS**

   TOTAL PROGRAMMED AMOUNT: **$9.3M**
   SUMMARY DESCRIPTION: **Increases the number of simutaneous operations in Data Processing and decrease Operations & Maintenance Cost.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Chesapeake Test Range**

R

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92*	93*
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS		1527	1586	1589	1410	1299	1600	1518
	MISSIONS			889	825	774	864	825	679
EC	DIRECT LABOR								
	TEST HOURS		86	90	88	83	75	92	88
	MISSIONS			50	47	44	49	48	39
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS		87	90	94	77	72	90	84
	MISSIONS			49	47	44	50	46	37
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS		35	36	36	32	30	36	35
	MISSIONS			20	19	18	20	19	15

Note - Includes civilian, military, and contractor direct labor hours.

***The FY92-93 historical workload for the Chesapeake Test Range of 1500-1600 test hours represents only the "documented and paid for" range tracking hours flown on the open air range. This number does not include numerous test hours flown on the range airspace without tracking coverage as well as many test hours of telemetry-only flight coverage.**

The 12-1300 "flight hours" shown on Form 5 for T&E Hangar Space represent all flying done by NAWCAD Patuxent River test directorates in the support and conduct of T&E.

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Chesapeake Test Range**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS		1527	1586	1589	1410	1299	1600	1518
	MISSIONS			889	825	774	864	825	679
EC	DIRECT LABOR								
	TEST HOURS		86	90	88	83	75	92	88
	MISSIONS			50	47	44	49	48	39
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS		87	90	94	77	72	90	84
	MISSIONS			49	47	44	50	46	37
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS		35	36	36	32	30	36	35
	MISSIONS			20	19	18	20	19	15

Note - Includes civilian, military, and contractor direct labor hours.

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DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Chesapeake Test Range**

ANNUAL HOURS OF DOWNTIME	1	**1657**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**4.5**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**19.5**

R

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
Normal OAR Mission*	**15**	**1**	**15**	**292.5**
				ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				**106,763**
		TOTAL Σ	**15**	

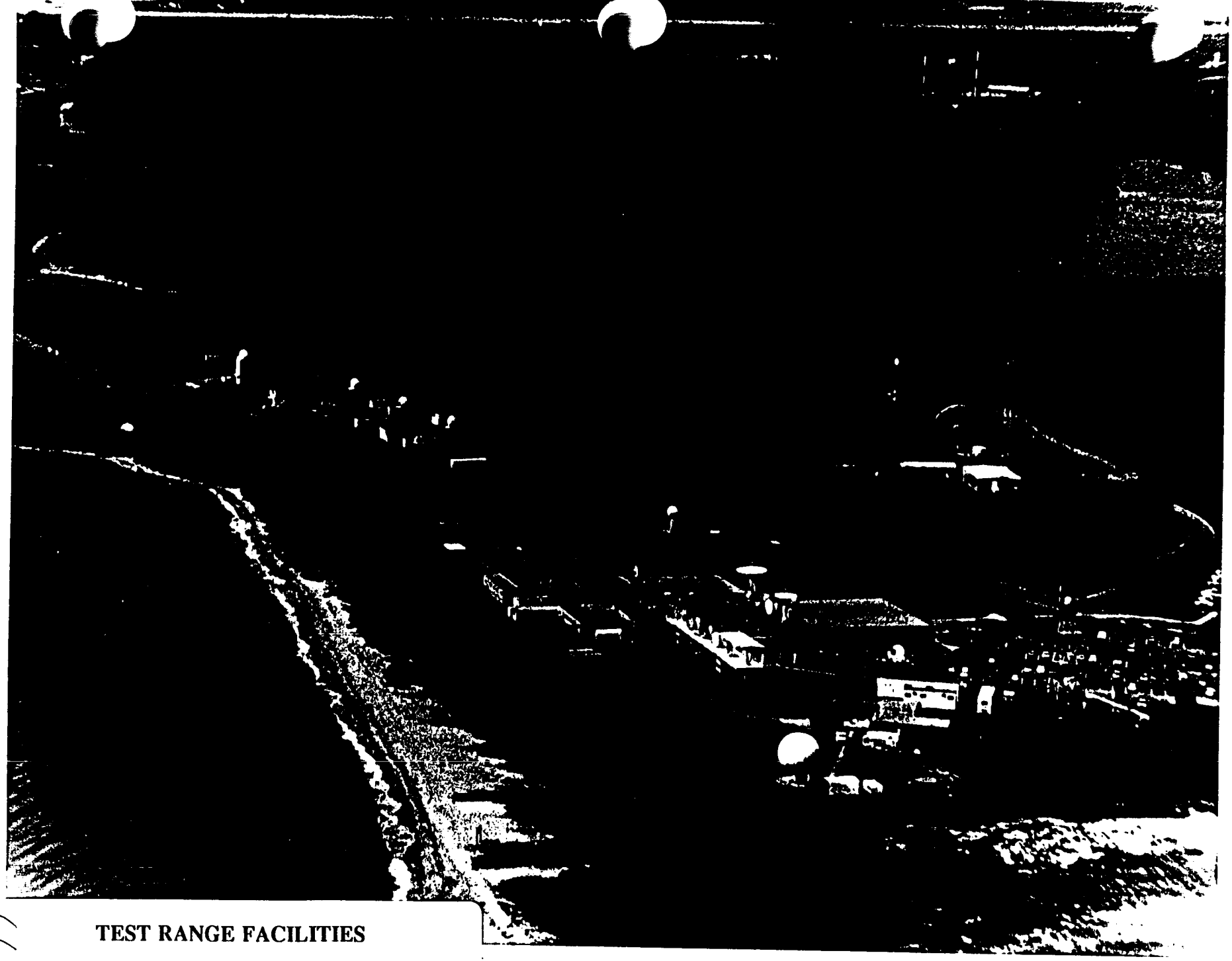
***The full test capability of the open air range at NAWCAD is shown on the Unconstrained Capacity Form. The analyst as shown projected the ability to accommodate a nominal 15 Mission/hour on the open air range. The numbers on this form can be equated to flight test hours.**

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Chesapeake Test Range**

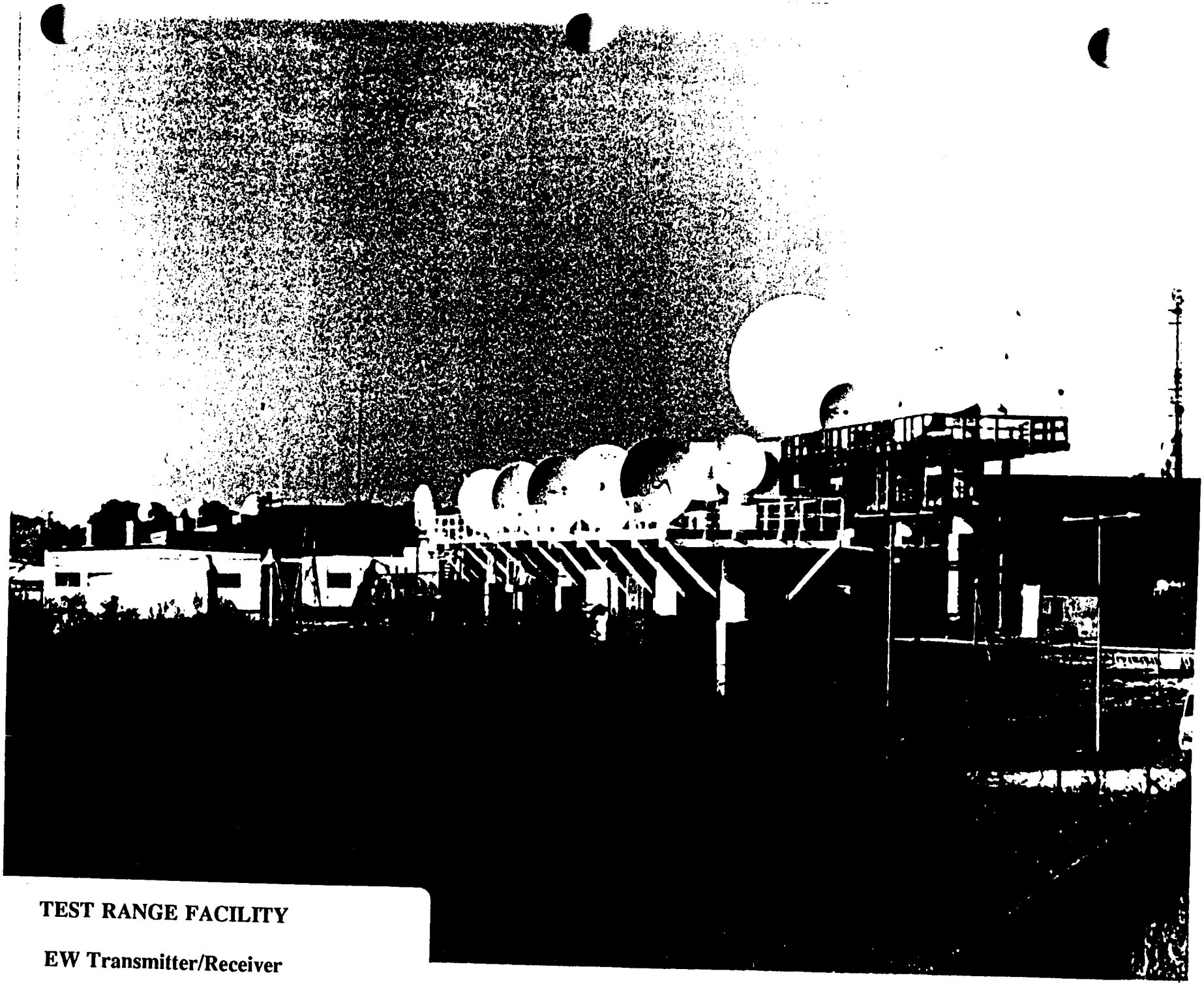
ANNUAL HOURS OF DOWNTIME	1	**1657**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**4.5**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**19.5**

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
Normal OAR Mission	**15**	**1**	**15**	**292.5**
				ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				**106,763**
		TOTAL Σ	**15**	



TEST RANGE FACILITIES

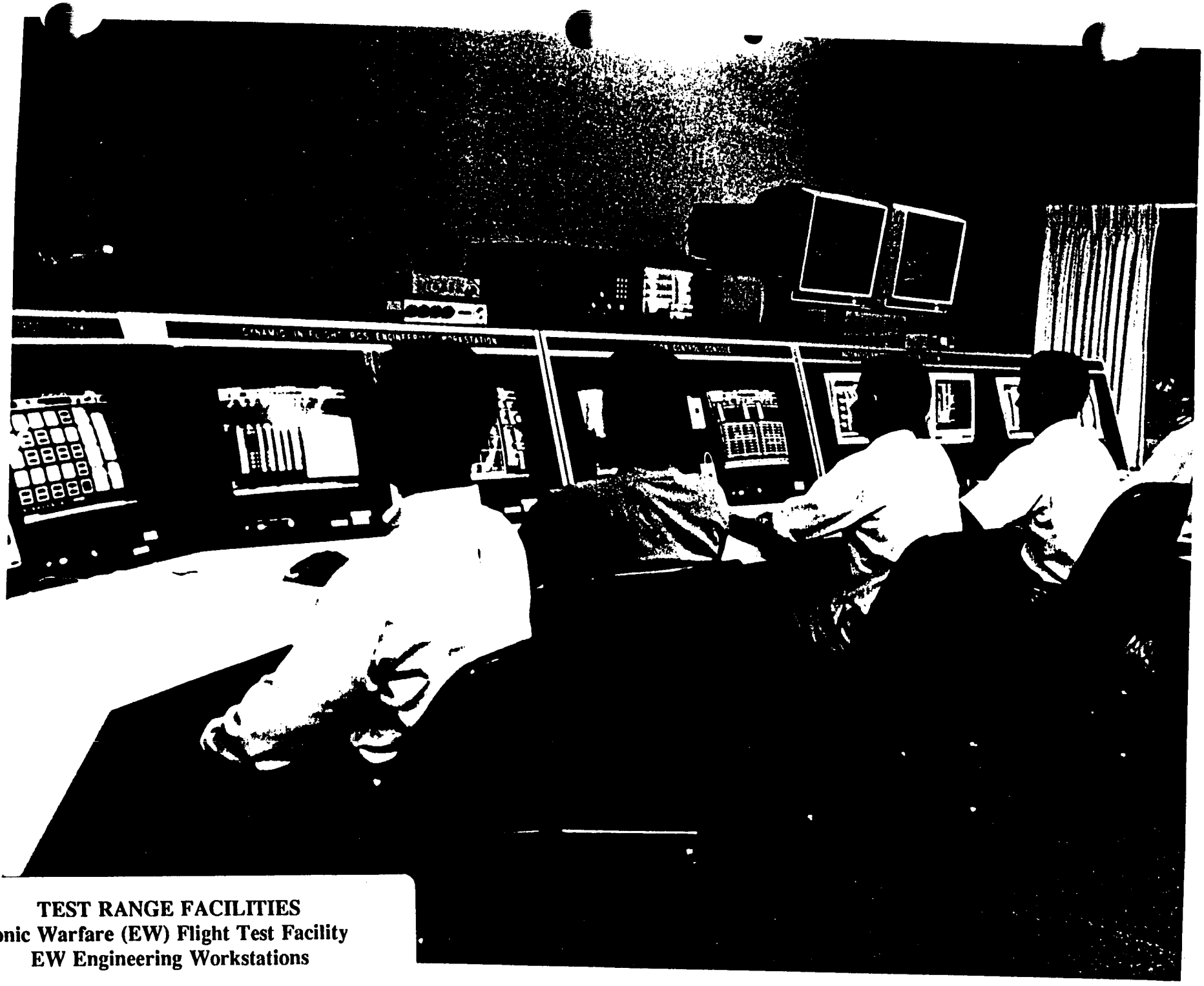
Chesapeake Test Range Complex



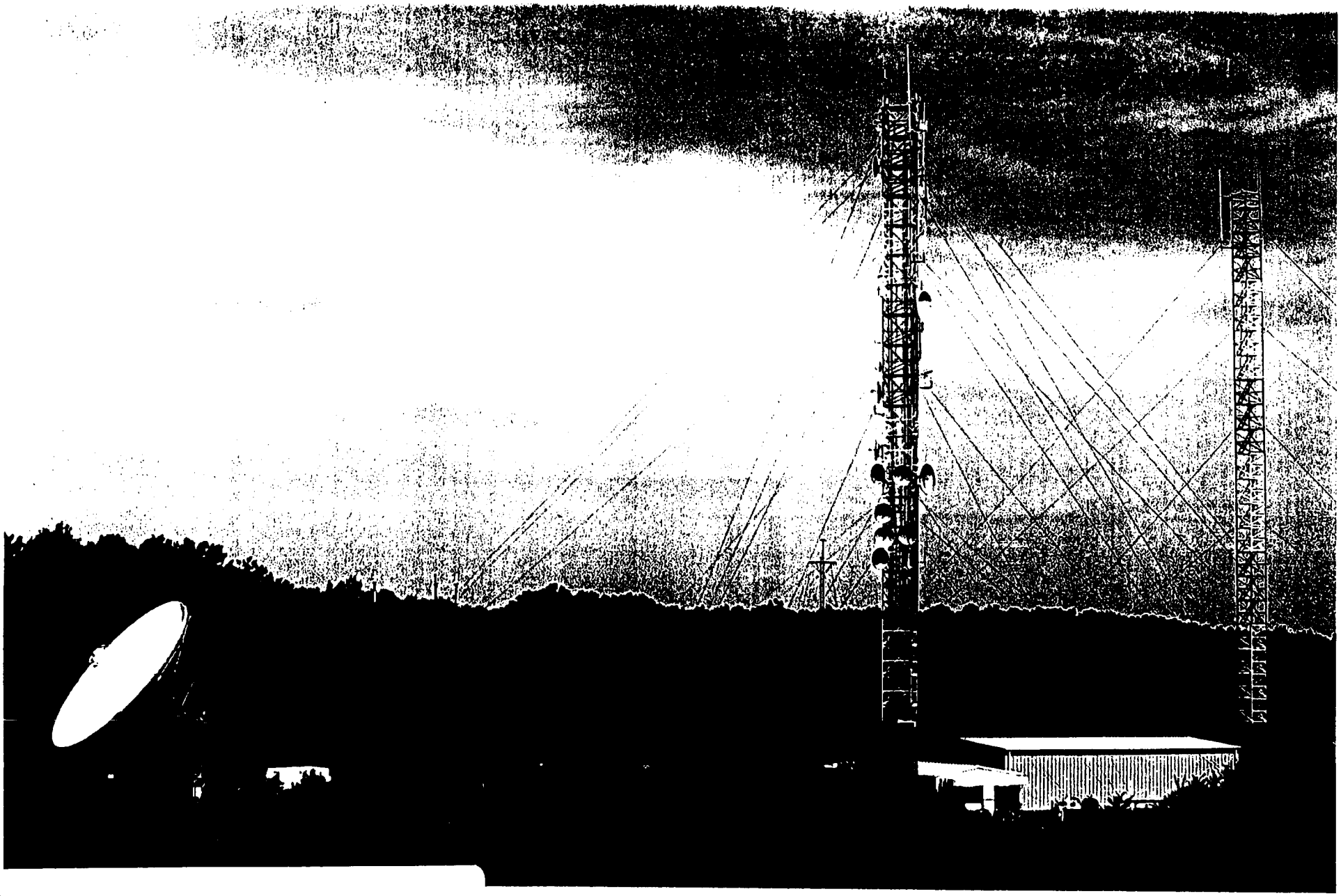
TEST RANGE FACILITY

EW Transmitter/Receiver

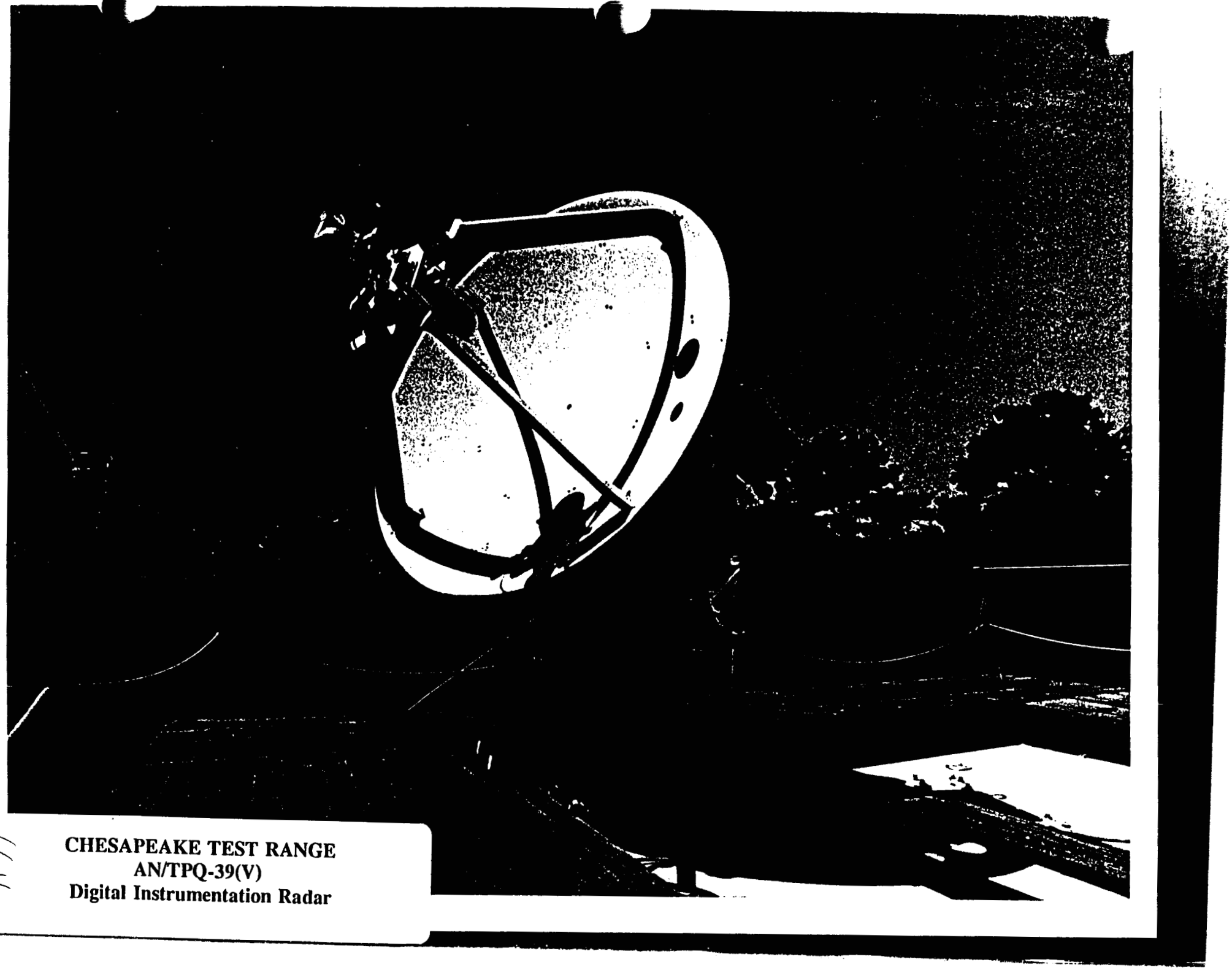
1061



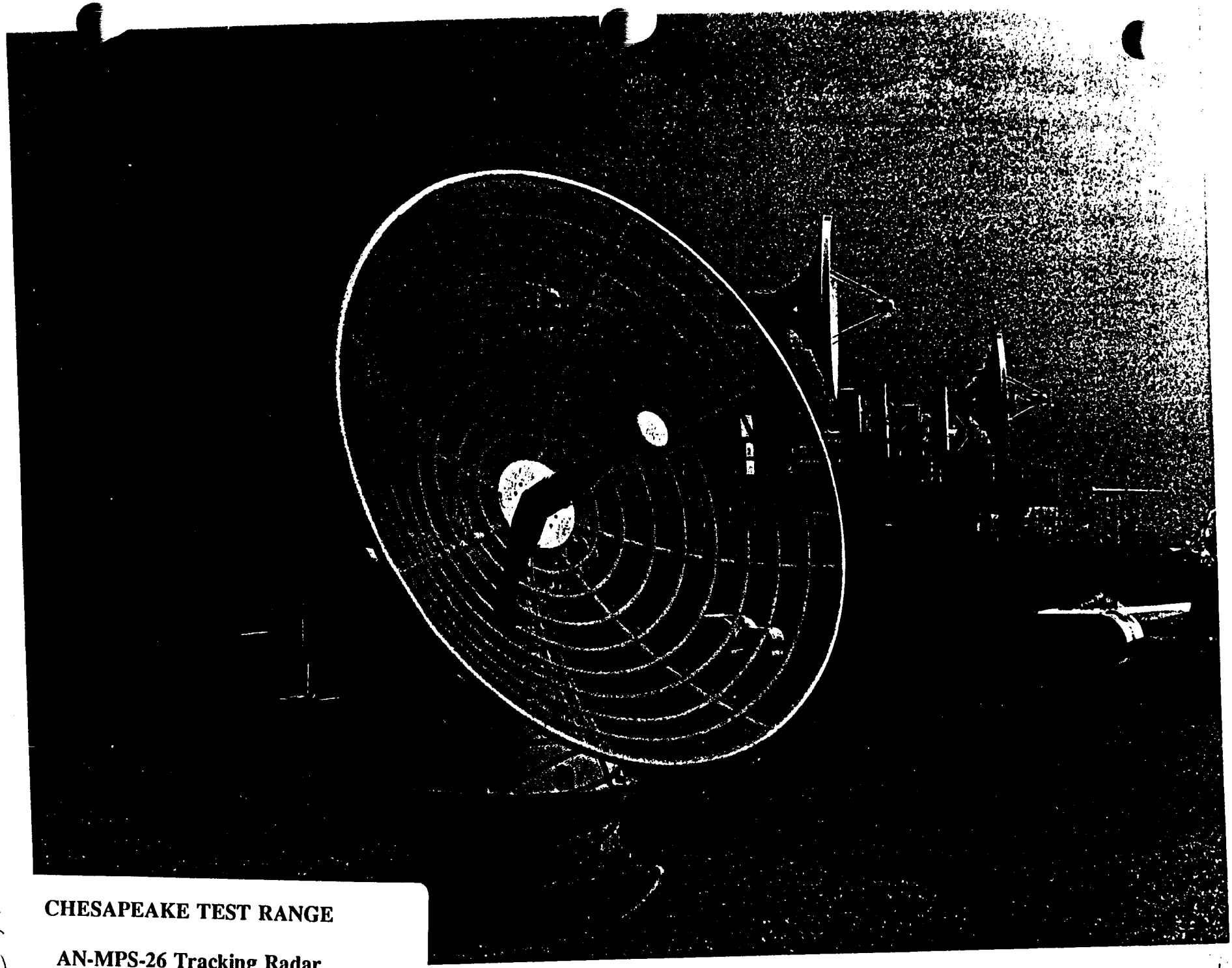
TEST RANGE FACILITIES
Electronic Warfare (EW) Flight Test Facility
EW Engineering Workstations



MICROWAVE COMMUNICATIONS FACILITY

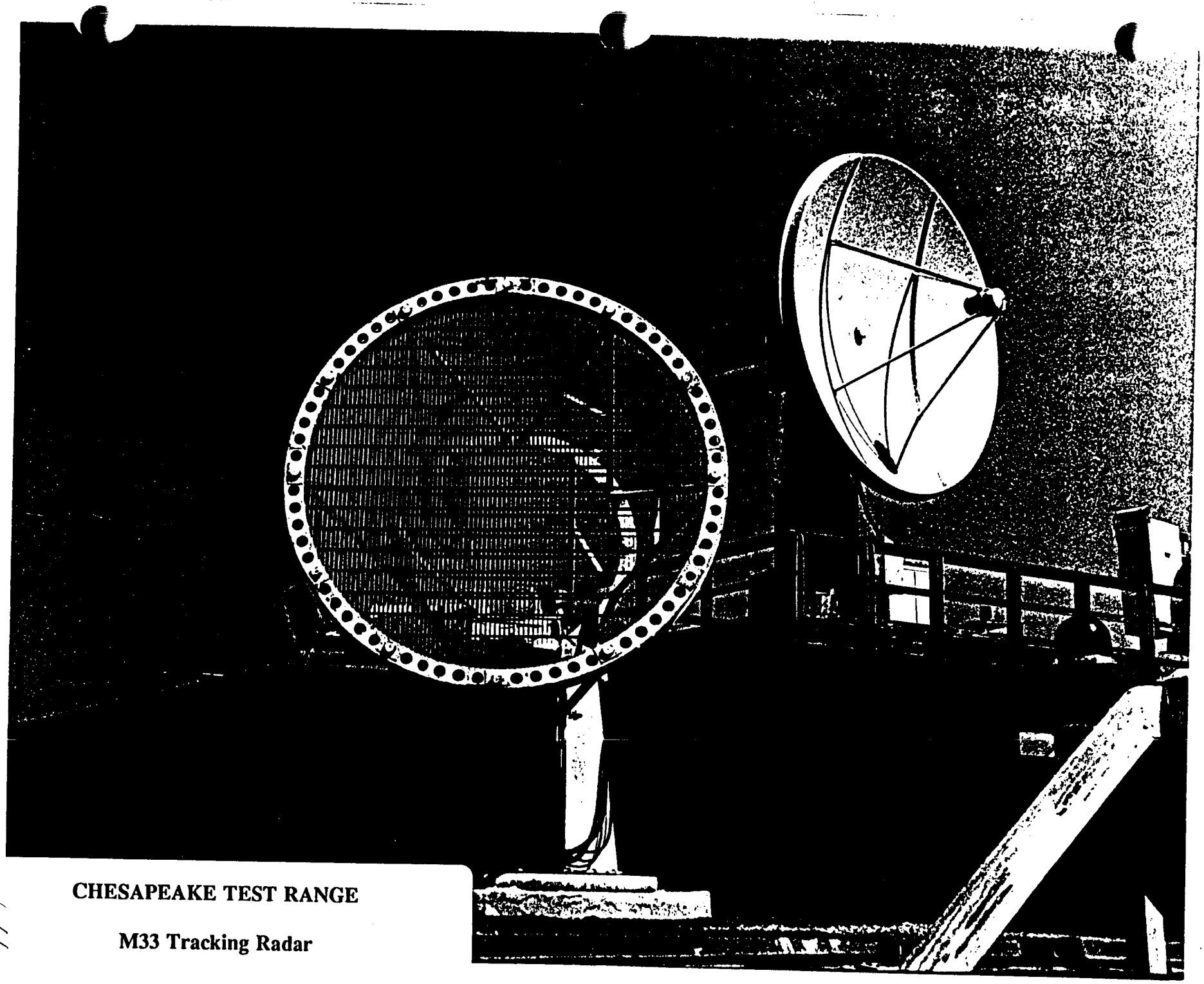


CHESAPEAKE TEST RANGE
AN/TPQ-39(V)
Digital Instrumentation Radar



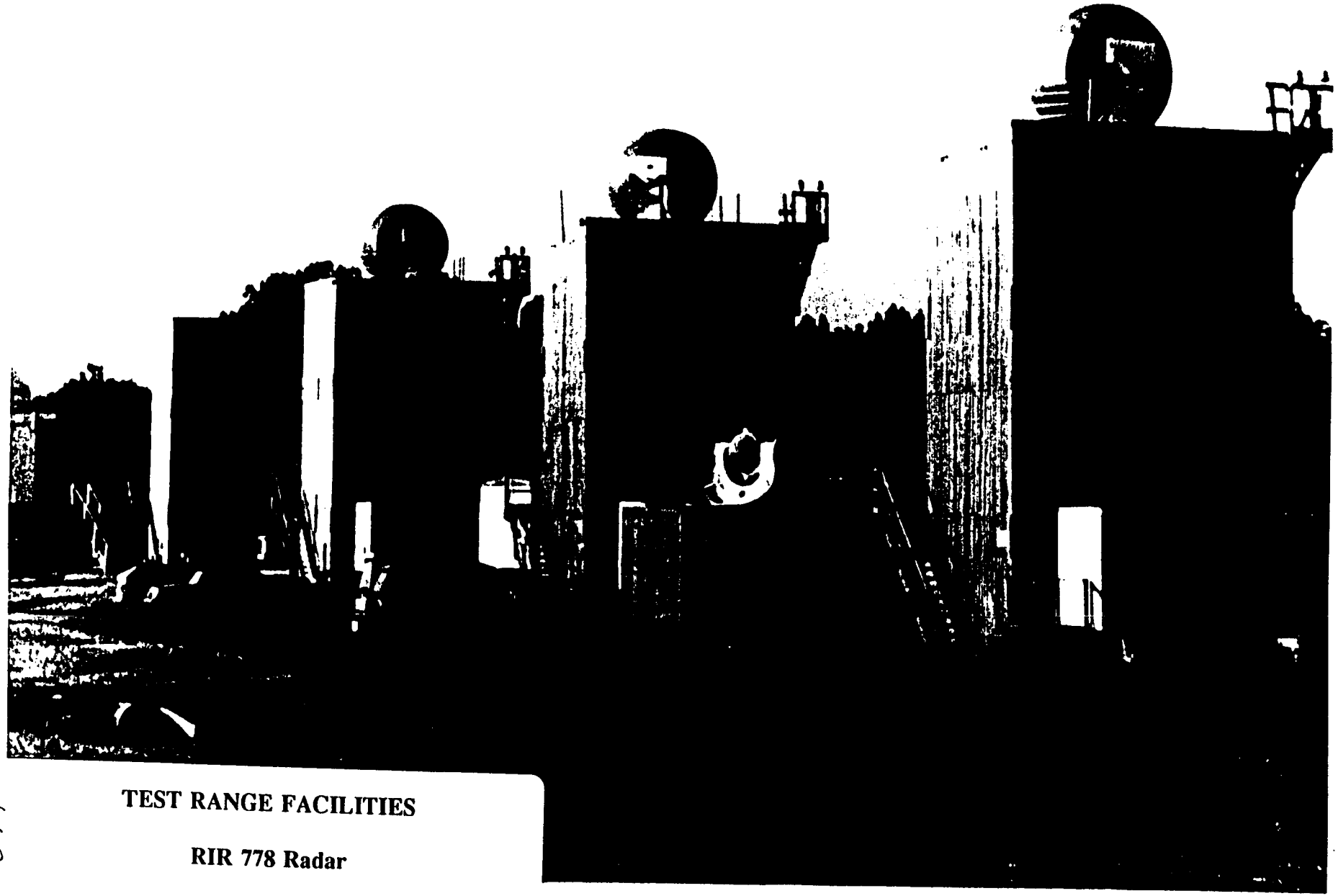
CHESAPEAKE TEST RANGE

AN-MPS-26 Tracking Radar



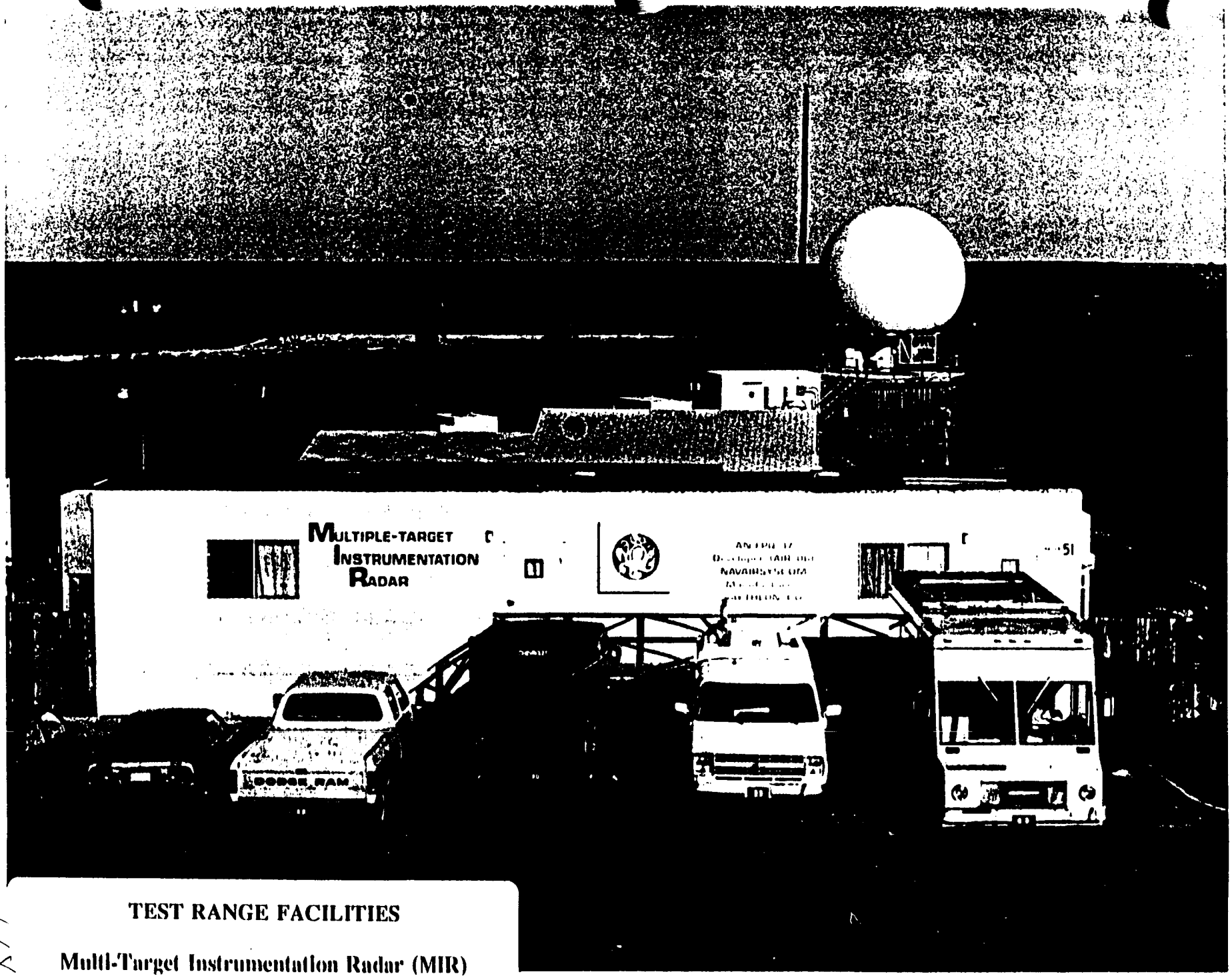
CHESAPEAKE TEST RANGE

M33 Tracking Radar



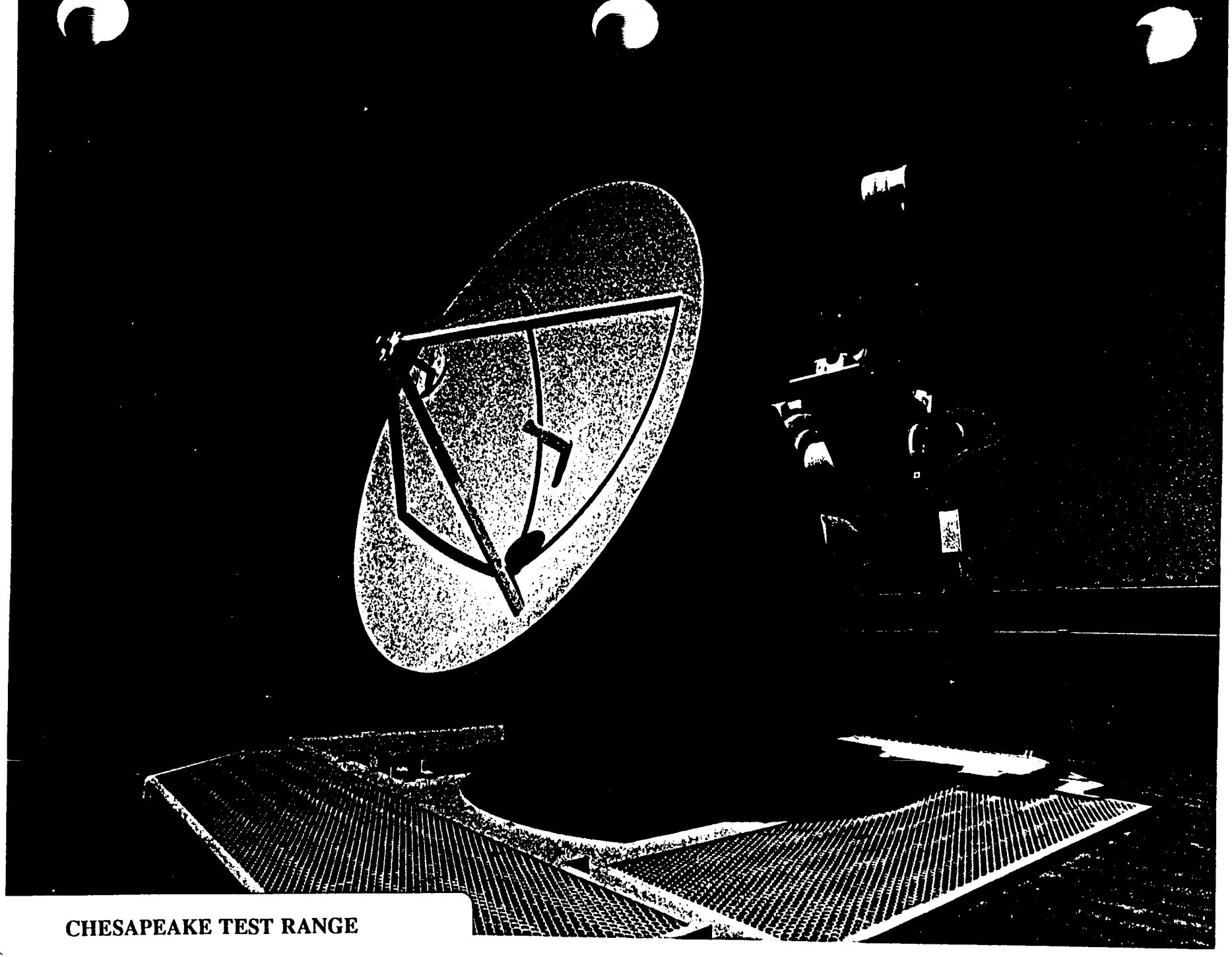
TEST RANGE FACILITIES

RIR 778 Radar



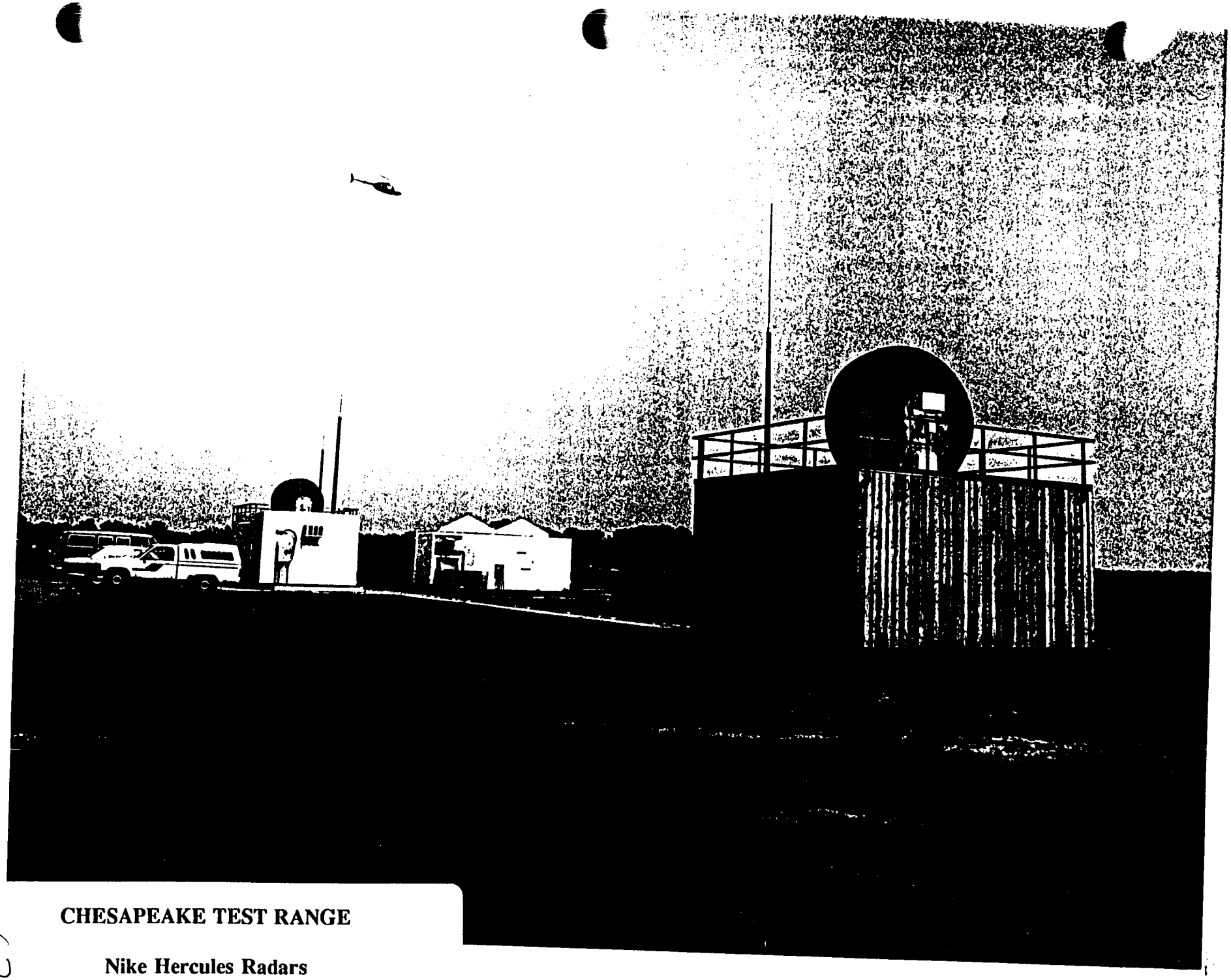
TEST RANGE FACILITIES

Multi-Target Instrumentation Radar (MIR)



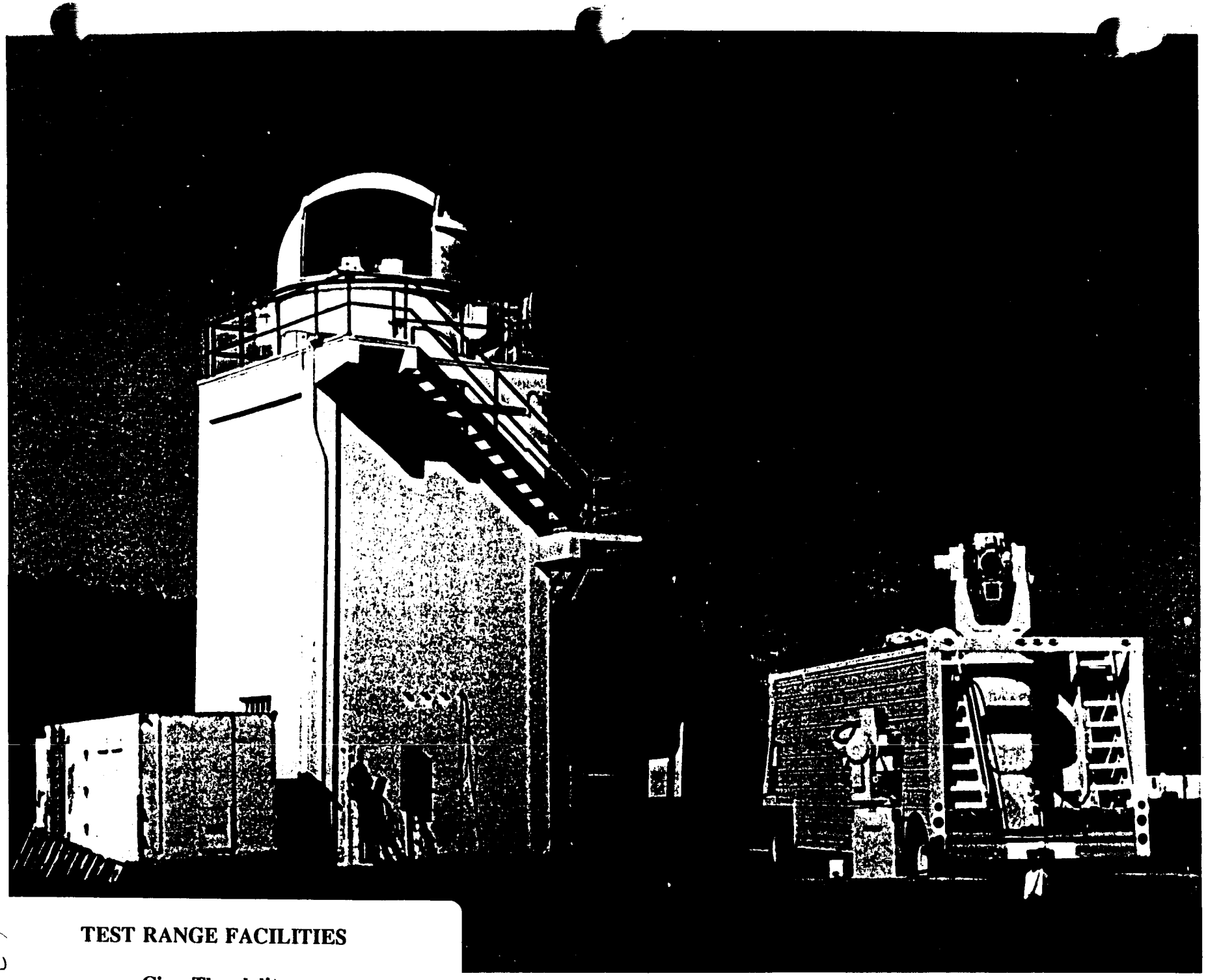
CHESAPEAKE TEST RANGE

RIR-778/Ka Instrumentation Radar



CHESAPEAKE TEST RANGE

Nike Hercules Radars



TEST RANGE FACILITIES

Cina Theodolite

GENERAL INFORMATION

Facility/Capability Title: **Telemetry Data System 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: **Open Air Range**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **85%**

Armament/Weapons: **5%**

EC: **10%**

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

[redacted]

FOR OFFICIAL USE ONLY
PREDECISIONAL INFORMATION

TECHNICAL INFORMATION

Facility/Capability Title: **Telemetry Data System Facility**

Facility Description; Including mission statement:

The Telemetry Data System (TDS) Facility is used for reception, processing and real-time display of aircraft and weapon system test data. The system, used for preflight check-out, real-time telemetered flights and for post-flight tape playbacks, consists of six independent identical "streams," each of which may simultaneously handle a flight or a playback at any one time. The streams share a common instrumentation database subsystem for unclassified work and software development and operate in a dedicated secure mode for classified work. The streams can be fed by any of several 8, 10 and 12 foot tracking antennas and receivers located at the Chesapeake Test Range (CTR) or remotely from NASA Wallops. Portable systems are also available for remote site work. It is co-located with CTR facilities and is a full-service aircraft flight test facility generically applicable to all types of flight testing.

Telemetry Data Systems Department - Provides all laboratory and mobile data systems required to process data recorded on magnetic tape and to receive, record and process data transmitted by radio link from test aircraft. Supports technical investigations in the field of magnetic tape and telemetry data processing and display systems to ensure that both present and future systems are applicable to requirements. Provides standard time of day (IRIG "B") generation and transmission. Houses technical publications library describing NAWCAD Patuxent River tape and telemetry capabilities to contractors and other government agencies.

Interconnectivity/Multi-Use of T&E Facility:

The TDS facility includes telemetry antennas at two NAWCAD Patuxent River locations and access to telemetry antennas at NASA Wallops, all connected to the TDS Real-time Telemetry Processing System (RTPS) via microwave links. RTPS can select any required measurements from a telemetry data stream for throughput to the interconnected facilities listed below. RTPS also can accept simulation data, time/space position data, etc. from interconnected facilities and merge this data with telemetry data. Telemetry antenna sites provide raw telemetry signals to RTPS, but also interconnect to aerospace contract facilities via satellite. TDS facilities interconnect with other facilities as follows:

1. Electronic Warfare Measurement facility - cable interconnection, 256 Kbps processed telemetry data.

TECHNICAL INFORMATION

Facility/Capability Title: **Telemetry Data System Facility**

Interconnectivity/Multi-Use of T&E Facility:

2. Chesapeake Test Range, Range Computation & Control System (RCCS) facility - cable interconnection, 256 Kbps data rate processed telemetry data to RCCS, 100 Kbps data rate time/space position data returned to RTPS.

3. ACETEF Manned Flight Simulator - broadband cable network, 256 Kbps data rate exchanged between MFS (simulation data) and RTPS (processed telemetry data).

4. Carrier Suitability, Landing Systems Test Facility (LSTF) microwave link, 10 MHz bandwidth, raw telemetry data to LSTF telemetry processing facility.

5. Grumman Aerospace, Calverton ATS facility - satellite link, 3.152 Mbps data rate, multiple telemetry data streams.

6. Bell Helicopter-Textron, Ft. Worth facility - satellite link, 6.352 Mbps data rate, multiple telemetry data streams.

7. RTPS optical-disk selected telemetry data output distributed to project engineer customers at Strike, Rotary Wing, Force Warfare and Systems Engineering facilities post-flight.

RTPS has the unique characteristic of providing a broad range of fixed and rotary wing projects with the general and specific types of telemetry processing and display needed to satisfy airframe and engine testing, flutter testing, mission systems testing, weapons interface analysis and a large variety of other test requirements. It is a central facility used by all test directorates as well as contractor teams, and is particularly suited to handling a large and diverse range of customers by quick changeover from project to project, as well as providing both real-time and post-flight processing.

TECHNICAL INFORMATION

Facility/Capability Title: **Telemetry Data System Facility**

Type of Test Supported:

Real-time data acquisition, processing and display from a very broad variety of aircraft and weapons system tests. Used for fixed wing, rotary wing, weapons control system, avionics, flutter, structures, flight control systems, flying qualities, propulsion, performance, carrier suitability, landing loads, landing system, EW, bombing accuracy and widely varied full spectrum aircraft tests.

Summary of Technical Capabilities:

Telemetry (TM) data system facilities include RTPS, a SATCOM earth station, microwave links with range facilities and test assets such as the Landing System Test Facility (LSTF) and the C7/MK7 Catapult & Arresting Gear Facility, portable telemetry stations for shipboard tests, vibration analyzes equipment and airborne relay aircraft. RTPS provides demodulation, processing and display for real-time telemetry (TM) and inflight recorded tapes. The output is real-time quantitative data and includes scaling to engineering units, derived parameters, recordings, digital tapes, formatting, strip charts, tabular displays of test data, test event limit checks & alarms, real-time plots, and the capability to communicate with the flight test aircrew while monitoring engineering data as it develops. Pulse-coded modulation (PCM) is the primary type TM. Frequency modulation and indirect pulse amplitude modulation are also supported. RTPS handles 500,000 samples/sec and up to four 10 mb/sec PCM signals as well as the necessary processing and display capacity for these data rates. The capacity is available in each of six "streams" for six concurrent test flights or tape playbacks.

Portable TM stations provide the capability to perform catapult launching tests on aircraft carriers at-sea under operational conditions. Measured catapult and aircraft parameters determine launch limits and procedures.

A SATCOM earth station supports relays of TM and communication transmissions between inter and intra service test activities.

Keywords:

Telemetry, Real-Time, Playback, Displays, Processing, Recorders

ADDITIONAL INFORMATION

Facility/Capability Title: **Telemetry Data System Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	39	37	35	35	35	35	35
Contractor	5	5	5	5	7	7	7
Total	44	42	40	40	42	42	42

Total Square Footage: **35,717**

Test Area Square Footage: **33,574**

Office Space Square Footage: **2,143**

Tonnage of Equipment: **370**

Volume of Equipment: **74,00 cu ft**

Annual Maintenance Cost: **$995K**

Estimated Moving Cost: **$400K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$875	$435	$1198	$1156	$650	$640	$630

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Telemetry Data System Facility**

AGE: **Building 1591: 19 Years**
Hangar 101: 51 Years
Building 2118: 5 Years
Equipment 6 Years

REPLACEMENT VALUE: **$4.2M Building - $25M Systems**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1989 (major - system replacement)(including building)**

NATURE OF LAST UPGRADE: **Replaced real-time telemetry processing systems I & II with complete new systems (FY87 contract).**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Telemetry Stream Upgrade**

TOTAL PROGRAMMED AMOUNT: **$2.36M**
SUMMARY DESCRIPTION: **Add power workstation to every stream, add interface capabilities (approximately 130K per station - 6 to 7 streams). Telemetry Recording input/output multiplexors. Engineering unit tape replacements. Processor speed upgrade (board replacement).**

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Telemetry Data System Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS	2976	3371	3023	4954	4369	5053	3652	3551
	MISSIONS	1602	1598	1754	1885	2040	2446	1599	1489
EC	DIRECT LABOR								
	TEST HOURS	64	72.5	65	161.6	242.7	464.6	429.7	417.8
	MISSIONS	34	35	38	62	113	225	188	175
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS	160	181.3	162.5	269.3	242.7	290.4	214.9	208.9
	MISSIONS	86	85	95	100	113	140	94	88
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

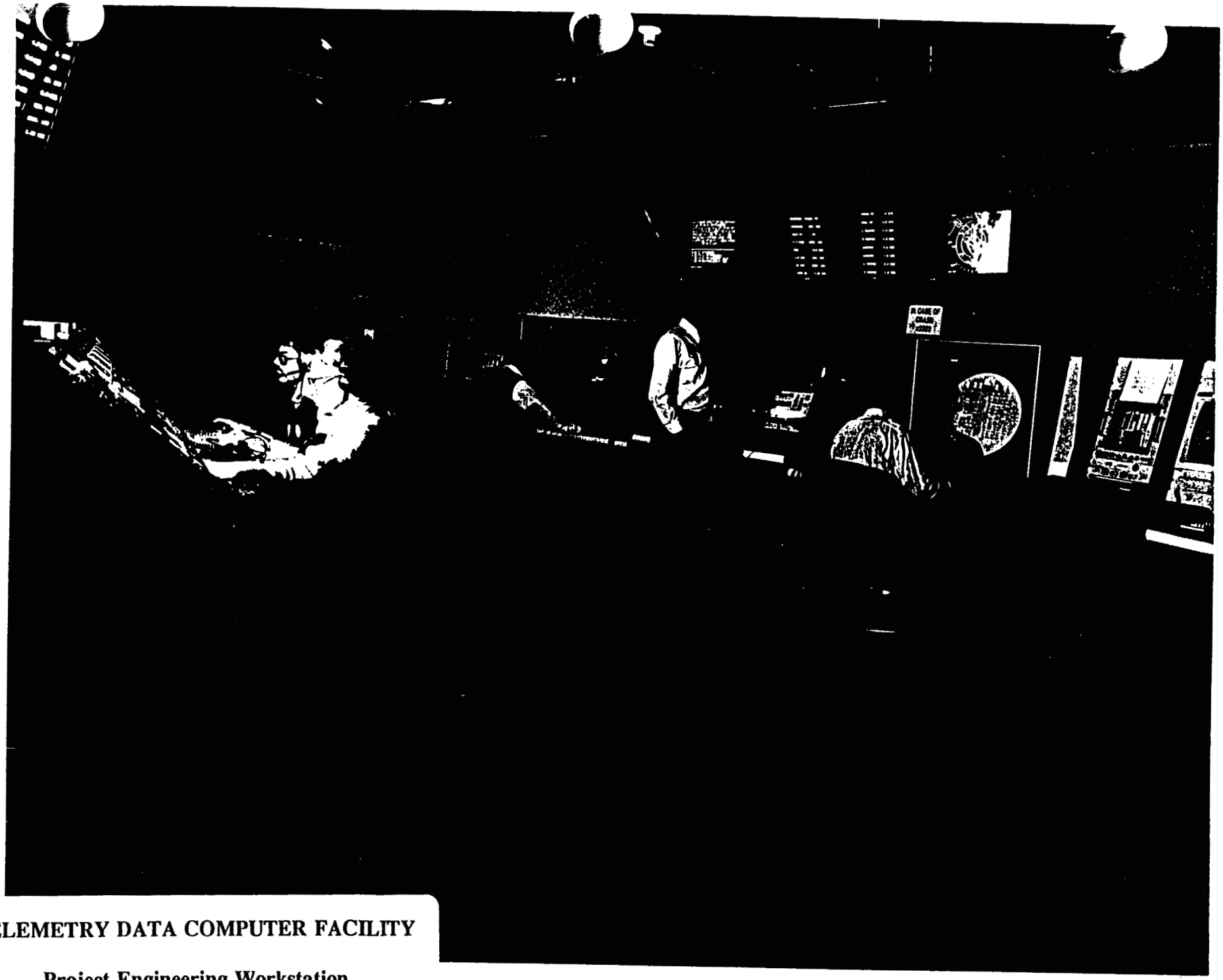
Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Telemetry Data System Facility**

ANNUAL HOURS OF DOWNTIME	1	**1460**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**4**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**20**

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
Complex Mission	**1**	**.25**	**.25**	**91.6**
Medium Complex Missions	**1**	**.33**	**.33**	ANNUAL UNCONSTRAINED CAPACITY
Minimum Complex Missions	**4**	**.5**	**2.0**	
Remote Systems Missions	**4**	**.5**	**2.0**	
				9
"TYPICAL"				**33,434**
		TOTAL Σ	**4.58**	



TELEMETRY DATA COMPUTER FACILITY

Project Engineering Workstation

GENERAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support 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: **Open Air Ranges**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles:	**90%**
Armament/Weapons:	**5%**
EC:	**5%**
Other:	

Total in Breakout Must Equal "Percentage Use" On First Line

189

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

Facility Description; Including mission statement:

Aircraft Test laboratories & Shop Support Facilities provide general purpose facilities for engineering, technical documentation, test instrument development and fabrication, verification tests, calibration support, maintenance of instrumentation/measurement standards, and instrumentation software and hardware development.

Laboratory instrument and calibration facilities support peculiar and general purpose electronic test equipment for all fleet and DT&E/OT&E activities at NAWCAD Patuxent River. Transducer, accelerometer, fluid flow, pressure and microwave frequency calibration systems are configured to interface type II and III calibration standards directly with aircraft systems.

A strain gage and structural analyses laboratory provides the capability to install and calibrate strain gage instrumentation utilized in measuring aircraft loads during flight on fixed wing and rotary wing aircraft. Test machines available include: one 200K MTS fatigue test machine; one 600K Gilmore T/C machine and one 200K horizontal test machine.

Mechanical design and fabrication facilities provide support to RDT&E and OT&E instrumentation and test project installations and to quick reaction fleet support needs. Capabilities include computer aided design/computer aided manufacturing, computerized structural analyses, traditional metal working, precision machining, all types of welding, fiberglass fabrication and composite material repair.

The NAVAIR Special Flight Test Instrumentation Pool, established to eliminate long lead time for acquisition of specialized airborne test instrumentation for aircraft test programs and to promote standardization and resume of airborne test instrumentation, has about 55,000 items of specialized airborne instrumentation located at Navy and contractor test facilities throughout the country.

Interconnectivity/Multi-Use of T&E Facility:

Interconnectivity between the Telemetry Data Systems (TDS), Design & Fabrication Facility, Strain Gage and Calibration labs are exercised daily. Instrumentation set up & check out, for example, is performed via telemetry link between aircraft in the facility and TDS. This facility provides design services for NRL, NSA, U.S. Army and others requiring an interconnectivity between personnel, hardware and services.

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TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

Interconnectivity/Multi-Use of T&E Facility:

Nature of Link	Type of Data Offered	Bandwidth/Data Rate
E-Mail x/RTPS	Calibrate Files & Setup Files for Telemetry Processing	
TM Link between A/C and RTPS	Test Data and Preflight Checkout	500khz to 8Mhz
Modem Link to McDonnell Douglas Aerospace (MDA)	FA-18E/F Management Info	9600Kbits
TM Link between A/C and Portable Ground Station	Test Data and Preflight Checkout	
Floppy Disk Offered of Instrumentation setup data between MDA and PAX	TDMS and DDAs setup files	
Fax and E-Mail Offered of Documents	Memo's, Technical Specifications, Agenda's etc.	
CAD/CAM Interconnect to other Navy Agencies (Computer vision) Floppy Disk	CAD Drawings	
"Autocad" System interconnect to other government agencies & Prime Airframe Contractors, Floppy Disk, E-Mail	CAD Drawings	
Modem link to various printed circuit board manufacturers	Printed Circuit Board Layouts	19.9Kbits

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

Type of Test Supported:

Aircraft Instrumentation Department (AID) - Facility supports T&E efforts for the various test directorates at NAWCAD Patuxent River including Test Pilot School instrumentation installations and aircraft modifications to all type of TACAIR, Vertical Lift, and Maritime platforms. Facility provides instrumentation support to the Carrier Suitability Department through its instrumentation system installed in the Patuxent River C7/MK-7 Catapult and Arresting Gears site as well as shipboard support. Facility provides airborne imaging support to DoN and the private sector. Laboratory Services Department/Measurement Equipment (LSD ME) - T&E of naval aircraft and proof of concept for aircraft system development installations. Classical structural analysis. LSD - Laboratory Instruments Standards Section (LISS) - Calibration support for AN/APN 421 Radar Altimeter Test Set. LSD - SFTIP - Air Vehicle Flight test. LSD - Airborne Instrumentation/Calibration (AIC) Air Vehicle Flight Test/Ground Test. LSD - Strain Gage - Air Vehicle, Weapons - Ground and Flight Test.

Summary of Technical Capabilities:

Technical capabilities of AID within this facility include:

Approximately 1300 items are listed in the AID hardware inventory, each facilitating the design, buildup, installation, checkout, setup, calibration, and maintenance of aircraft instrumentation installation and modification efforts. All of this hardware is portable. Examples of hardware types are: oscilloscopes, bus analysers, frequency counters, function generators, receivers, discriminators, spectrum analysers, decommutators, etc. Once again, all portable equipment.

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

Summary of Technical Capabilities:

This facility is dedicated solely to the instrumentation/modification process. Its shop, office and hangar deck space are shared only with a two person shop Beech Aerospace support shop. This approximately 100,000 sq. ft. facility provides NAWCAD Patuxent River with the personnel, equipment, and hangar deck area to perform the entire instrumentation/modification process. It allows the instrumentation engineer access to metal shops, calibration labs, the Special Flight Test Instrumentation Pool, & instrumentation labs, all under one roof. It also provides enough hangar deck space to permit what approaches a partial disassembly of aircraft to accommodate instrumentation system installation.

Strain gage installations, structural tests of Air Vehicle/Weapons test programs.

Provide calibration Support for test programs.

Provide Airborne instrumentation on an as needed. 55000 items of instrumentation equipment valued at 7.3 million dollars.

Engineering, Calibration Multi level, Technical Documentation T&E Test Plans, Design & Fabrication of calibration fixtures computer repair.

CNC milling, precision machining and grinding, traditional metal working, metal heat treating and finishing, all types of welding, fiberglass fabrication and composite material repair, wood modeling and quality inspection.

Mechanical design, classical structural analysis, technical consulting, classical and computer aided drafting, computerized printed circuit board design and schematic capture, CAD/CAM connectivity resource for military and industrial standards.

Keywords:

Design, Engineering, Fabrication, Calibration, Instrumentation, Structural Test

ADDITIONAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	145	163	250	249	245	242	237
Contractor	86	87	92	97	100	102	103
Total	231	250	342	346	345	344	340

Total Square Footage: **158,027**

Test Area Square Footage: **129,582**

Office Space Square Footage: **28,445 sq ft**

Tonnage of Equipment: **2,456**

Volume of Equipment: **887,950 cu ft**

Annual Maintenance Cost: **$459K**

Estimated Moving Cost: **$6,100K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
1,211	930	930	930	240	240	240

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Airborne Instrumentation Support Facility**

AGE: **Hangar 101 - 51 Years**
Bldg. 104 - 19 Years
Bldg. 1592 - 10 Years
Bldg. 1403 - 25 Years
SFTIP - 35 Years
Strain Gage Lab - 23 Years

REPLACEMENT VALUE: **$28.6M (Facility and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE:

NATURE OF LAST UPGRADE: **Re-roofing in 1989-90. Renovation and occupation of 2000 sq ft for engineering workstations - FY90. Minor MILCON for fiberglass and composite fabrication support area - FY92. SFTIP - Air conditioning - FY93. Data Analysis Computer System - FY93. New Strain Gage installation space - FY92.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Building 104 Repair of 25,000 sq ft (FY95)**

   TOTAL PROGRAMMED AMOUNT: **$700K**
   SUMMARY DESCRIPTION: **Consolidation of NAWCAD Patuxent River & Warminster Fabrication capabilities.**

2. UPGRADE TITLE: **Special Flight Test Instrumentation Program**

   TOTAL PROGRAMMED AMOUNT: **$4.7M**
   SUMMARY DESCRIPTION: **Flight Instrumentation Equipment Upgrades**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Airborne Instrumentation Support Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	339200	363753	372335	397757	412916	407980	403408	383371
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR	18841	20209	20685	22098	22940	22666	22412	21298
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	18841	20207	20685	22098	22940	22666	22412	21298
	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.

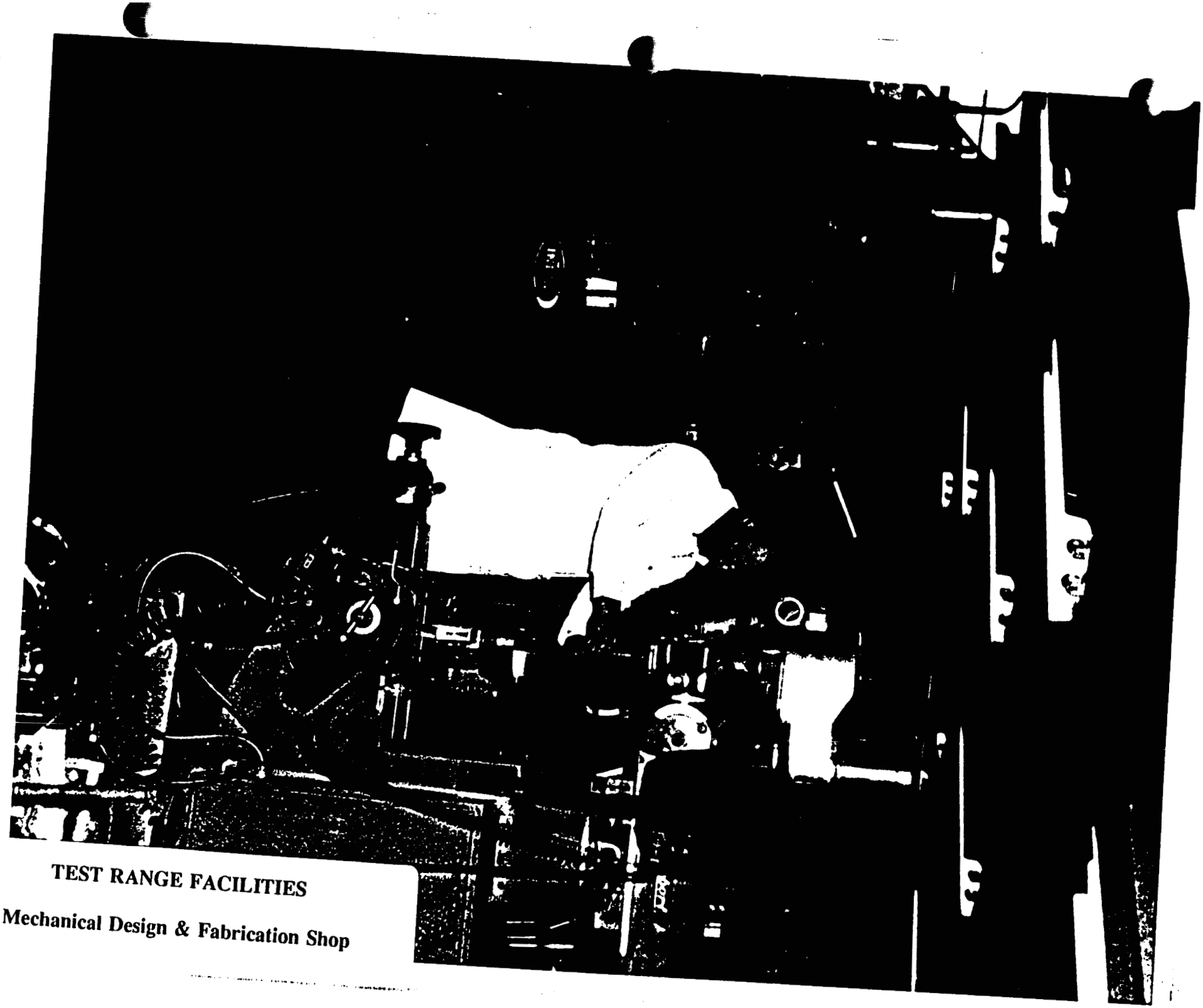
DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Airborne Instrumentation Support Facility**

ANNUAL HOURS OF DOWNTIME	1	**110**
AVERAGE DOWNTIME PER DAY (LINE 1 + 365)	2	**.3**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.7**

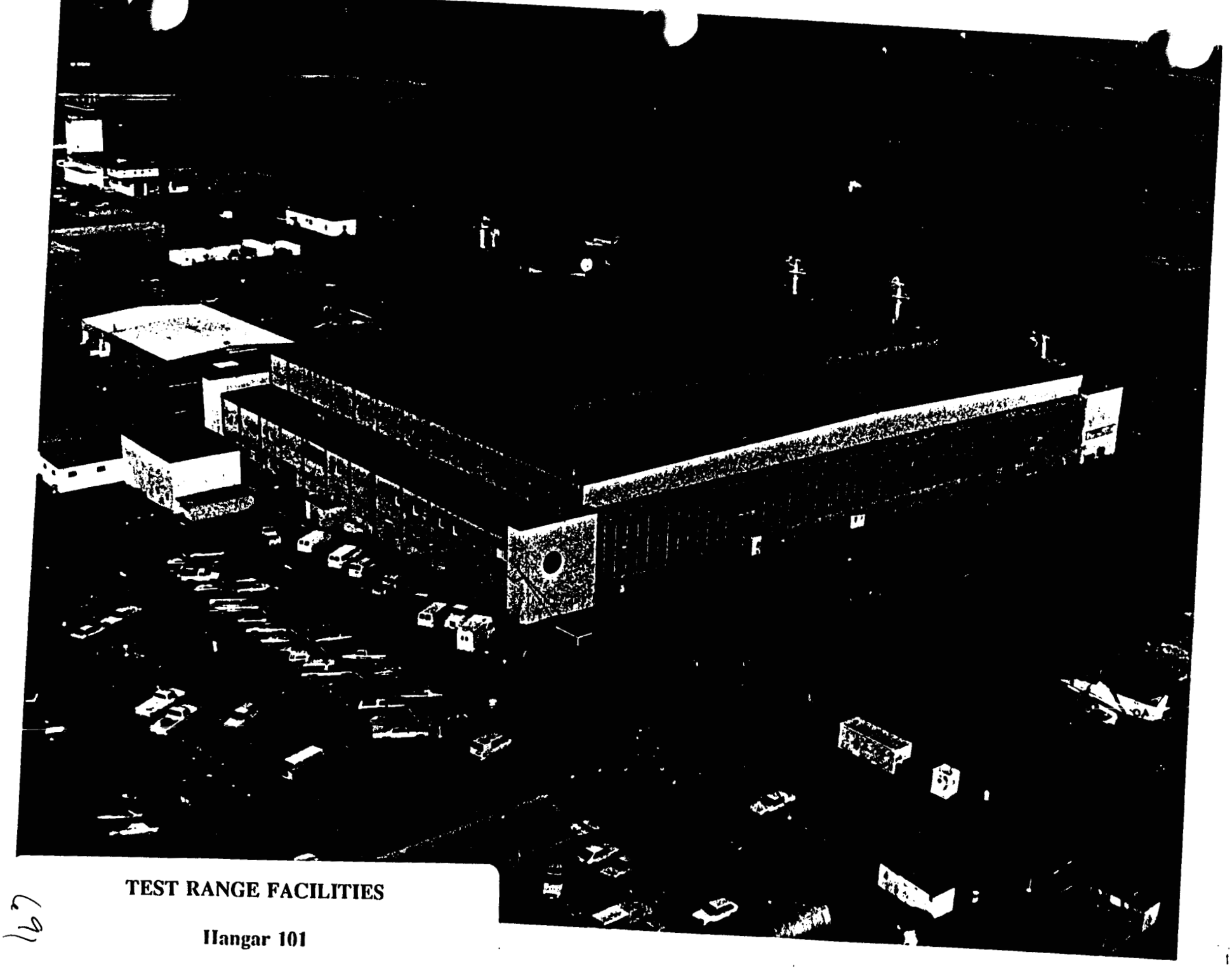
TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Aircraft Instrumentation	**9**	**2**	**18**	**3156.84**
Strain Gage & Structures	**10**	**2**	**20**	ANNUAL UNCONSTRAINED CAPACITY
Calibration & Standards	**2**	**20**	**40**	
Mechanical Fabrication	**5**	**10**	**50**	
Special Flight Test Instrumentation Program	**5.2**	**1**	**5.2**	9
"TYPICAL"				**420,491**
		TOTAL Σ	**133.2**	

689



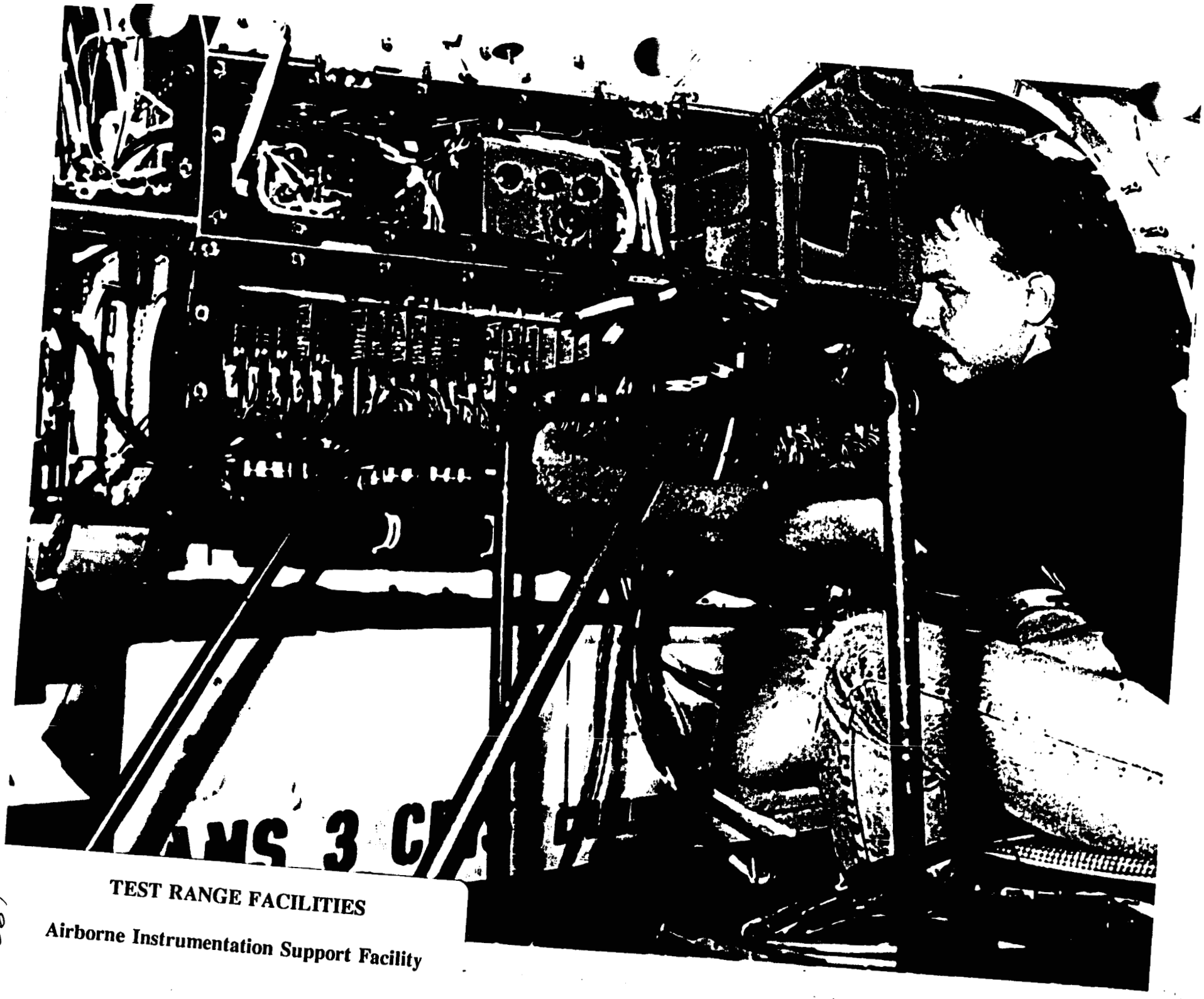
TEST RANGE FACILITIES

Mechanical Design & Fabrication Shop



TEST RANGE FACILITIES

Hangar 101



TEST RANGE FACILITIES

Airborne Instrumentation Support Facility

GENERAL INFORMATION

Facility/Capability Title: **Target Support 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: **OAR**							
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**					**20%**	
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**70%**					**5%**	
Armament/Weapons:	**10%**					**10%**	
EC:							
Other:						**5%**	

Total in Breakout Must Equal "Percentage Use" On First Line

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TECHNICAL INFORMATION

Facility/Capability Title: **Target Support Facility**

Facility Description; Including mission statement:

Resource Capability/Facility Description:

Target Support Facilities provide for maintenance and operation of surface and aerial targets used in DT&E and OT&E of aircraft mission system sensors, data processors, and displays. Aerial targets include two targets, drones, aerostats, and an antiship missile presentation capability for Atlantic Fleet ships utilizing the VANDAL missile and a launch site at NASA Wallops Island, VA. Seaborne targets consist of fixed target arrays, remote-controlled boats and ship hulks. Land targets include manned and remote-controlled ground vehicles and fixed targets located at NAWCAD Patuxent River and Aberdeen Proving Grounds. All targets are tailored for the needs of the particular test project by installion of applicable target augmentation devices including visual enhancement, radar, infrared, or acoustic emitters. Services provided include: weapon scoring, telemetry surveillance, divers for test item recovery, target maintenance and repair, real-time impact scoring, laser designator operations and design and fabrication of targets for special project needs. Deep water port facilities at NAWCAD Patuxent River Solomons Island Annex provide the capability to modify ship hulks with target augmentation devices, command and control, threat signature equipments, and data acquisition instrumentation.

Interconnectivity/Multi-Use of T&E Facility:

Microwave Communications Link to Navy Target Launch Facility at NASA Wallops
Close Proximity to Inactive Ship Depot where Hulks are secured for conversion to targets.

Type of Test Supported:

Aircraft mission system testing, Aircraft/weapon or store compatibility testing, missile test support, live fire test and evaluation support.

Summary of Technical Capabilities:

Technical capabilities include: Range control and surveillance, diving support for test article recovery, real-time weapon impact scoring, remote control land and surface targets, laser designator operations VANDAL target presentation, target ship preparation and operation.

Keywords:

Targets, VANDAL, Target Hulk, SEPTAR, Support Vessel

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PREDECISIONAL INFORMATION

ADDITIONAL INFORMATION

Facility/Capability Title: **Target Support Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	10	11	11	11	11	11	11
Contractor	28	29	30	30	30	30	30
Total	38	40	41	41	41	41	41

Total Square Footage: **16,053**

Test Area Square Footage: **9,792** Office Space Square Footage: **6,261**

Tonnage of Equipment: **900** Volume of Equipment:

Annual Maintenance Cost: **$312.5K** Estimated Moving Cost: **$896K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
200	0	50	200			

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FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Target Support Facility**

AGE: **Multiple Buildings: 6-50 Years**
Equipment: 1-24 Years

REPLACEMENT VALUE: **$11.0M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1984 VANDAL Launch Facility**

NATURE OF LAST UPGRADE: **Established Super-sonic Target Launch 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: **Target Support Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS	2100	2100	2250	2325	2108	2805	2700	1725
	MISSIONS	600	600	675	704	659	812	799	602
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS	706	706	750	775	702	710	684	437
	MISSIONS	200	200	225	235	219	205	197	152
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS						224	216	138
	MISSIONS						65	62	48

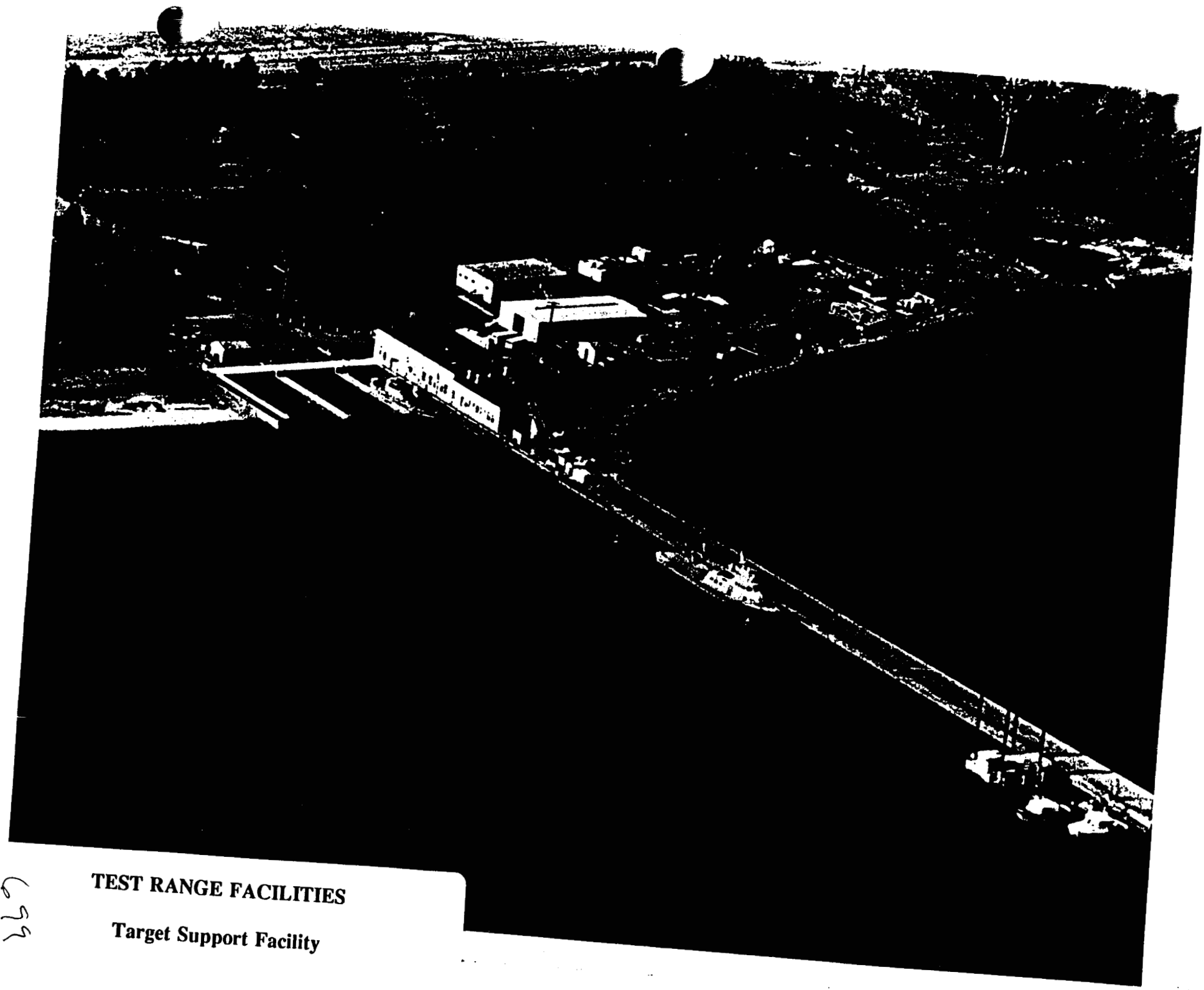
Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Target Support Facility**

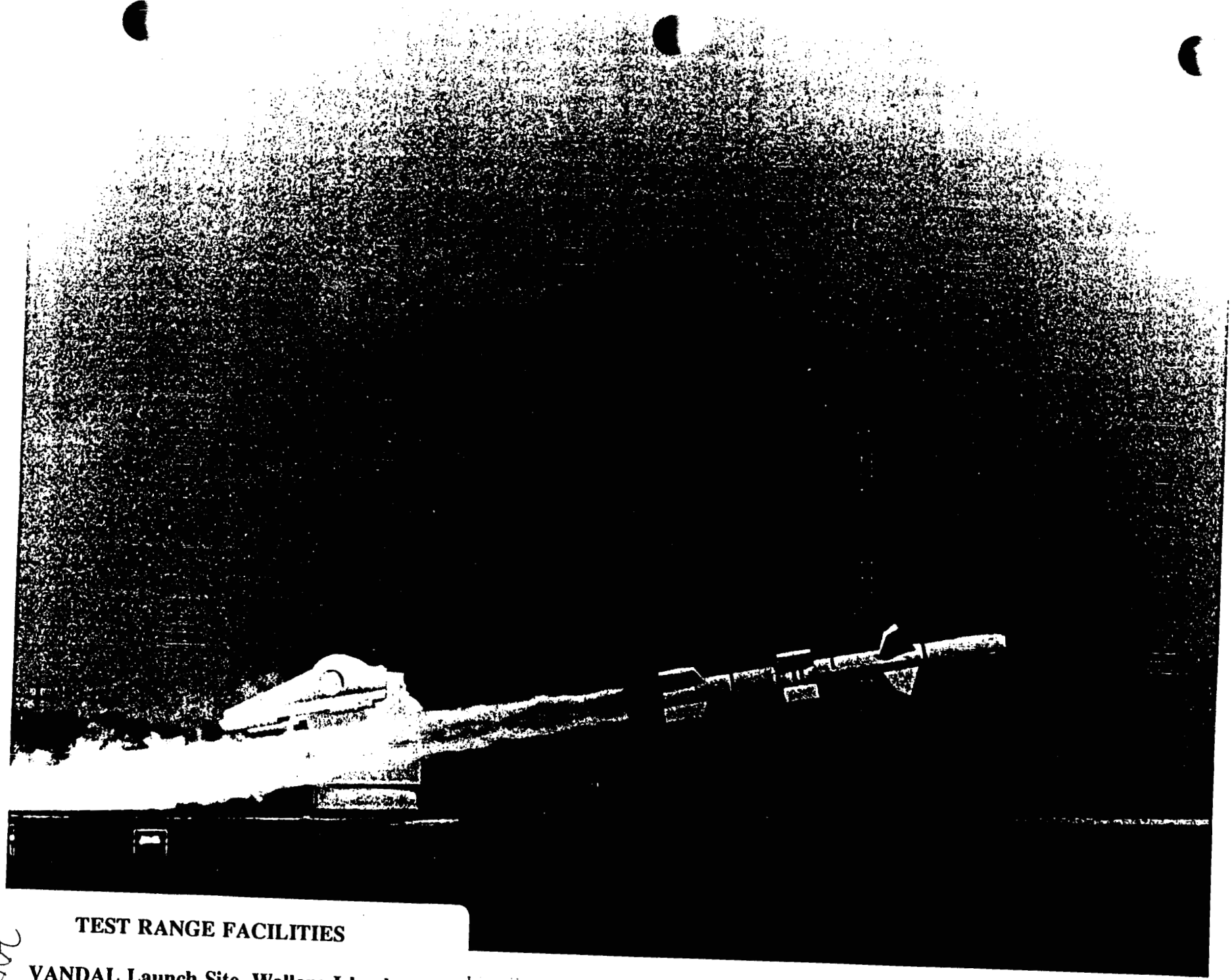
ANNUAL HOURS OF DOWNTIME	1	**1657**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**4.5**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**19.5**

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
Range Clearance	**2**	**1**	**2**	**75.08**
Target Hulk	**1**	**1**	**1**	ANNUAL UNCONSTRAINED CAPACITY
Outer Range Support	**1**	**.25**	**.25**	
Tomahawk Support	**1**	**.1**	**.1**	
Diving Support	**1**	**.5**	**.5**	**9**
"TYPICAL"				**27,404**
		TOTAL Σ	**3.85**	



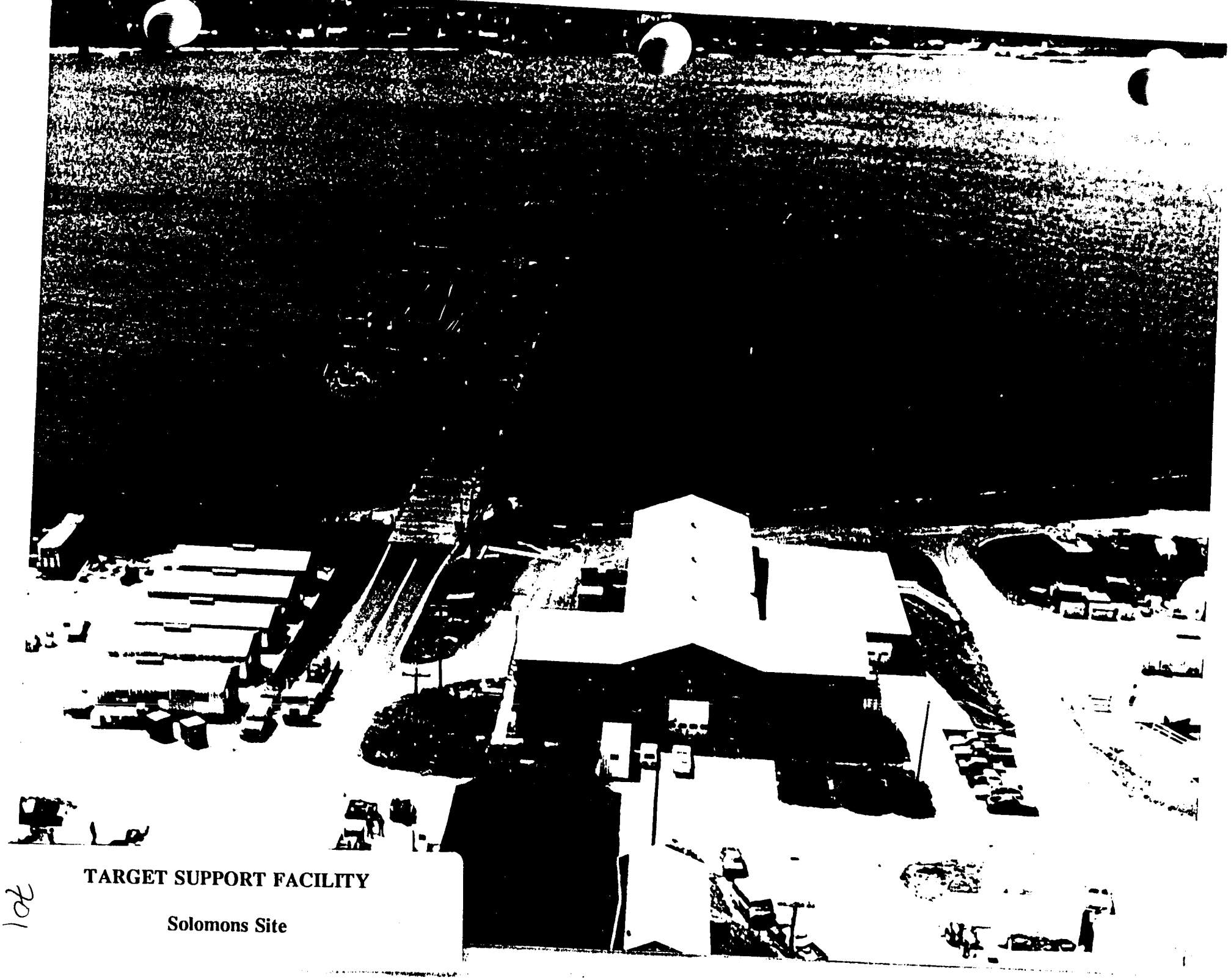
TEST RANGE FACILITIES

Target Support Facility



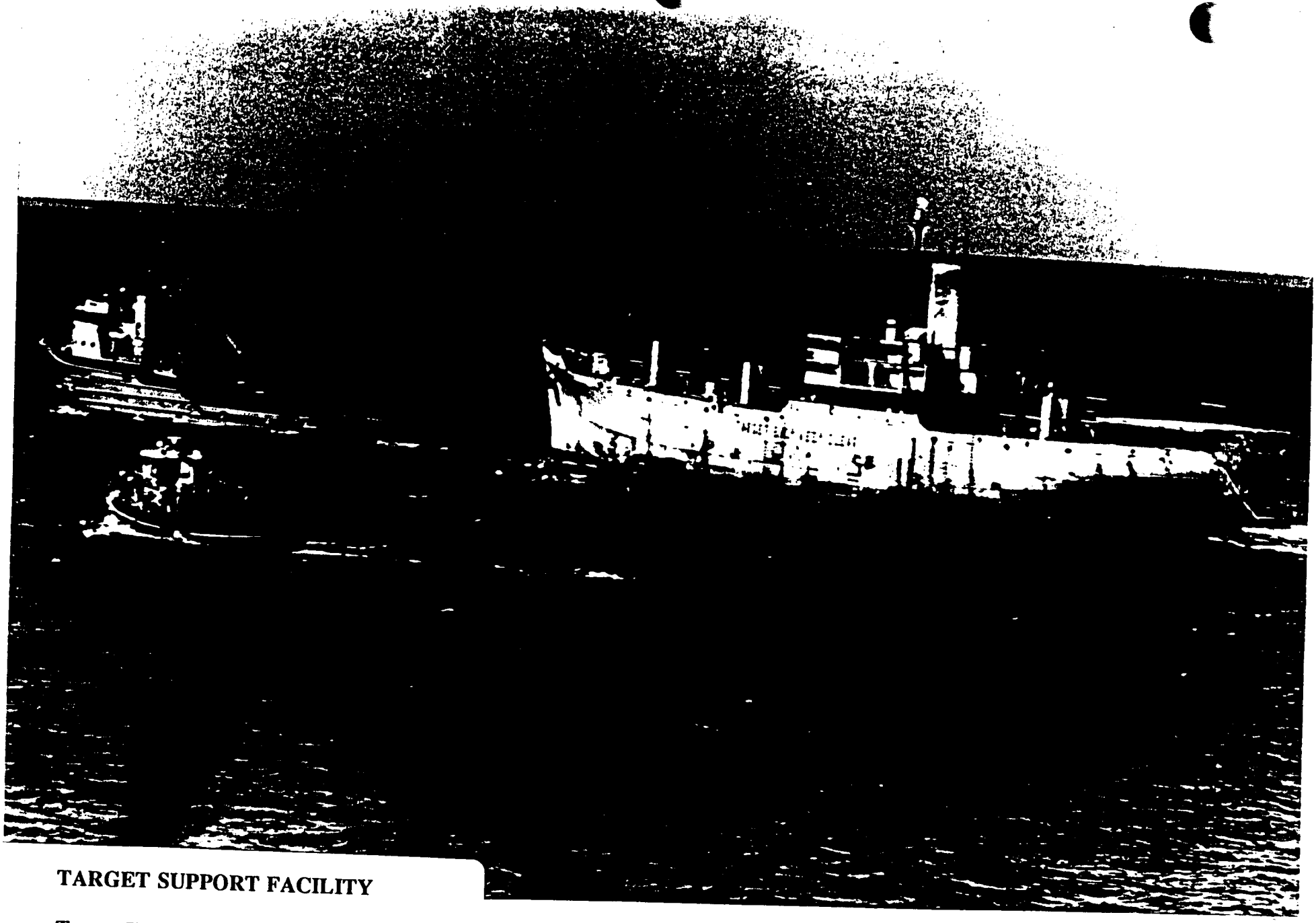
TEST RANGE FACILITIES

VANDAL Launch Site, Wallops Island



TARGET SUPPORT FACILITY

Solomons Site



TARGET SUPPORT FACILITY

Target Hulk Towed Into Position

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

tot

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:

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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

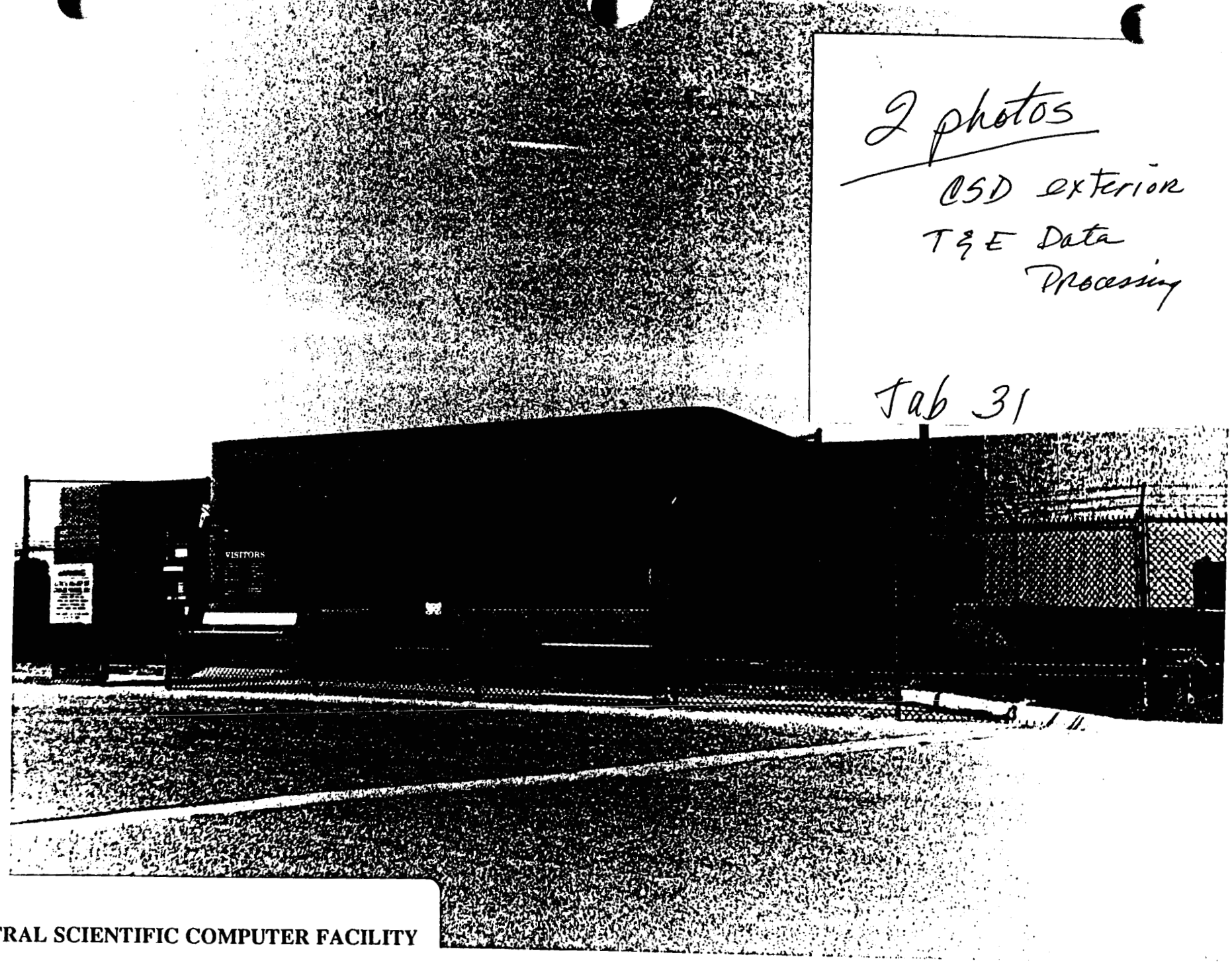
FACILITY/CAPABILITY TITLE: **Test & Evaluation Data Processing (Software & Applications)**

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

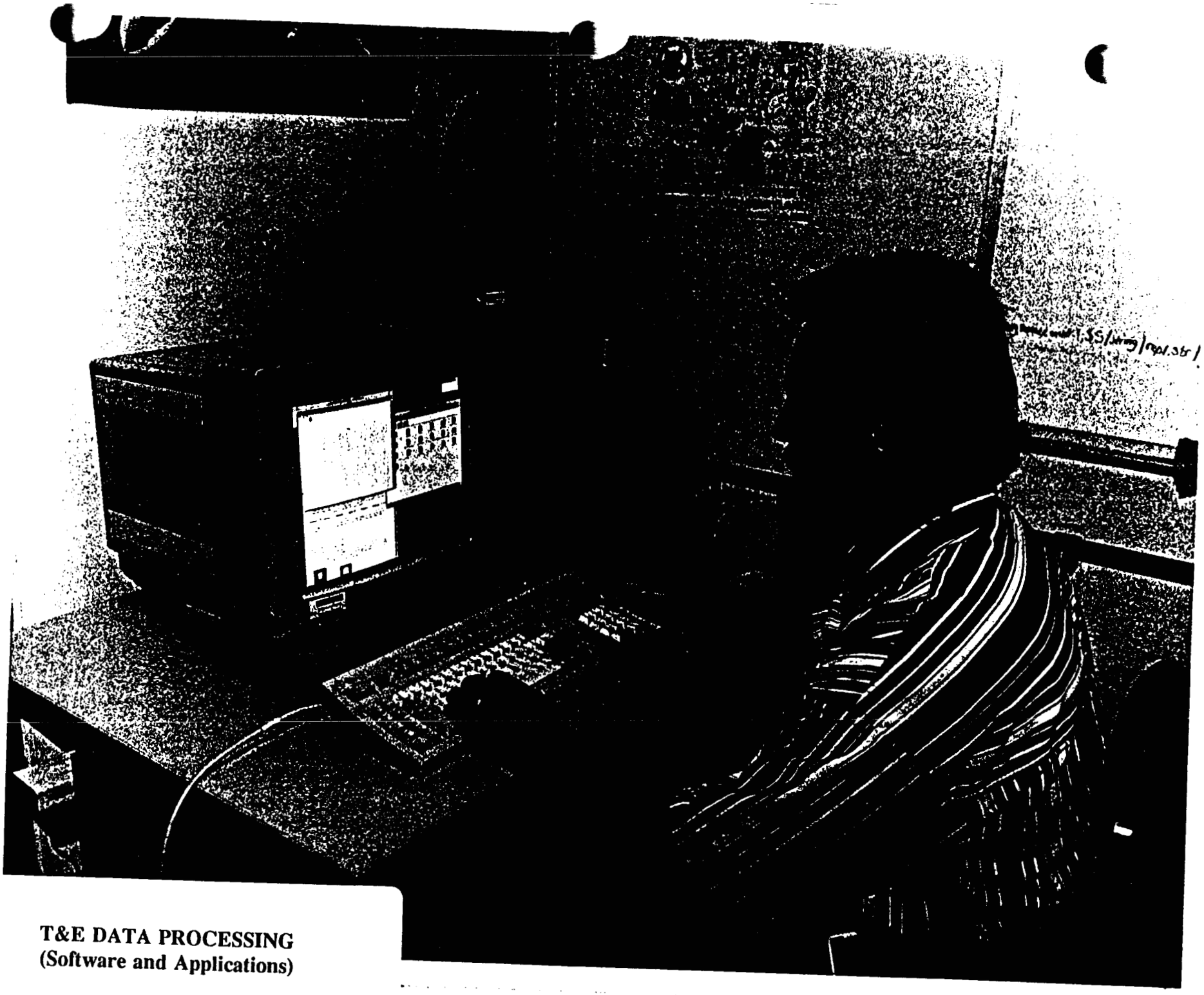
TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Flying Quality and Performance (FQ&P) Test Support	1	2	4	226.58
Carrier Suitability (CVS) Test Support	2	.5	1	ANNUAL UNCONSTRAINED CAPACITY
Avionics 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	

2 photos
CSD exterior
T&E Data
Processing

Tab 31



CENTRAL SCIENTIFIC COMPUTER FACILITY



T&E DATA PROCESSING
(Software and Applications)

GENERAL INFORMATION

Facility/Capability Title: **Test Pilot School** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Other** UIC = **00421**

T&E Test Facility Category: **Test Pilot School**

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: **Test Pilot School**

Facility Description; Including mission statement:

The U.S. Naval Test Pilot School (USNTPS) provides instruction in the areas of aircraft and aircraft systems flight and integrated ground test and evaluation to two classes of experienced pilots, flight officers, and engineers each year. Additionally, USNTPS provides short courses and detailed test technique briefings as requested to outside students in order to satisfy NAWCAD Patuxent River and other test organizations' needs to stay abreast of changes and up dates in aircraft test methods and data analysis techniques. In addition to a traditional fixed wing test pilot curriculum, USNTPS offers a complete mission systems test and evaluation syllabus and the only rotary wing flight testing program in the United States. This unique mix of academic and practical application programs attracts students from all U.S. Military Services, Industry, other U.S. Government agencies, and Foreign nations.

USNTPS maintains a diverse fleet of aircraft to support its mission and expose the student to a wide variety of aircraft characteristics in a controlled learning environment. These aircraft are maintained in hangar space adjacent to the school's 42,000 sq. ft. academic center. The academic center features modern classrooms and student work areas as well as a flight controls lab and mission systems lab. Both of these areas are fully integrated into the three syllabi and fully support USNTPS student training. Additionally, the flight controls lab support parameter identification efforts and development of flight test techniques for advanced aircraft.

USNTPS develops and updates aircraft test, reporting, and data analysis methods and techniques which it publishes in manual form for the aviation community. These manuals are used as the industry standard and provide a common comparison for test data.

The unique mix of USNTPS aircraft assets, engineering talent, and skilled aviators also allows the school to conduct special projects such as T-38 engine performance and T-2 updates.

h14

TECHNICAL INFORMATION

Facility/Capability Title: **Test Pilot School**

Interconnectivity/Multi-Use of T&E Facility:

USNTPS has a long established interconnectivity with CALSPAN, Buffalo, New York for use of their variable stability aircraft for student demonstrations and advanced aircraft flight controls development.

USNTPS has an established degree program with the Naval Postgraduate School (USNPGS), Montery, California in Aerospace Engineering where students are awarded their Masters Degree after completion of one year of study at USNPGS and another year at USNTPS.

USNTPS offers the only helicopter flight testing training in the United States and instructs all service's pilots and engineers in this discipline. USNTPS trains multiple foreign students annually in test pilot techniques and maintains an active liaison with foreign test activities including Cold Lake, Canada and Boscome Down in England.

USNTPS aircraft support actual test and evaluation as well as training when the need arises to support efforts on T-2, TA-4, or other training assets.

USNTPS maintains active interconnectivity with the other NAWCAD Patuxent River facilities including Chesapeake Test Range, the Data Processing Center, and the various Test Directorates to function in an integrated environment.

Type of Test Supported:

The primary mission of USNTPS is to conduct test pilot, test flight officer, and test engineer training for aircraft and aircraft systems flight and ground training. Secondarily, USNTPS develops and promulgates standardized test techniques and methods within the aviation community and conducts specialized testing using its aircraft assets.

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TECHNICAL INFORMATION

Facility/Capability Title: **Test Pilot School**

Summary of Technical Capabilities:

USNTPS maintains a fleet of approximately 40 fixed and rotary wing aircraft to support its training mission. Many of the aircraft are configured with on board instrumentation. The USNTPS staff consists of civilian academic instructors, contract instructors, and military flight instructors to provide a well founded and broad based teaching staff.

USNTPS develops and promulgates standardized test techniques and methods to the aviation flight testing community and conducts training in these new methods as required.

USNTPS conducts all helicopter flight test training in the United States and processes two full classes of students each year.

The USNTPS academic curriculum is recognized by several graduate schools with USNPGS, Florida Institute of Technology, and University of Tennessee Space Institute Awarding 12, 9, and 21 graduate credits, respectively, for completion of USNTPS.

Keywords:

Flight Test Techniques, Test Methods, Test Pilots, Academics

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ADDITIONAL INFORMATION

Facility/Capability Title: **Test Pilot School**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	24	24	24	24	24	24	24
Enlisted	13	13	13	13	13	13	13
Civilian	34	34	33	33	33	33	33
Contractor	193	193	194	194	194	194	194
Total	264	264	264	264	264	264	264

Total Square Footage: **131,209**

A/C Hangar/Shop Square Footage: **89,209 (1)**

Office Space Square Footage: **42,000**

Tonnage of Equipment: **480.3 (2)**

Volume of Equipment:

Annual Maintenance Cost: **$217.6K (3)**

Estimated Moving Cost: **$7,813K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99

Notes:
(1) Excludes ramp space for 38 aircraft.
(2) Excludes aircraft and IMRL test equipment/tools inventory.
(3) Excludes aircraft maintenance.

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FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Test Pilot School - Academic Building (2168)**

AGE: **1 year** REPLACEMENT VALUE: **$6.0M**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **None**

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 CONDITION

FACILITY/CAPABILITY TITLE: **Test Pilot School - Hangar 110**

AGE: **Approx. 50 year** REPLACEMENT VALUE:

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1993**

NATURE OF LAST UPGRADE: **Roof Repair**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

4/7

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Test Pilot School**

		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	**350064**	**350064**	**350064**	**350064**	**350064**	**350064**	**348296**	**348296**
	TEST HOURS *								
	MISSIONS								

*** Equates to Flight Hours**
Note - Includes civilian, military, and contractor direct labor hours.

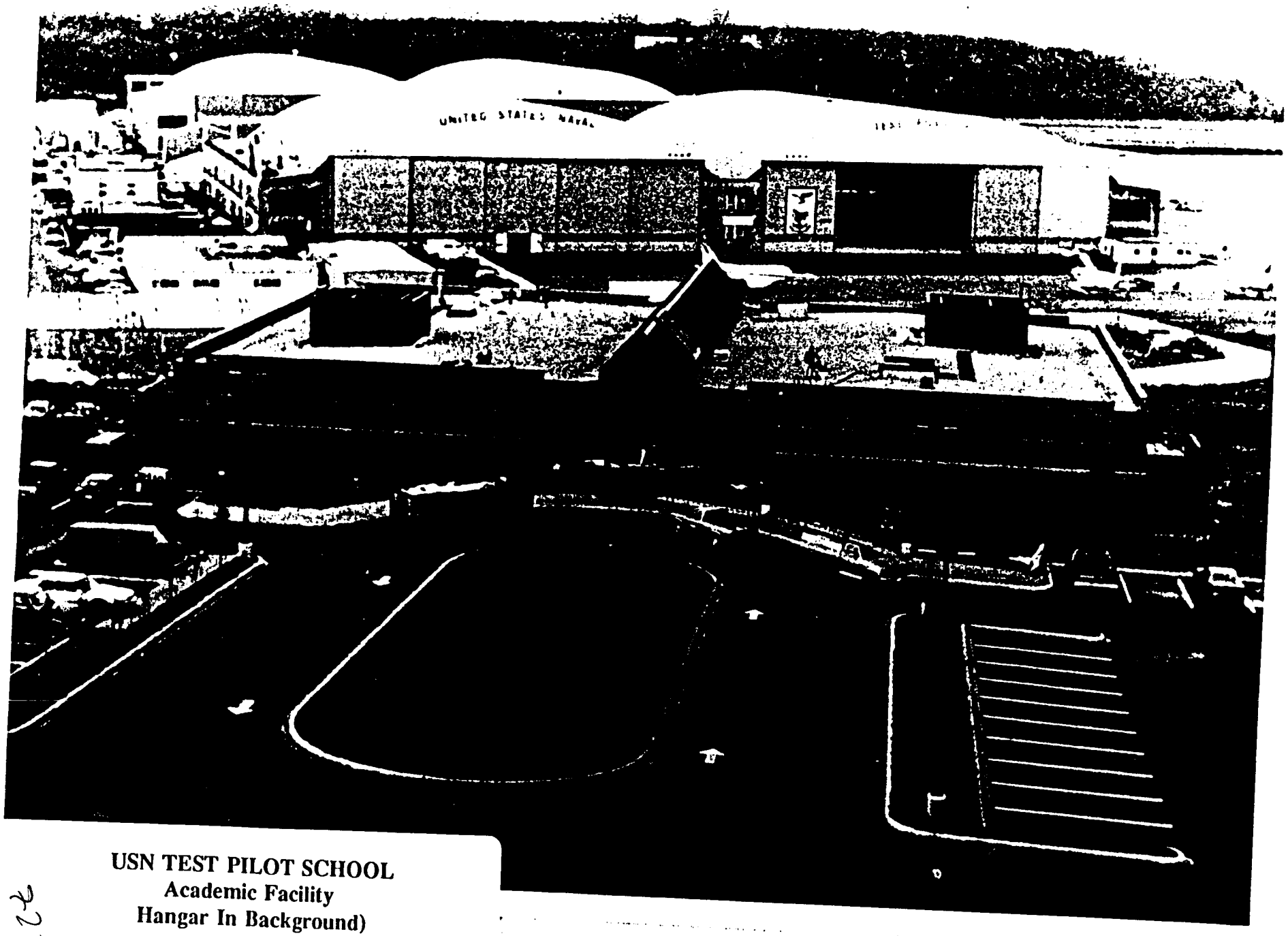
DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Test Pilot School**

ANNUAL HOURS OF DOWNTIME	1
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3

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
				ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				
		TOTAL Σ		

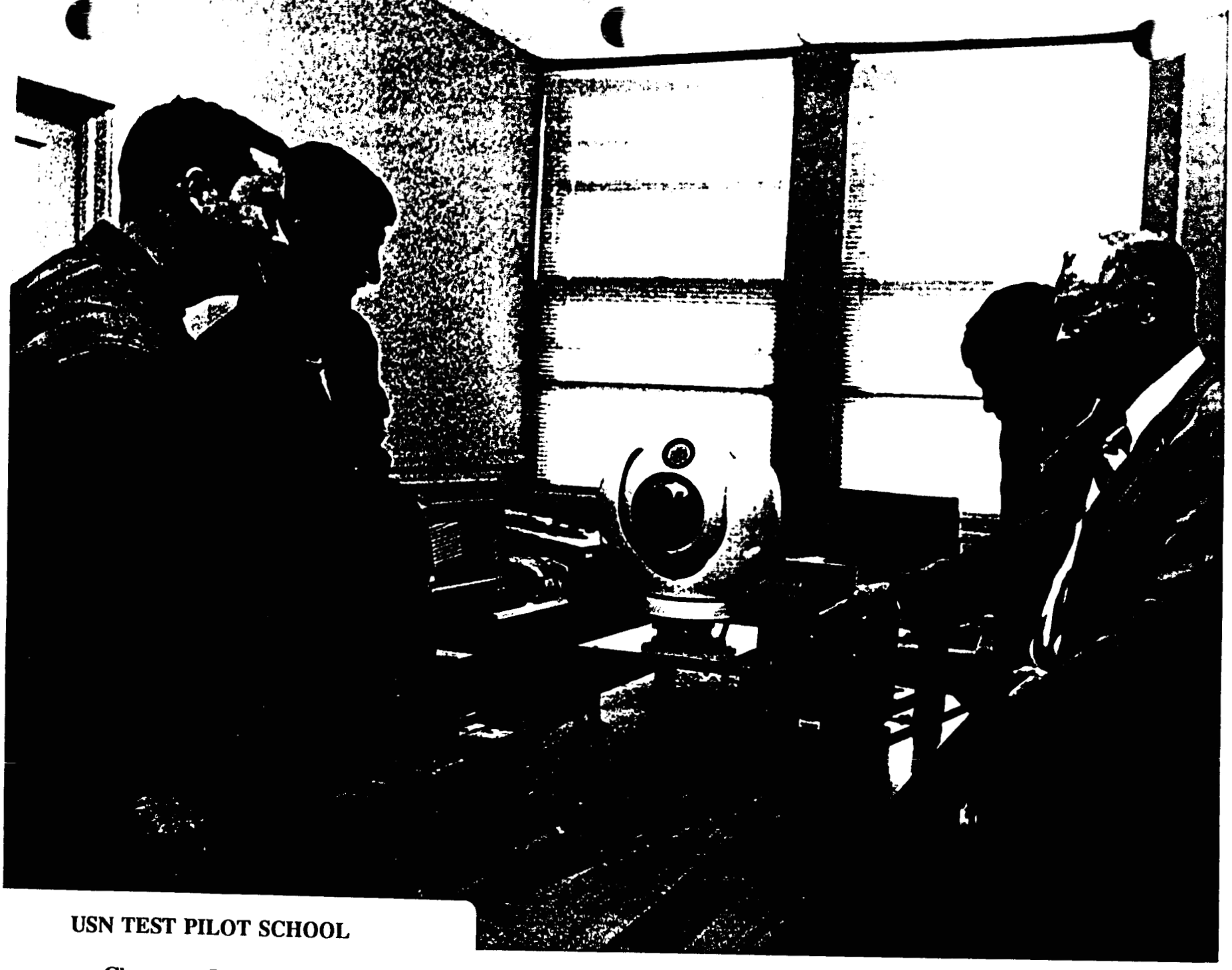
* - **Not Applicable**



USN TEST PILOT SCHOOL
Academic Facility
Hangar In Background)

USN TEST PILOT SCHOOL

Hangar And Aircraft



USN TEST PILOT SCHOOL

Classroom Laboratory

GENERAL INFORMATION

Facility/Capability Title: **Air Operations**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **N00421**

T&E Test Facility Category **Mission Support**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles	
Armanent/Weapons	
EC	
Other:	**100%**

Total in Breakout Must Equal "Percentage Use" On First Line

* **This facility is funded by overhead dollars**

TECHNICAL INFORMATION

Facility/Capability Title: **Air Operations**

Facility Description; Including mission statement: **Mission is to operate a fully functioning airfield, including all air traffic control for the surrounding air space and restricted areas.**
Interconnectivity/Mulit-Use of T&E Facility: **Supports FAA Air Traffic operating in the NAWCAD Patuxent River airspace. Supports local Search and Rescue Operations in the Chesapeake Bay as needed during emergency conditions. Provides backup fire fighting capability for local area fire departments.**
Type of Test Supported: **Operates airfield and seadrome for all types of aircraft. Operates air terminal facilities. Responsible for air traffic control of aircraft moving in assigned control areas. Provides Search and Rescue (SAR) helicopters and surface craft for air-sea rescue. Provides services to support operation of station and transient aircraft. Provides aircraft crash and structural firefighting personnel, equipment and operations. Provides repair and maintenance of ground electronics equipment aboard station. Provides explosive handling and storage and small arms facilities.**
Summary of Technical Capabilities: **Air Traffic Control, Search and Rescue, Fire Fighting, Weapons handling and storage.**
Keywords: **Air Operations Department, Air Traffic Control, Search and Rescue, Fire Fighting, Weapons Storage**

ADDITIONAL INFORMATION

Facility/Capability Title: **Air Operations**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	14	14	13	13	13	13	13
Enlisted	215	215	180	180	180	180	180
Civilian	100	100	30	30	30	30	30
Contractor	4	4	4	4	4	4	4
Total	333	333	227	227	227	227	227

Total Square Footage: **131,096**

Test Area Square Footage: **96,090** Office Space Square Footage: **35,000**

Tonnage of Equipment: **500** Volume of Equipment: **100,00 cu ft**

Annual Maintenance Cost: **$400K** Estimated Moving Cost:

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99

FACILITY CONDITION

Facility/Capability Title: **Air Operations**

AGE: **Unknown** REPLACEMENT VALUE: **Unknown**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **March 1994**

NATURE OF LAST UPGRADE: **Completed 2 yr project to resurface two main runways.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Runway 2/20 Resurfacing, Scheduled FY94**

   TOTAL PROGRAMMED AMOUNT: **$2.6M**
   SUMMARY DESCRIPTION: **Asphalt overlay of concrete runway**

2. UPGRADE TITLE: **Taxiway Lighting Replacement, Scheduled FY94**

   TOTAL PROGRAMMED AMOUNT: **$2.0M**
   SUMMARY DESCRIPTION: **Phased replacement of old Taxiway Lighting System**

HISTORICAL WORKLOAD

Facility/Capability Title: **Air Operations**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	MISSION SUPPORT LABOR	*	*	710326	751114	721632	744463	709605	651040
	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								
	OVERHEAD W/Y'S								

* Not available
Note - Includes civilian, military, and contractor direct labor hours.

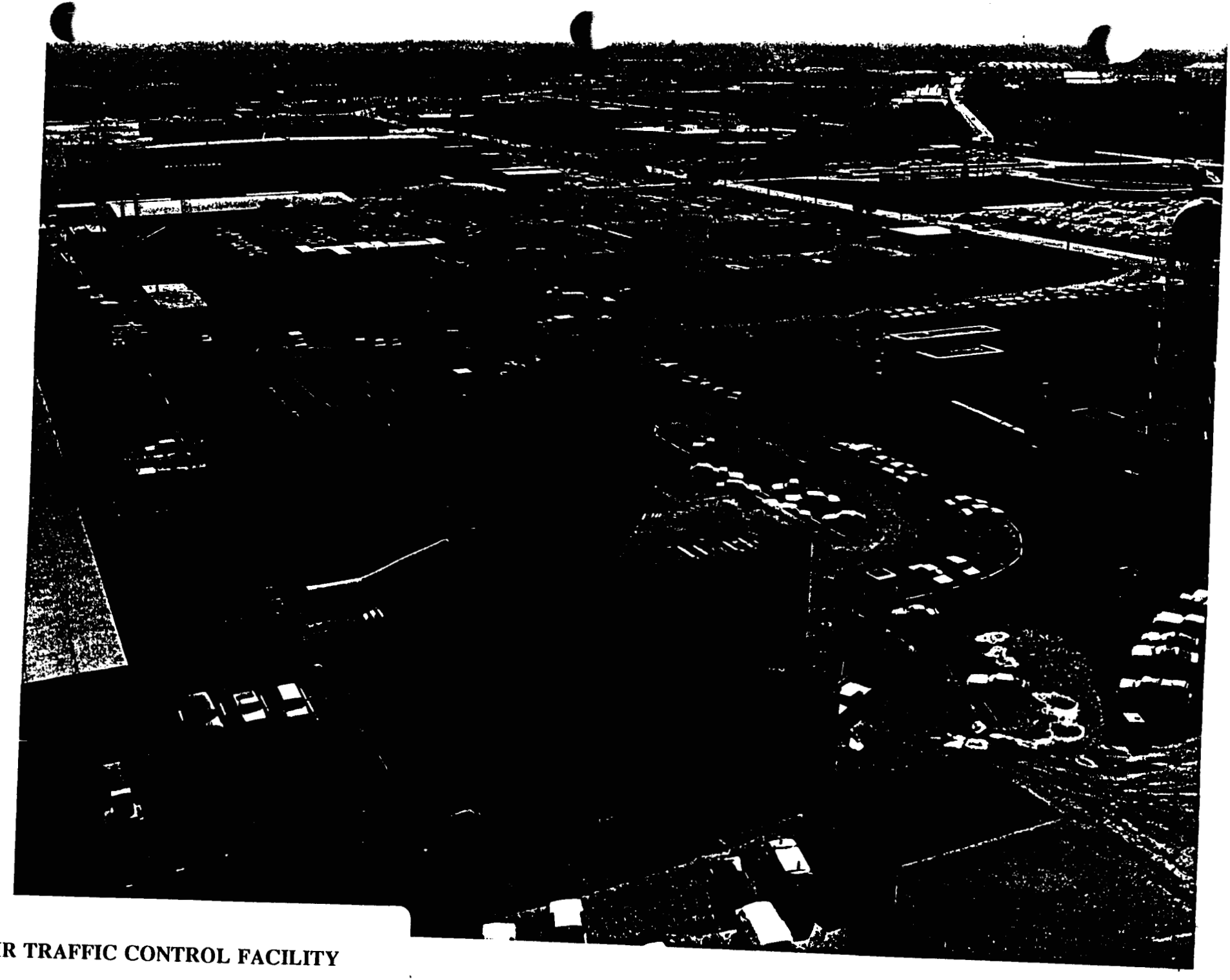
DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: **Air Operations**

ANNUAL HOURS OF DOWNTIME	1
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3

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
				ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				
			TOTAL Σ	

Not Applicable



AIR TRAFFIC CONTROL FACILITY

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Intermediate Maintenance Department** 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: **Mission Support**

	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

732

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Intermediate Maintenance Department**

Facility Description; Including mission statement: **Performs intermediate level maintenance on the aircraft, aeronautical equipment, aviation support equipment, and armament handling equipment located at NAWCAD Patuxent River per OPNAVINST 4790.2 series.**
Interconnectivity/Multi-Use of T&E Facility: **AIMD supports all aircraft located at NAWCAD, Patuxent River.**
Type of Test Supported: **For all type/model and series aircraft onboard: avionics, electrical, and instrumentation testing and repair; support equipment support and repair; engine testing and repair; airframes and structures repair and manufacturing; aviation life support systems repair and testing; production control support; and ordnance repair and testing.**
Summary of Technical Capabilities: **First, second & third degree repair on gas turbine engines. Performs check, test and repair functions on removed airframes and hydraulic system components; electronics and electrical system components; fabricates minor aircraft and support equipment. Performs intermediate level maintenance on escape systems, environmental systems, fire extinguishing systems and survival and life support items. Performs maintenance, inspections and repairs on support equipment.**
Keywords: **Maintenance, Support Equipment**

ADDITIONAL INFORMATION

Facility/Capability Title: **Aircraft Intermediate Maintenance Department**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	6	6	7	7	7	7	7
Enlisted	282	282	252	252	252	252	252
Civilian	55	48	48	48	48	48	48
Contractor	35	37	70	70	70	70	70
Total	378	373	377	377	377	377	377

Total Square Footage: **196,774**

Test Area Square Footage: **196,774** Office Space Square Footage:

Tonnage of Equipment: **1,075** Volume of Equipment:

Annual Maintenance Cost: **$200K** Estimated Moving Cost: **$1,071K**

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99

Footnote: FY95 and 96 indicated 8 pr billets and 22 as billets to be cut. An increase of 30 contractor billets are anticipated. Included is 1 additional officer billet.

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Aircraft Intermediate Maintenance Department**

AGE: **Multiple Buildings - 4-31 Years** REPLACEMENT VALUE: **$36.4M**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **None**

NATURE OF LAST UPGRADE:

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 Intermediate Maintenance Department**

		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	**668304**	**668304**	**668304**	**668304**	**668304**	**668304**	**668304**	**668304**
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Aircraft Intermediate Maintenance Department**

ANNUAL HOURS OF DOWNTIME	1	**720**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**1.97**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**22.03**

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
Engine Test	**7**	**21**	**147**	**25896.265**
Avionics Test	**23**	**34.5**	**793.5**	ANNUAL UNCONSTRAINED CAPACITY
Instrument Tests	**12**	**18.0**	**216**	
ALSS Gear	**8**	**8**	**16**	
STS (HYD) Bench	**1**	**3**	**3**	9
"TYPICAL"				**9452136.7**
		TOTAL Σ	**1175.5**	

AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT

GENERAL INFORMATION

Facility/Capability Title: **Test & Evaluation Hangar Space** 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: **Mission Support**

	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

46

TECHNICAL INFORMATION

Facility/Capability Title: **Test and Evaluation Hangar Space**

Facility Description; Including mission statement: **NAWCAD Patuxent River maintains and operates approximately 130 project test aircraft including 42 aircraft assigned to the U. S. Naval Test Pilot School. The present aircraft inventory is comprised of 40 types (Fighter, Attack, Electronic Warfare, ASW, Trainer, Strategic Communications, etc.). The inventory consists of 30 models and 37 series of fixed and rotary wing aircraft which covers almost all aircraft currently in operational USN and USMC Air Wings. Most aircraft are instrumented for air vehicle and/or mission system evaluations. Specially configured aircraft are obtained from fleet units on a temporary basis for specific test requirements. Eleven large hangars provide over 1.2 million square feet of hangar space and associated shop areas for maintenance and instrumentation activities. The hangars provide required environmental protection and condition for all aircraft and subsystem work.**
Interconnectivity/Multi-Use of T&E Facility: **The proximity of individual hangars to T&E laboratories and office spaces promotes synergistic operations by technical and aircraft maintenance/operations personnel.**
Type of Test Supported: **Aircraft and Aircraft System Flight and Ground Tests.**
Summary of Technical Capabilities: **1.2 Million square foot of hangar space and shop areas.**
Keywords: **Hangars**

ADDITIONAL INFORMATION

Facility/Capability Title: **Test and Evaluation Hangar Space**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian							
Contractor							
Total							

Note: Personnel is reflected in other capabilities.

Total Square Footage: ***762,986**

Test Area Square Footage: **762,986** Office Space Square Footage: **0**

Tonnage of Equipment: ***** Volume of Equipment:

Annual Maintenance Cost: Estimated Moving Cost:

*** Reflects hangar square footage not accounted for in other facilities/capabilities.**

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Test and Evaluation Hangar Space**

AGE: REPLACEMENT VALUE: $112,428,000 (total value of all hangars used to house aircraft) **R**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE:

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

742A

NAWCHQ Change
ams NAWC-2
9/19/94

TAB35
R(9-15-94)

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Test and Evaluation Hangar Space**

AGE: REPLACEMENT VALUE:

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE:

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Test and Evaluation Hangar Space**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	FLIGHT HOURS		**12265**	**12575**	**14360**	**13850**	**13300**	**12890**	**12066**
	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.

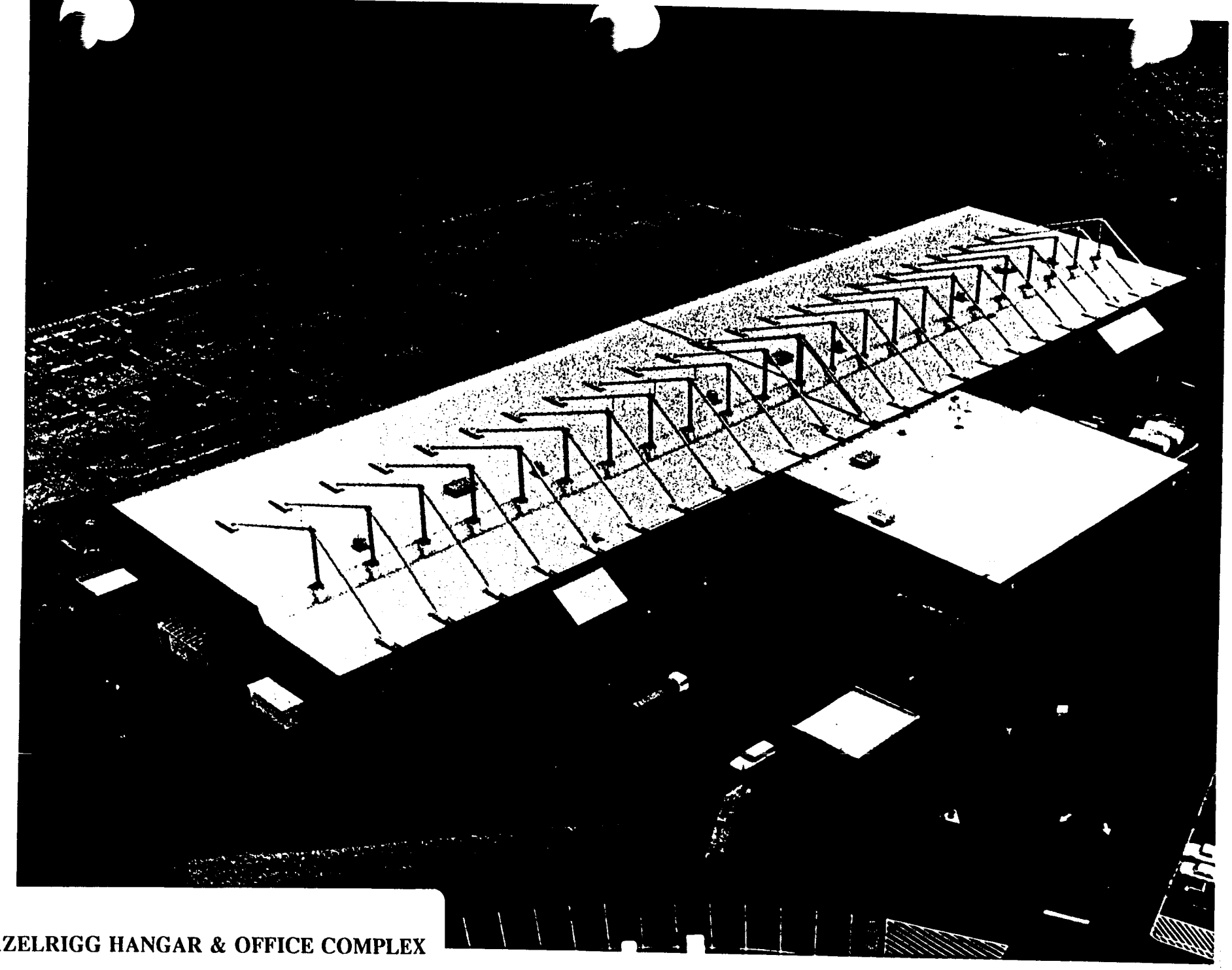
DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Test and Evaluation Hangar Space**

ANNUAL HOURS OF DOWNTIME	1
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3

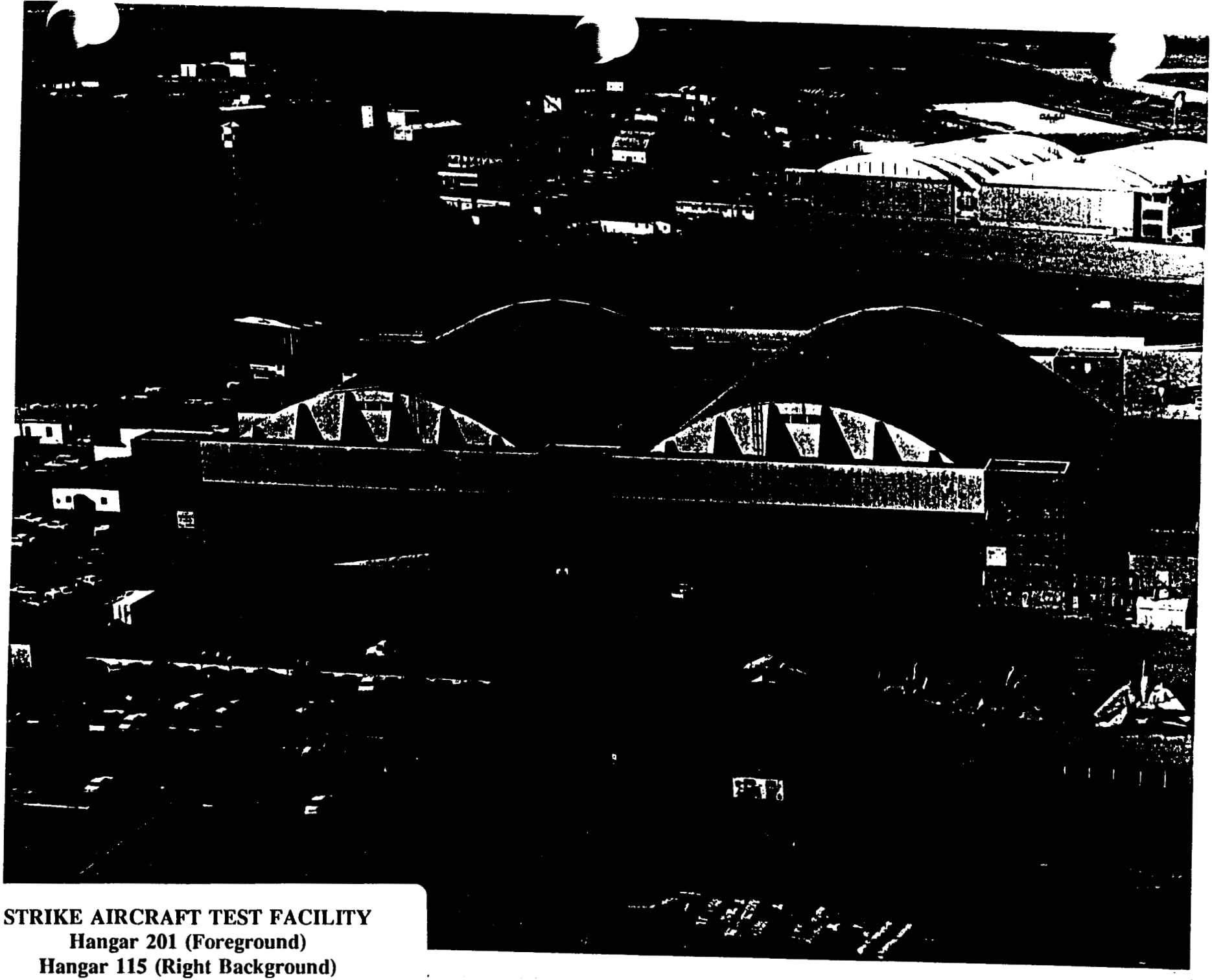
TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
				ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				
		TOTAL Σ		

Note: Not applicable to this facility.

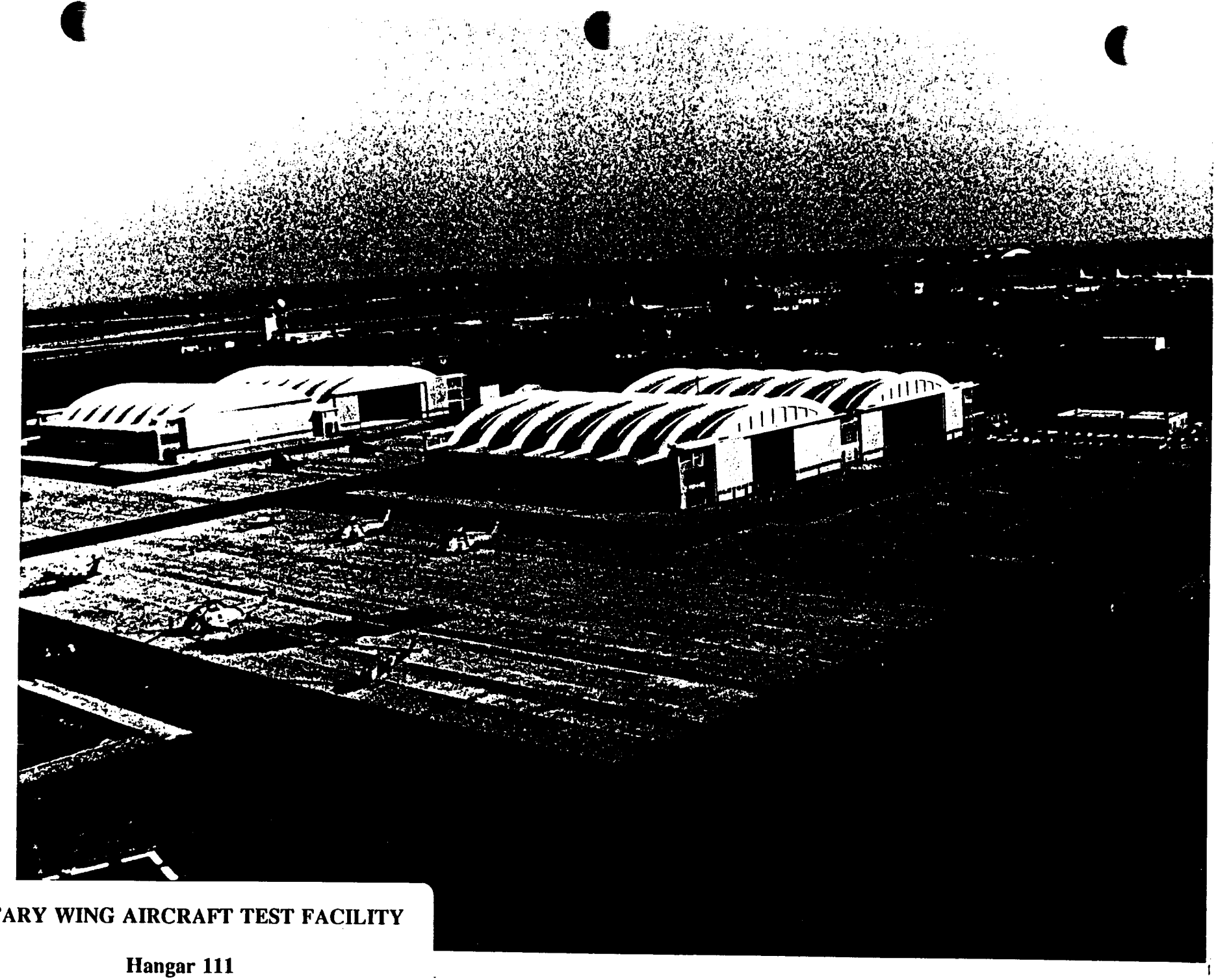


HAZELRIGG HANGAR & OFFICE COMPLEX

245

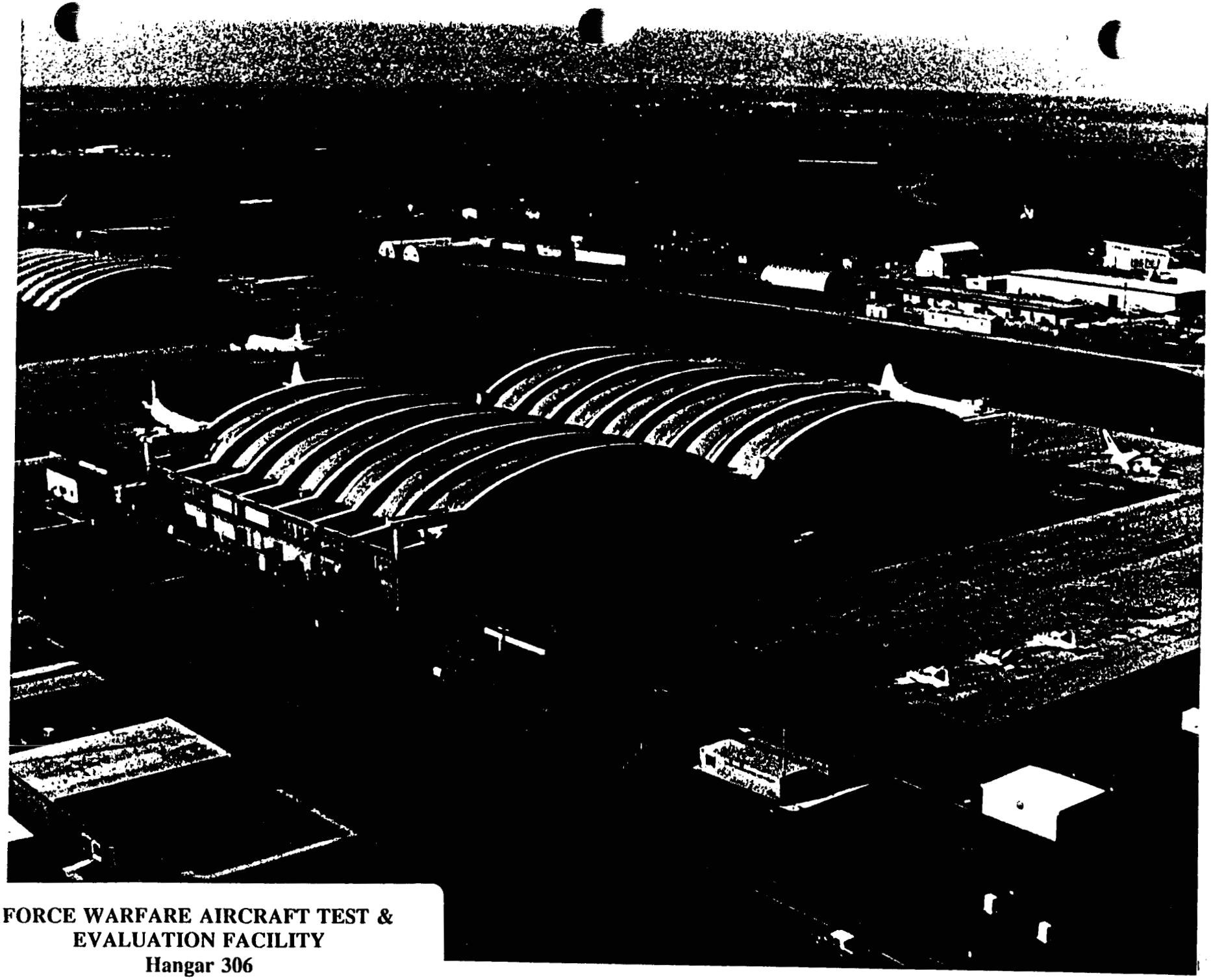


STRIKE AIRCRAFT TEST FACILITY
Hangar 201 (Foreground)
Hangar 115 (Right Background)

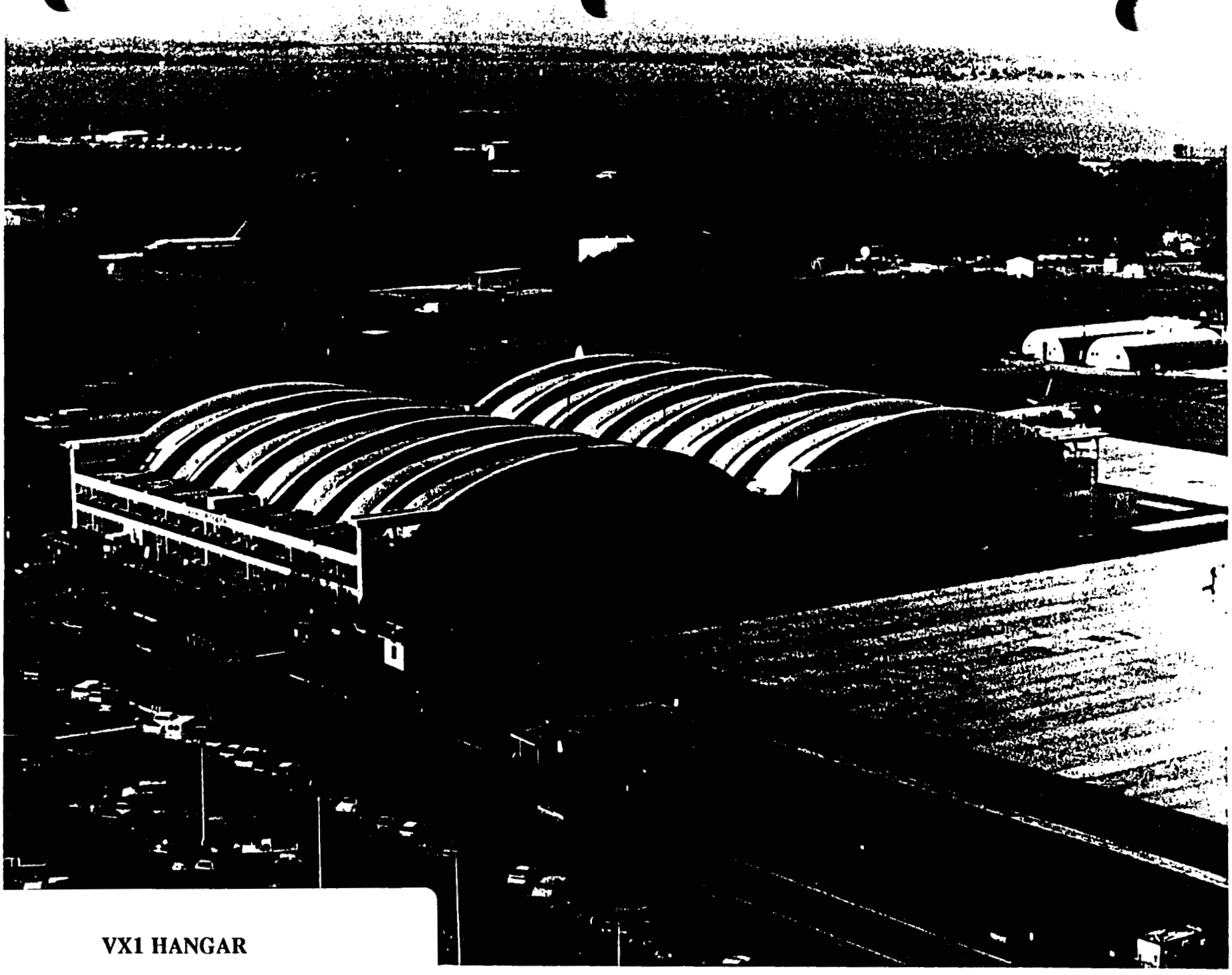


ROTARY WING AIRCRAFT TEST FACILITY

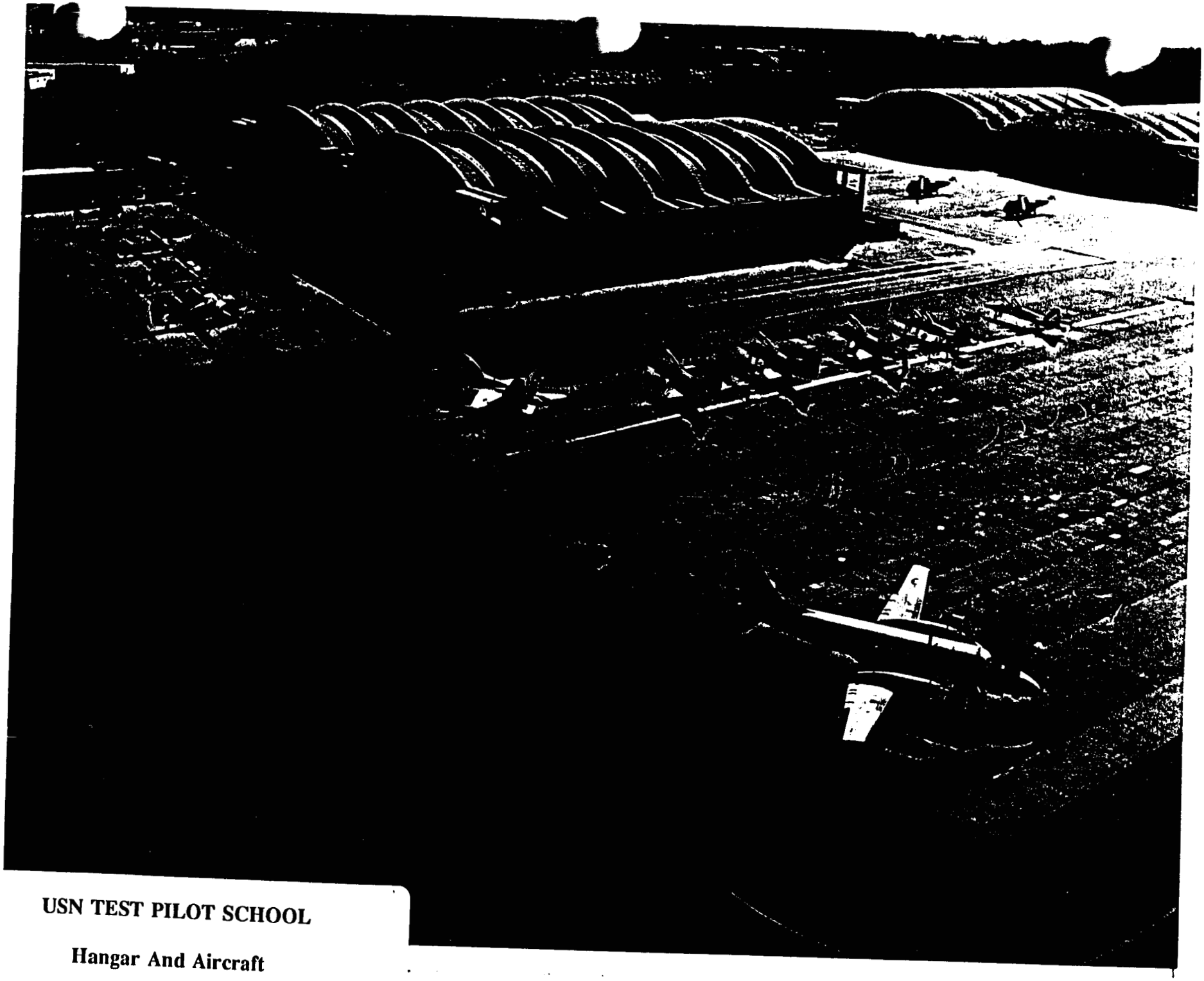
Hangar 111



FORCE WARFARE AIRCRAFT TEST & EVALUATION FACILITY
Hangar 306



VX1 HANGAR



USN TEST PILOT SCHOOL

Hangar And Aircraft

GENERAL INFORMATION

Facility/Capability Title: **Engineering Offices/Shops** 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: **Mission Support**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	55%	1%	22%	15%	7%		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	39%	.70%	15.4%	10.5%	4.9%		
Armament/Weapons:							
EC:	4%	.08%	1.8%	1.2%	.6%		
Other:	12%	.22%	4.8%	3.3%	1.5%		

Total in Breakout Must Equal "Percentage Use" On First Line

1st

TECHNICAL INFORMATION

Facility/Capability Title: **Engineering Offices/Shops**

Facility Description; Including mission statement:

NAWCAD is the Navy's principal air platform flight test and evaluation activity providing active test and evaluation participation in all phases of the aircraft system's life cycle process including support of technology demonstration and validation; engineering and manufacturing development (EMD); production and deployment, fleet operations and fleet in-service engineering. Facilities and capabilities include provision of a principal site for development test and evaluation during EMD and providing range facilities, flight and ground test support, technical and engineering support, and base support for Navy users and other DOD and government agencies. Engineering office and shop support Facilities provide general purpose facilities for engineering, technical documentation, data processing, equipment maintenance and operations, and miscellaneous technical support. Facilities include general office space capable of supporting technical personnel and their collateral equipment as well as integral shop spaces accommodating specific functions.

Interconnectivity/Multi-Use of T&E Facility:

These offices/shops are linked internally and externally via local area networks, high-speed broadband coax, fiber optics, 7.1 and 56KB data links, NAVNET links, Defense Research and Engineering Network, Defense Simulation Internet and others. Video teleconferencing facilities, fiber optic links, microwave links, high-speed data transfer and network interconnectivity provide maximum capability and flexibility for technical personnel to process data and to communicate all forms of information to internal and external customers.

Type of Test Supported:

All ground and flight test related to aircraft RDT&E and associated acquisition support.

Summary of Technical Capabilities:

Patuxent River Information Computing Environment (PRICE)
Desktop Computing Resources
Fiber Optic Backbone
High-capacity Telephone System
Aircraft Weight and Balance Facility

Keywords:
Engineering Offices, Shops

252

ADDITIONAL INFORMATION

Facility/Capability Title: **Engineering Offices/Shops**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	100	106	105	109	107	107	107
Enlisted	494	490	494	454	453	454	454
Civilian	759	727	628	582	550	587	597
Contractor	1449	1711	1601	1395	1310	1350	1322
Total	2802	3034	2828	2540	2420	2498	2480

Total Square Footage: **401,989**

Test Area Square Footage: **281,947**

Office Space Square Footage: **120,042**

Tonnage of Equipment: **3,317,713**

Volume of Equipment: **Not Available**

Annual Maintenance Cost: **$23,997K**

Estimated Moving Cost: **$1,652k**

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Engineering Offices/Shops**

AGE: * REPLACEMENT VALUE: **$53.8M (Building Only)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE:

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

* **This capability encompasses over 186 facilities ranging from 1-50 years in age.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Engineering Offices/Shops**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	*	*	3058606	3441895	3596375	3893574	3853140	4200729
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR			349555	393359	411014	444980	440359	480312
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR			0	0	0	0	0	0
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR			961276	1081738	1130289	1223695	1210987	1320858
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Engineering Offices/Shops**

ANNUAL HOURS OF DOWNTIME	1
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3

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
				ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				
		TOTAL Σ		

* **Not Applicable to this capability.**

DATA CALL 13 CHANGE 1
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

BARTON D. STRONG
NAME (Please type or print)

Barton D. Strong
Signature

COMMANDER
Title

29 August 1994
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

*NAVAIR did not provide data for inclusion in this package.

DATA CALL 13 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)

WILLIAM E. NEWMAN
NAME (Please type or print)

W E Newman
Signature

COMMANDER
Title

8/31/94
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

2 Sep 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

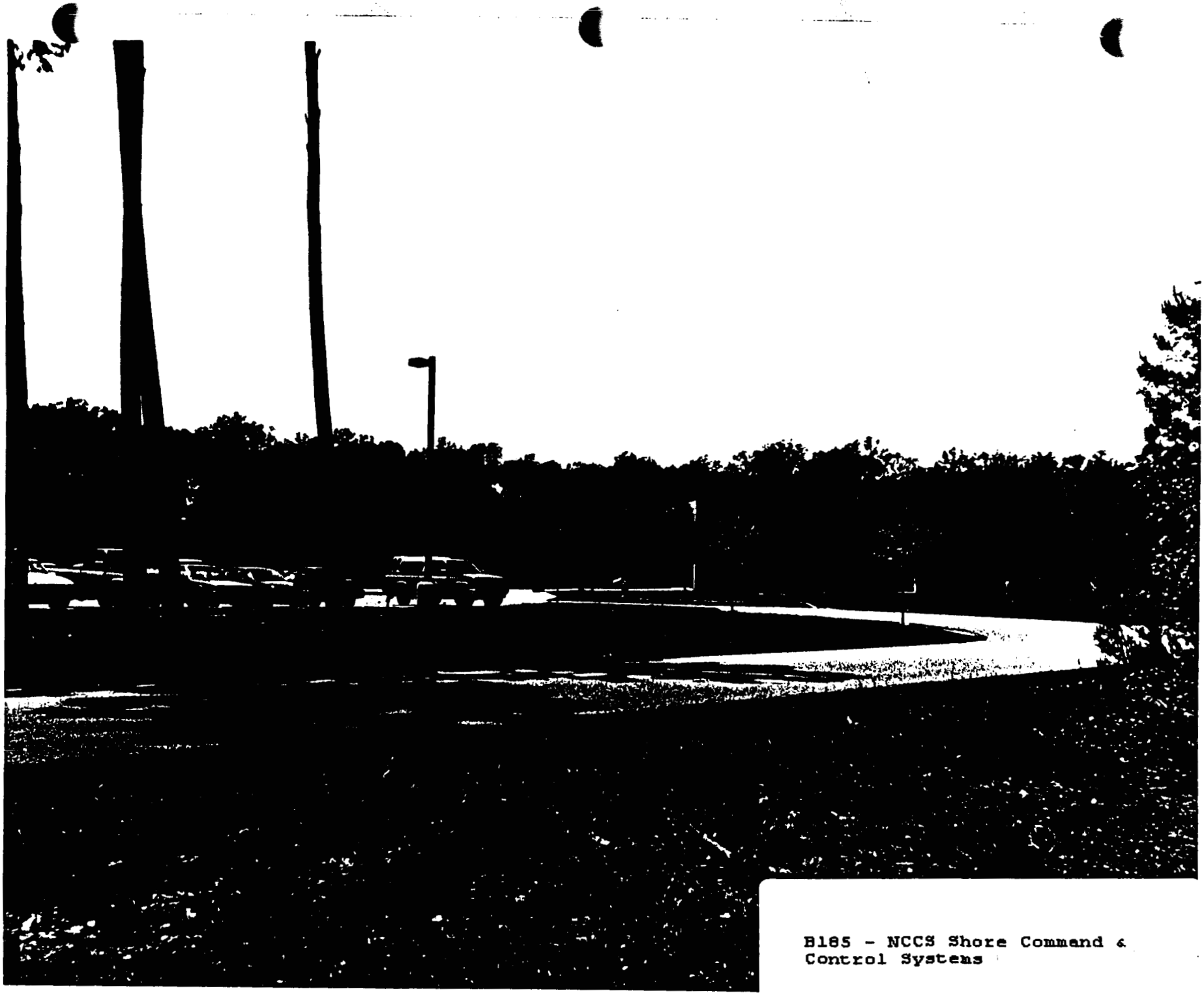
Title

9/6/94
Date

TECHNICAL INFORMATION

Facility/Capability Title: **NCCS Shore Command & Control Systems**

Facility Description; Including mission statement: **This facility provides administration and integrated laboratory space for Systems Analysis and Life Cycle Support of Navy Command & Control Systems. The associated antenna systems provide operational test support for fleet aircraft operating out of NAS Brunswick and NAS Jacksonville as well as support for testing maritime partrol aircraft operating from NAWCAD Patuxent River.**
Interconnectivity/Multi-Use of T&E Facility: **This facility provides potential backup capability for the Norfolk base command operation center in the event the center has a major failure. The facility also supports Reserves training unit.**
Type of Test Supported: **Hardware, software, system analysis, integration, installation, life-cycle support, logistics and maintenance of shore command and control systems.**
Summary of Technical Capabilities: **This facility presently has installed within an integrated lab area many of the Navy's Shore Command & Control systems. Provides the capability to conduct system analysis and the impact of a system upgrade on other C&C systems within the center. Also provides the capability for operational test and evaluation.**
Keywords: **Command and Control Systems**

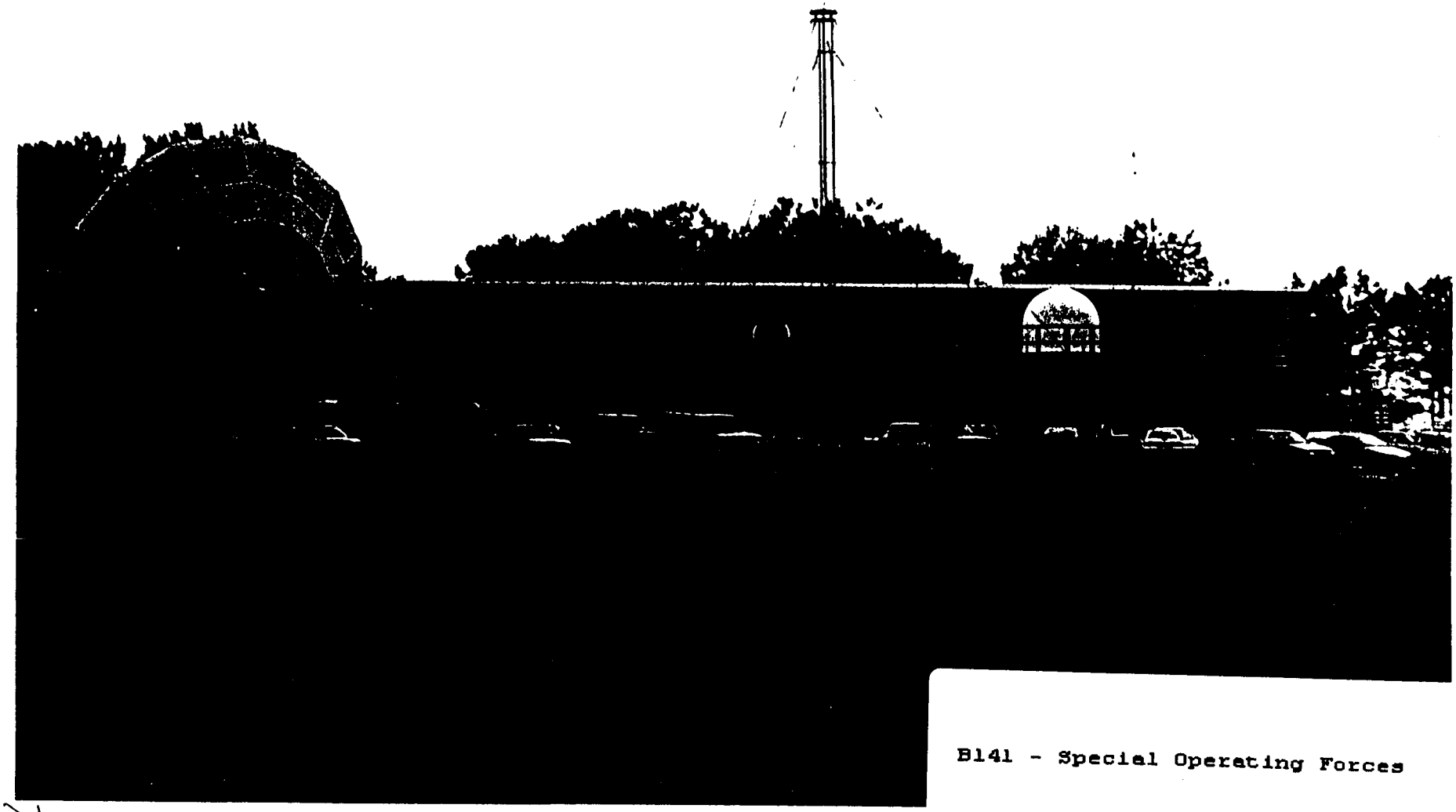


B185 - NCCS Shore Command & Control Systems

TECHNICAL INFORMATION

Facility/Capability Title: **Special Operating Forces Facility**

Facility Description; Including mission statement: **To provide administration and laboratory space for Navy SPECWAR, Joint SPECWAR and other Agencies communications systems. Laboratories support design, development, prototyping, and testing of new communications systems for Special Operations and rapid development forces. The associated antenna systems provide over-air testing capability.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Software, in-service engineering, hardware, integration, installation verification**
Summary of Technical Capabilities: **This facility provides the capability to perform developmental test and evaluation support for Navy SPECWAR, Joint SPECWAR and other Agencies communication-electronic systems. Capabilities include design analysis, prototyping, integration, installation and life-cycle support for these communication/electronic systems.**
Keywords: **Special Forces, Communication Systems**

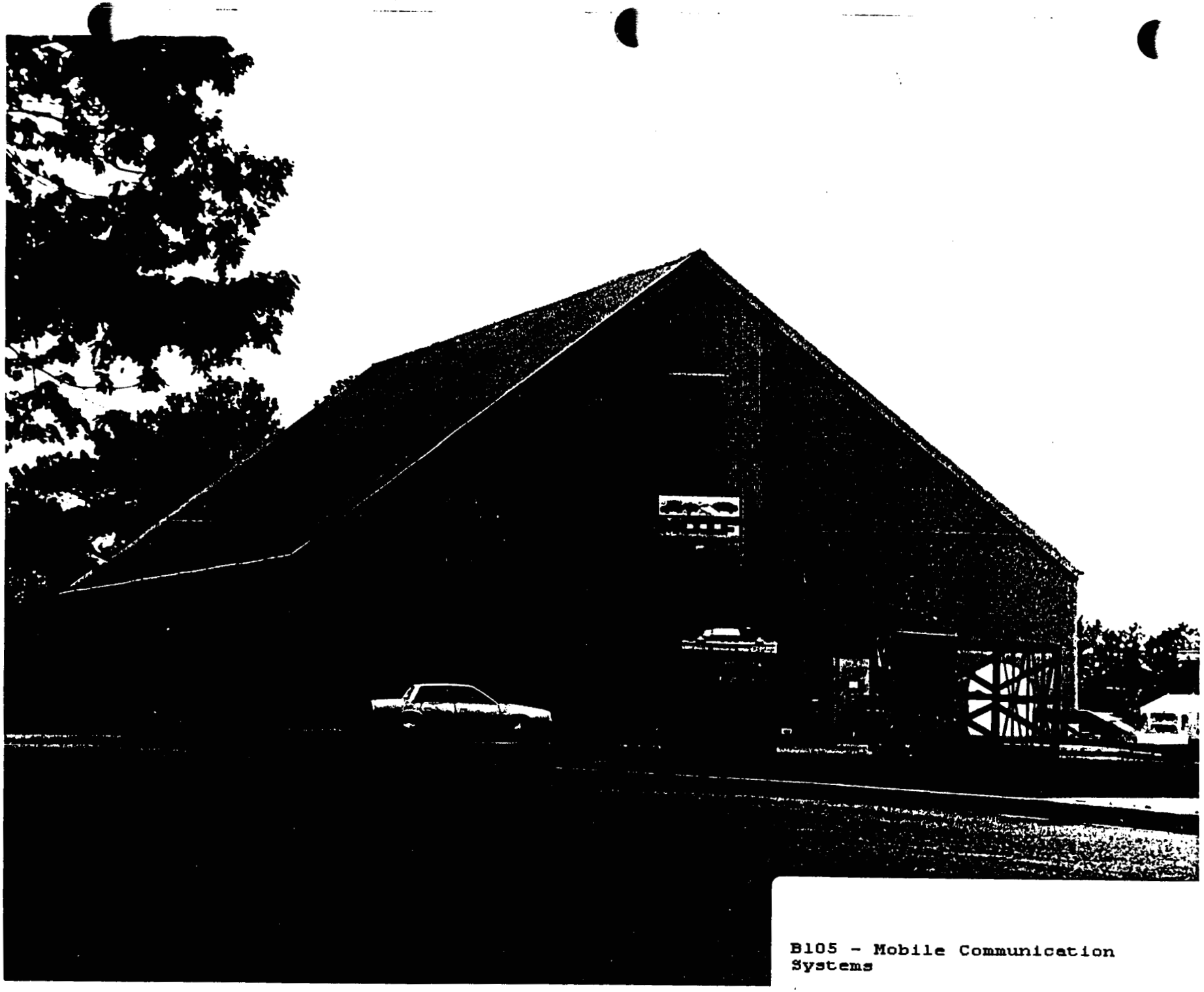


B141 - Special Operating Forces

TECHNICAL INFORMATION

Facility/Capability Title: **Mobile Communications Integration Facility**

Facility Description; Including mission statement: **Provides open bay laboratory space for design, integration, and installation of communication electronic systems in vans, boats and other vehicles. Tasking supports SPECWAR boats, White House Communication Agency vehicles, etc. This facility is used to accomplish the integration of systems designed and developed in the Special Operating Forces Facility laboratories.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Software, in-service engineering, hardware, integration, installation verification**
Summary of Technical Capabilities: **This facility provides the capability to perform developmental test and evaluation support for Navy SPECWAR, Joint SPECWAR and other Agencies communication/electronic systems. Capabilities include design analysis, prototyping, integration, installation and life-cycle support for these communication/electronic systems.**
Keywords: **Communication Systems**

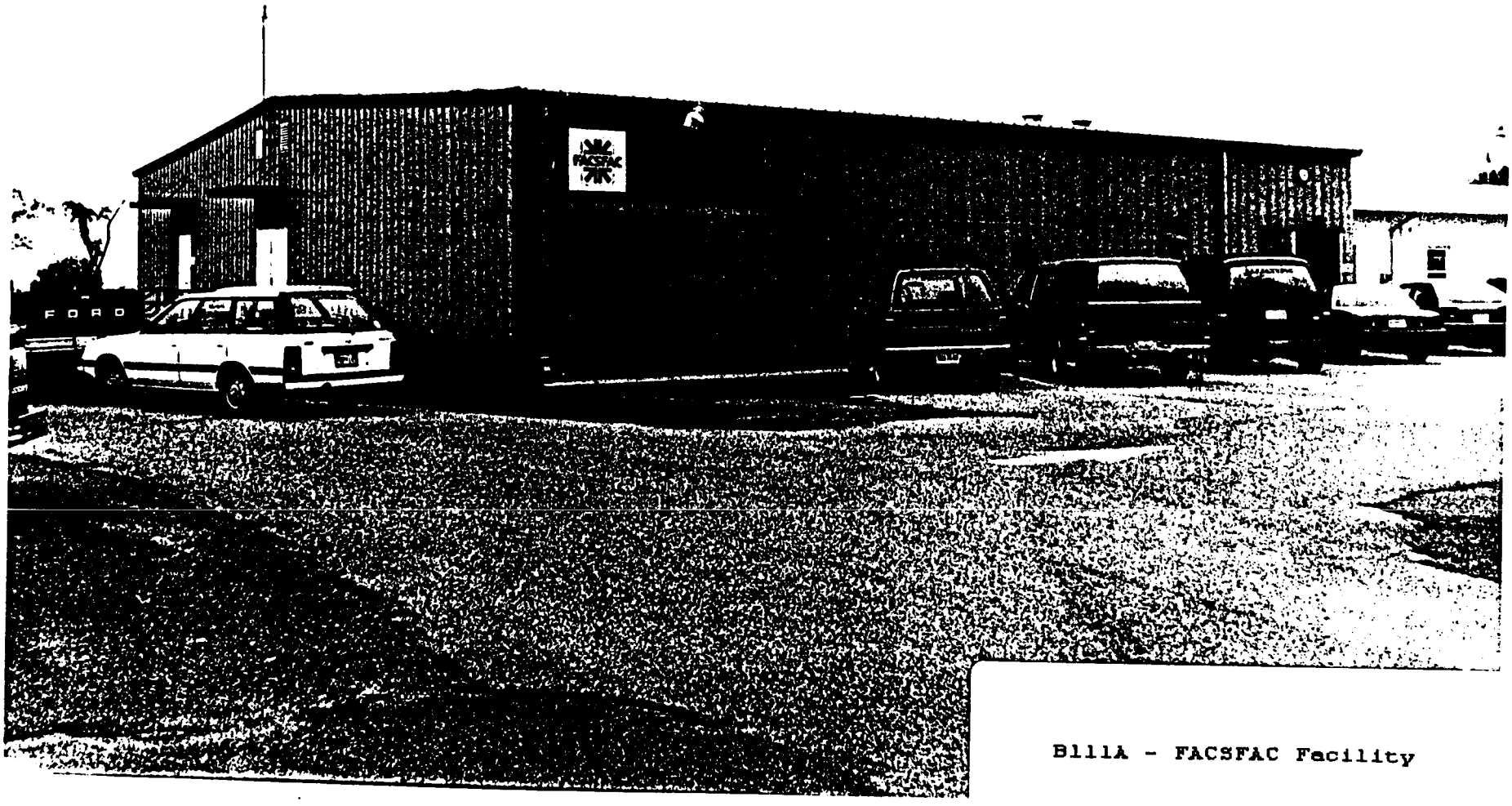


B105 - Mobile Communication Systems

TECHNICAL INFORMATION

Facility/Capability Title: **Fleet Area Control and Surveillance Facility (FACSFAC)**

Facility Description; Including mission statement: **This facility supports all aspects of Fleet Area Control and Surveillance Facility (FACSFAC) life cycle support. This system provides the air space control for all Navy test ranges and interfaces with the FAA range control systems.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Hardware, software, in-service engineering, configuration control**
Summary of Technical Capabilities: **Full range of developmental engineering, test and evaluation, integration, installation, training, life-cycle maintenance, logistics support and repair. Analyzing system upgrades that will allow continued operation with Navy and FAA range controllers systems.**
Keywords: **Ranges, Air Space Control**



B111A - FACSFAC Facility

GENERAL INFORMATION

Facility/Capability Title: **Central Computer Facilility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Other (General)** UIC = **62269 INTO 00421**

T&E Test Facility Category **DMS**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**30%**	**20%**				
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles		**30%**	**20%**				
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Central Computer Facility**

Facility Description; Including mission statement: **The Center Computer Facility is a large-scale scientific and engineering computing facility accessed remotely by personnel located throughout the Center, at other DOD activities, and at contractor sites throughout the United States. This facility is used in support of research, development, testing, and evaluation of weapons, command control, warning surveillance, reconnaissance, and electronic warfare systems.**
Interconnectivity/Multi-Use of T&E Facility: **The Center Computer Facility is inter-connected to personnel located throughout the Center, other DOD activities, and contractor sites throughout the United States.**
Type of Test Supported: **Software V&V and Simulation**
Summary of Technical Capabilities: **The equipment consists of approximately 48 major items including mainframe, workstation, and desk-top computers, disk drives, tape drives, equipment racks, main line printers, network interfaces, control panels, and a broad assortment of associated hardware and peripherals.**
Keywords: **Computer Facility, Simulation Support, Software**

CENTRAL COMPUTER FACILITY

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**

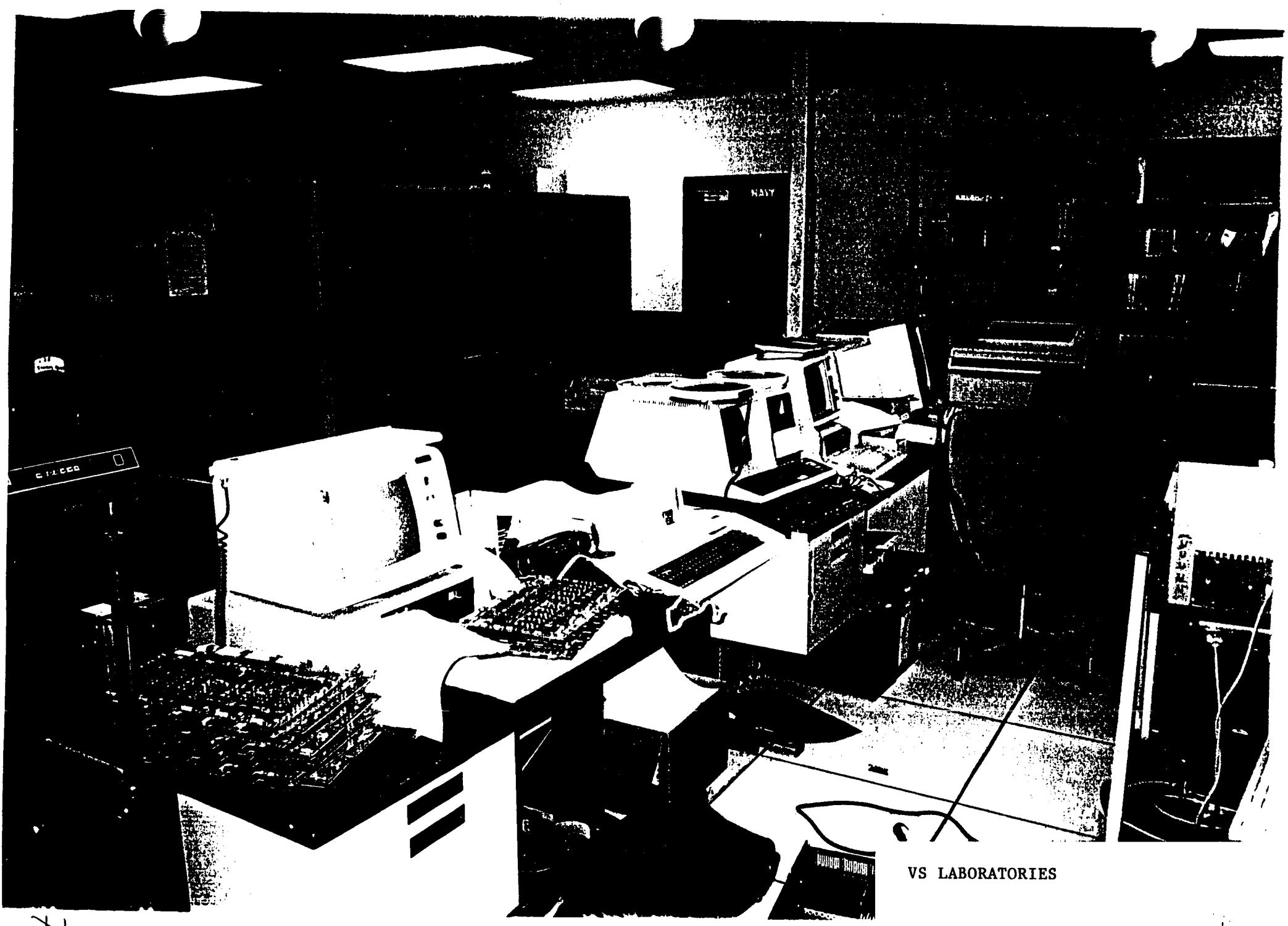
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**		**45%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**		**45%**	**40%**			
Armanent/Weapons							
EC							
Other							

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**



VS LABORATORIES

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**

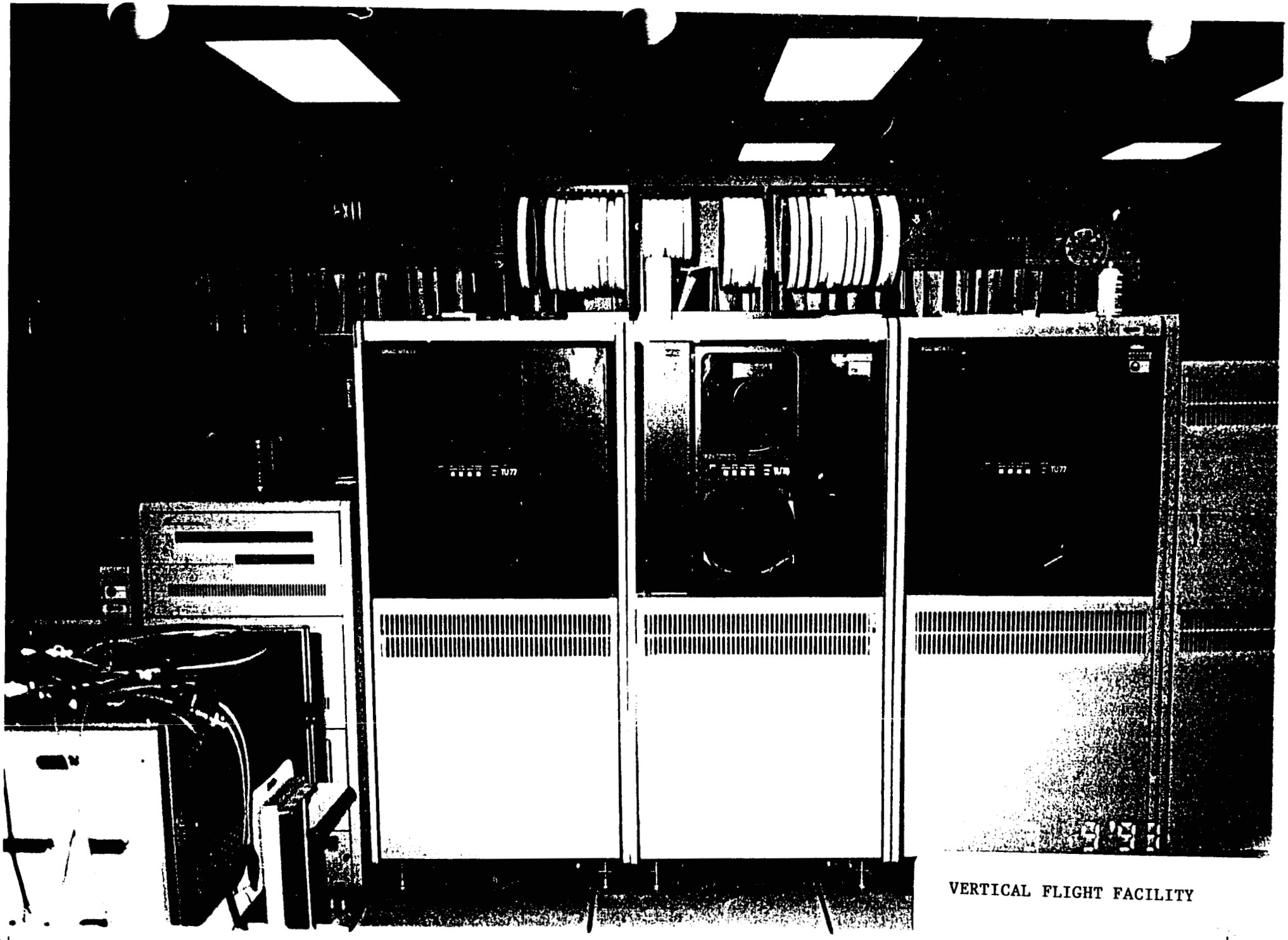
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**		**45%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**		**45%**	**40%**			
Armanent/Weapons							
EC							
Other							

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**



VERTICAL FLIGHT FACILITY

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

274

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**

VP FACILITY PHIC

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**

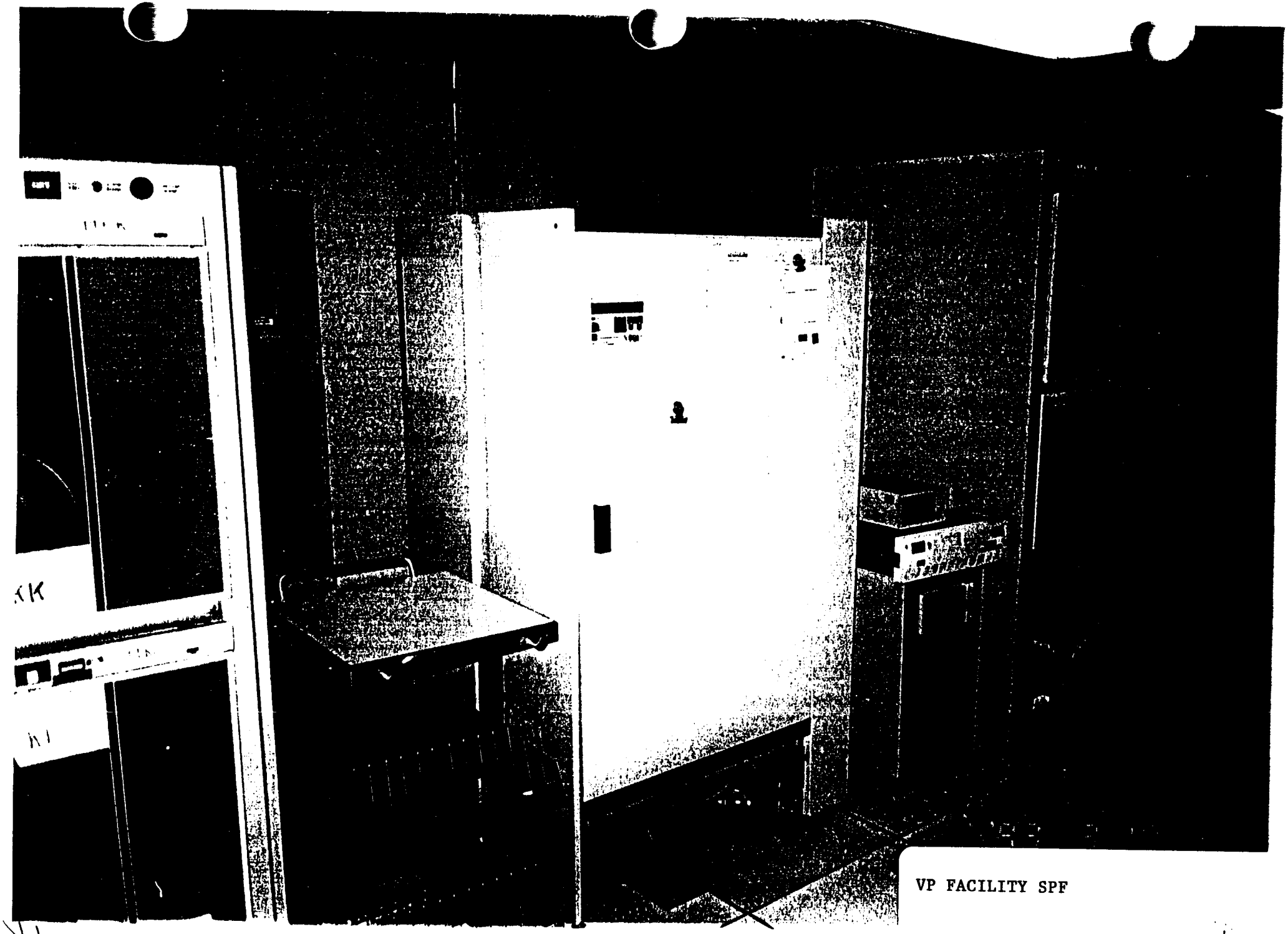
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**50%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**50%**	**30%**			
Armanent/Weapons							
EC							
Other							

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**



VP FACILITY SPF

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**

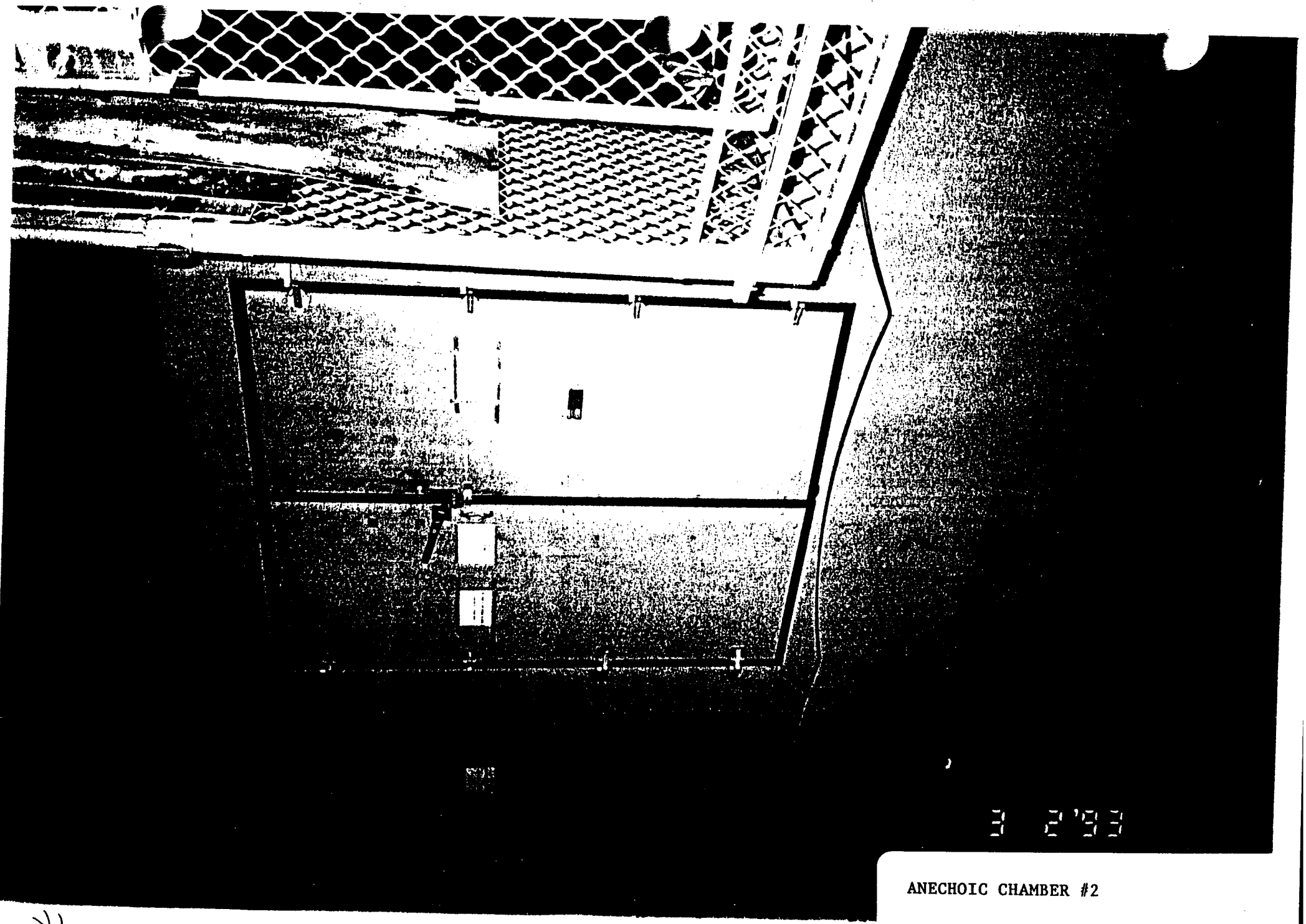
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**20%**	**60%**	**20%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC		**20%**	**60%**	**20%**			
Other							

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**



ANECHOIC CHAMBER #2

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

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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**

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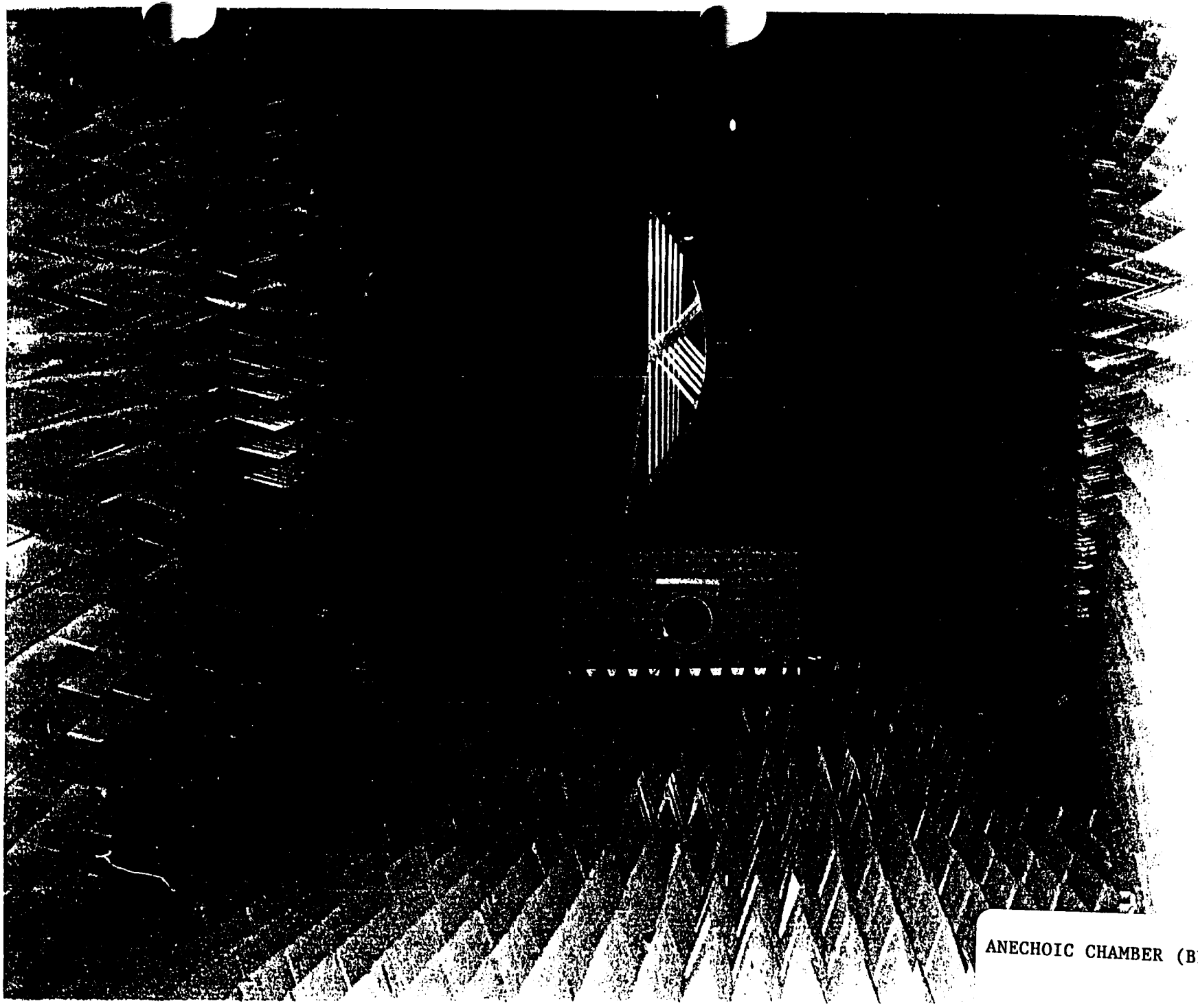


ANECHOIC CHAMBER (BLDG. 120)

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**

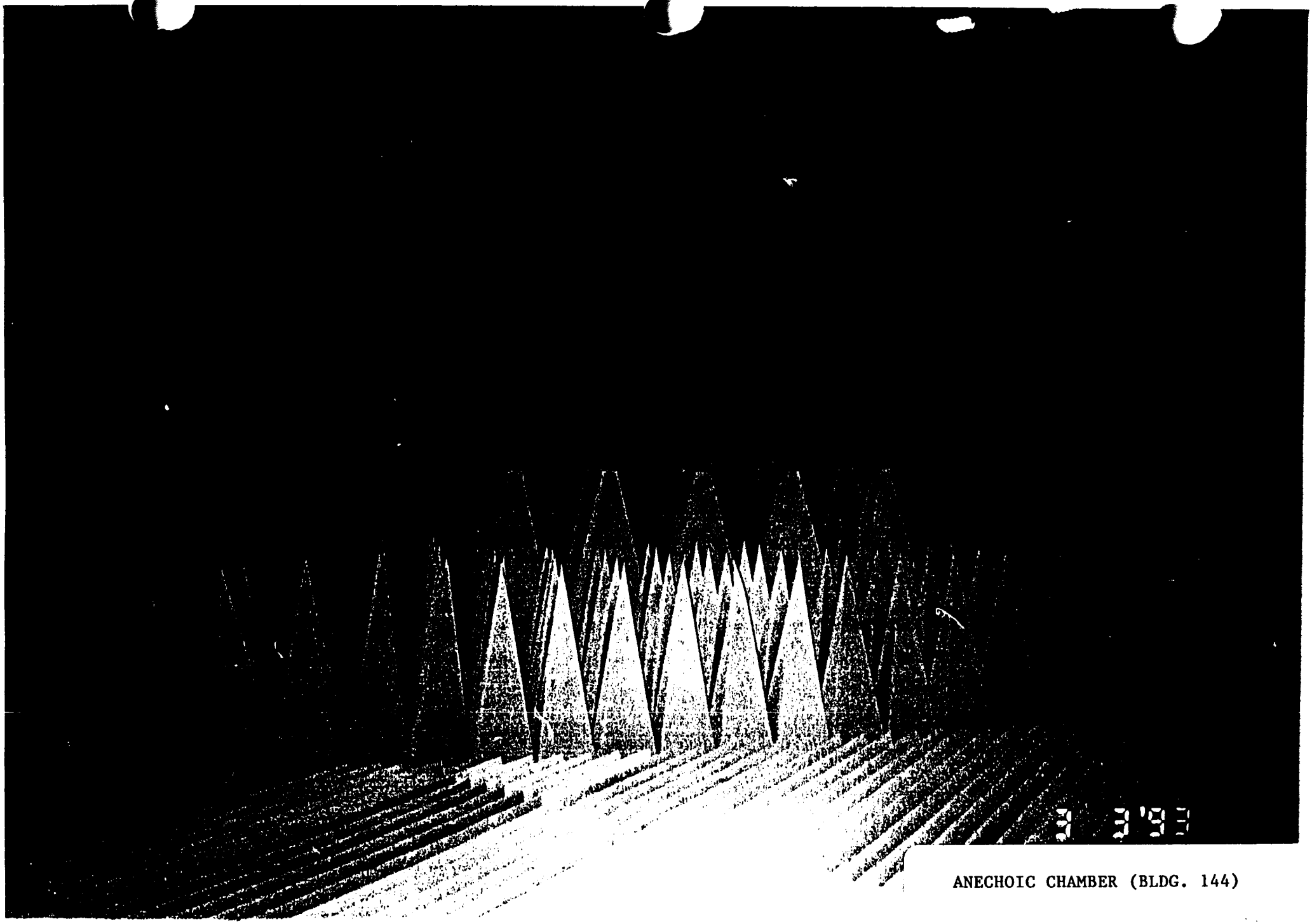
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**20%**	**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC		**20%**	**40%**	**40%**			
Other							

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**



ANECHOIC CHAMBER (BLDG. 144)

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

AIRCRAFT TEST TOWER (BLDG. 367)

791
791

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**

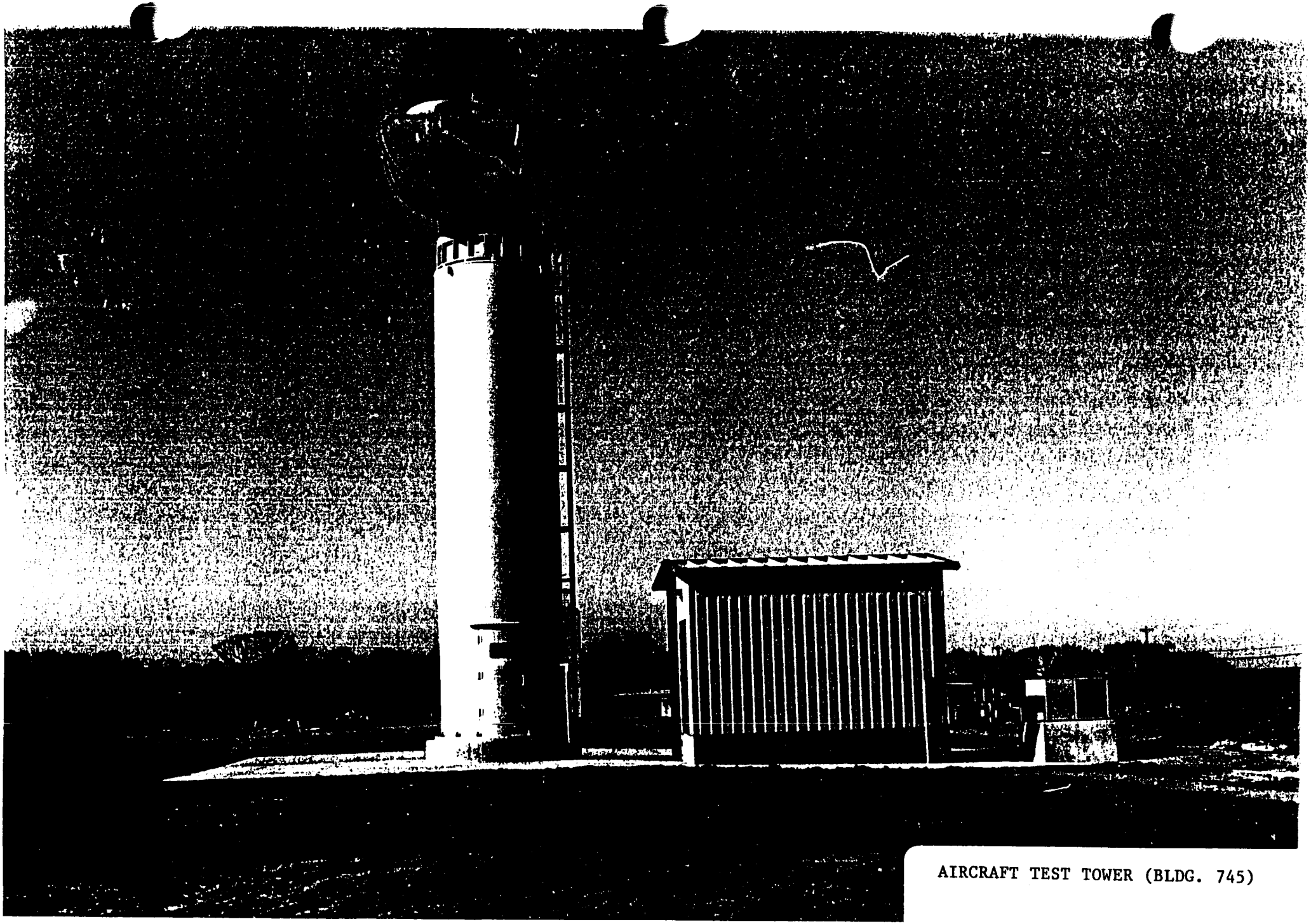
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**10%**	**20%**	**30%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC	**10%**	**20%**	**30%**	**40%**			
Other							

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**



AIRCRAFT TEST TOWER (BLDG. 745)

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**

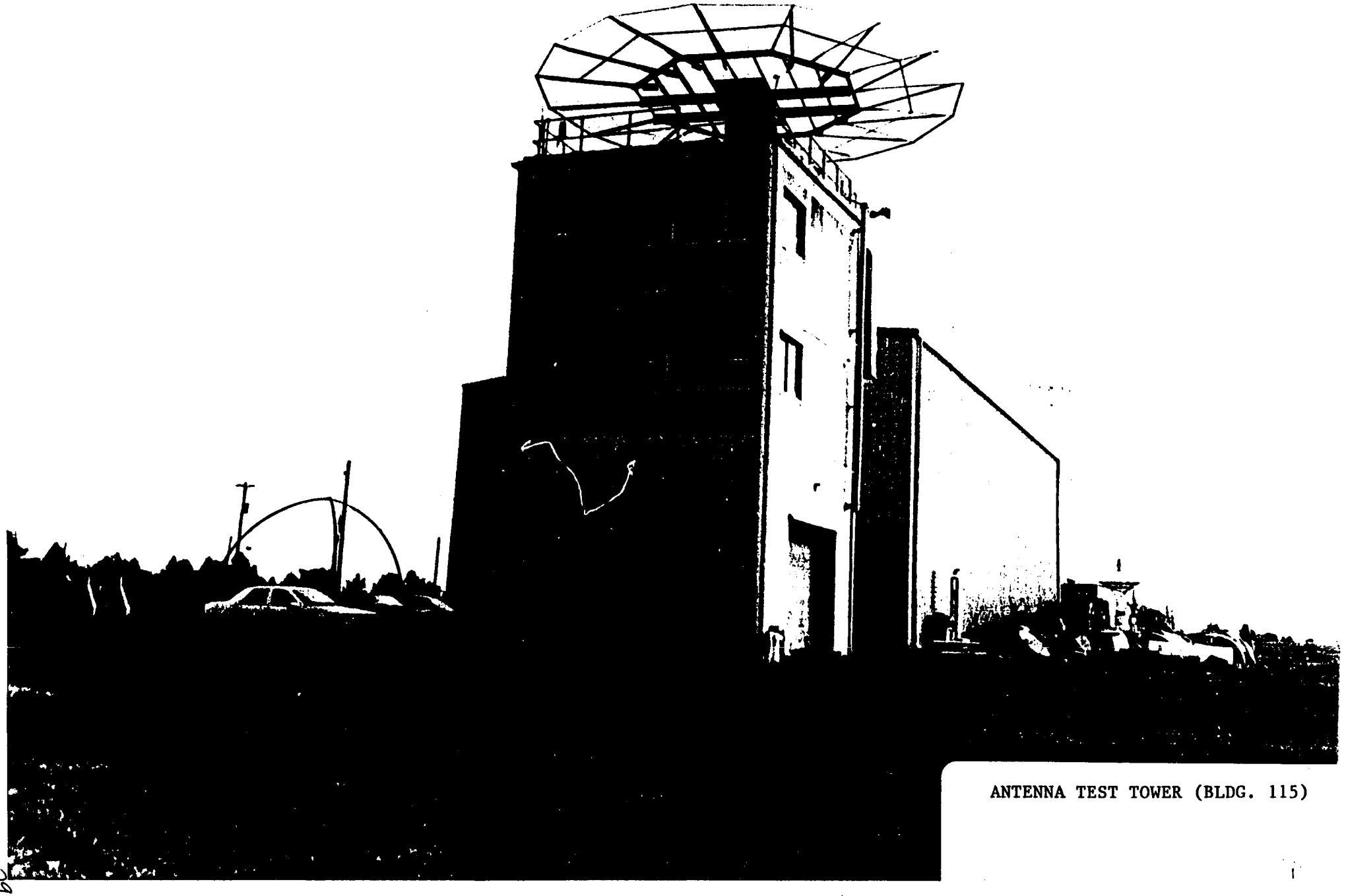
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**	**20%**	**35%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC	**15%**	**20%**	**35%**	**30%**			
Other							

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**



ANTENNA TEST TOWER (BLDG. 115)

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.

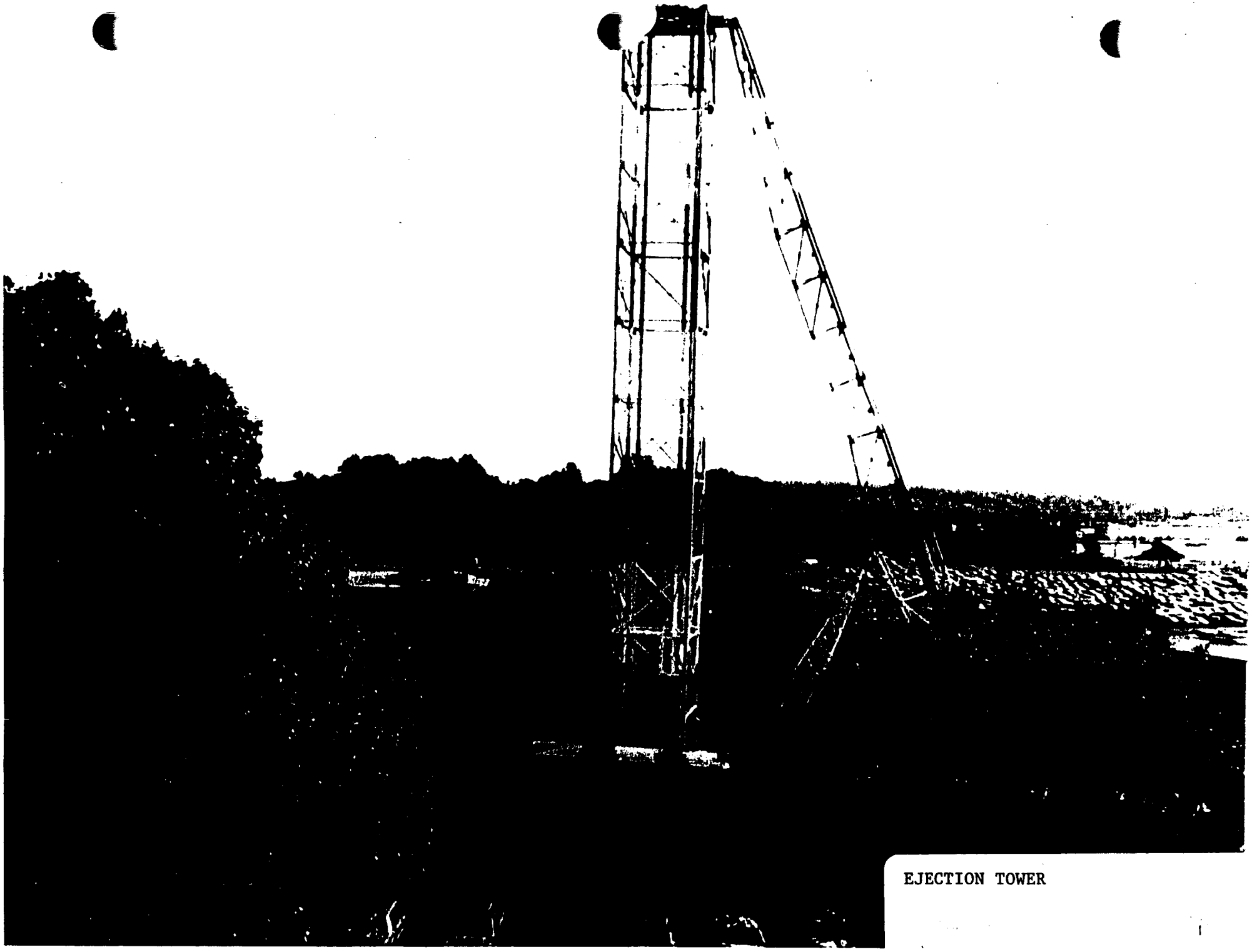
The Ejection Tower has its upper end attached to the Vertical Drop Tower. The Vertical Drop Tower is a free standing structure 150 feet high. A 10 x 10 ft. drop cart located within the framework is used for mounting the test specimen. This cart is raised to a predetermined height, released, and free 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



EJECTION TOWER

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

208

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.

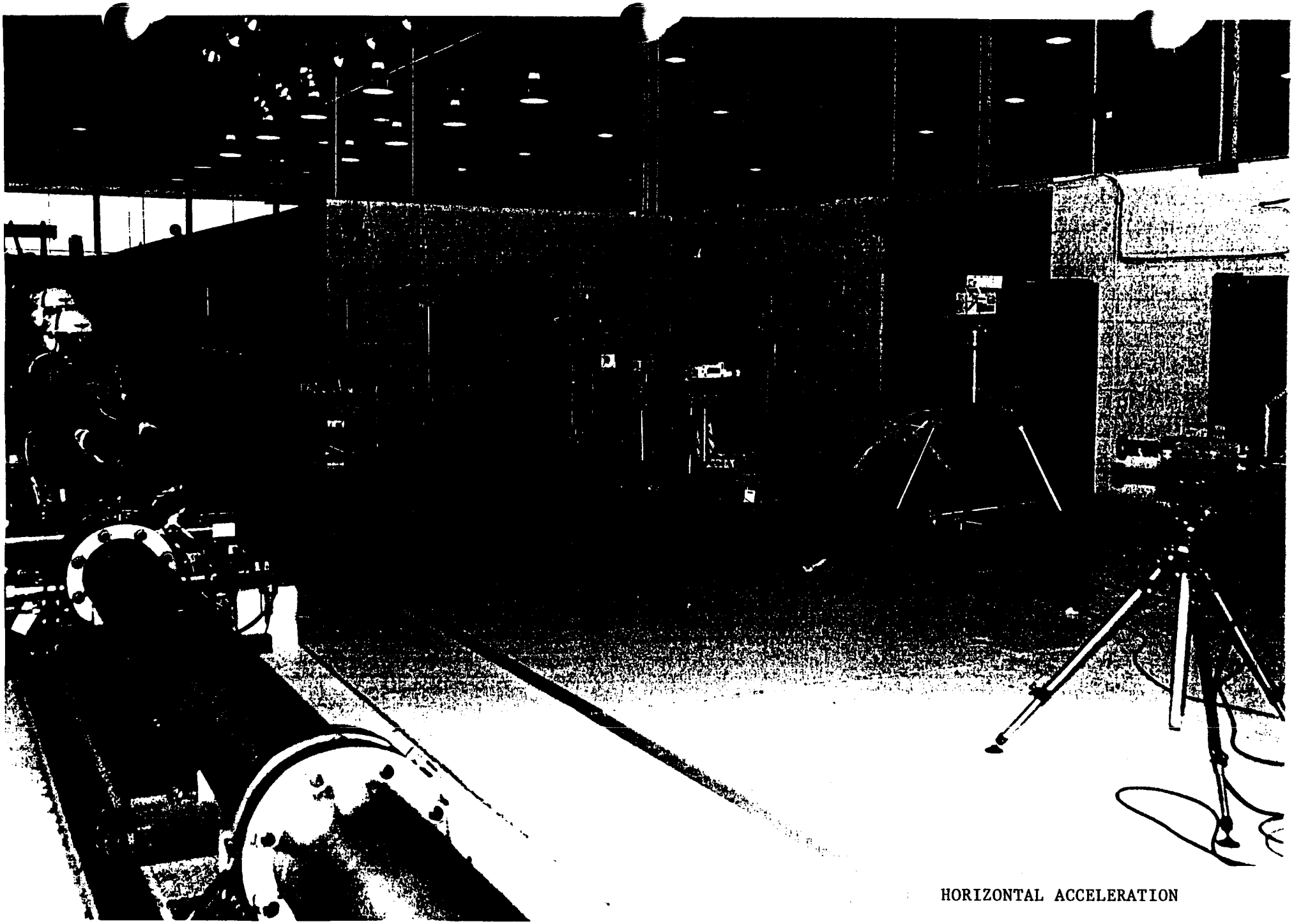
Summary of Technical Capabilities:

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



HORIZONTAL ACCELERATION

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**

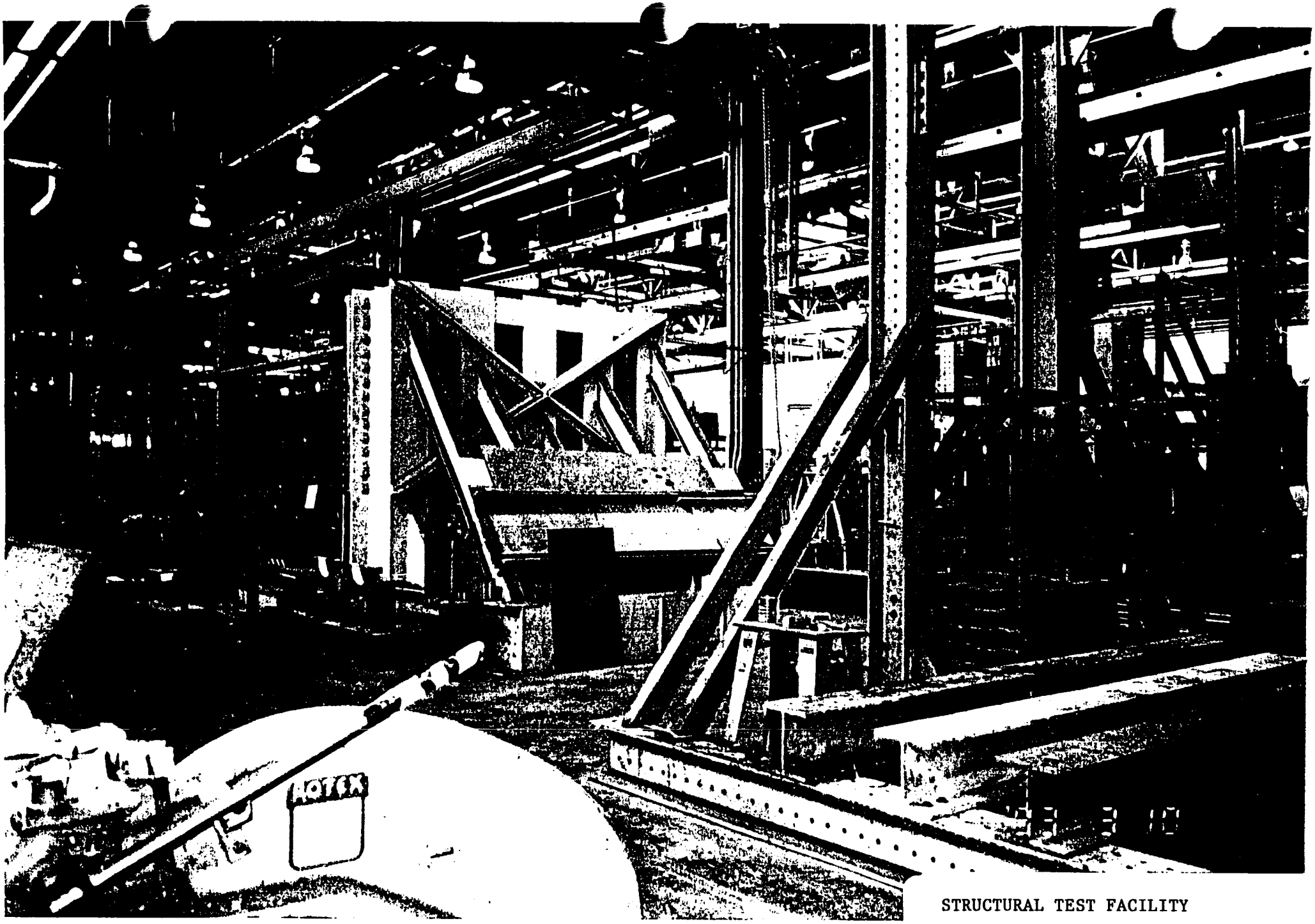
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**30%**	**50%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**30%**	**50%**			
Armanent/Weapons							
EC							
Other							

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**



STRUCTURAL TEST FACILITY

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

208

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: **VH Facility (Executive Transport-2)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

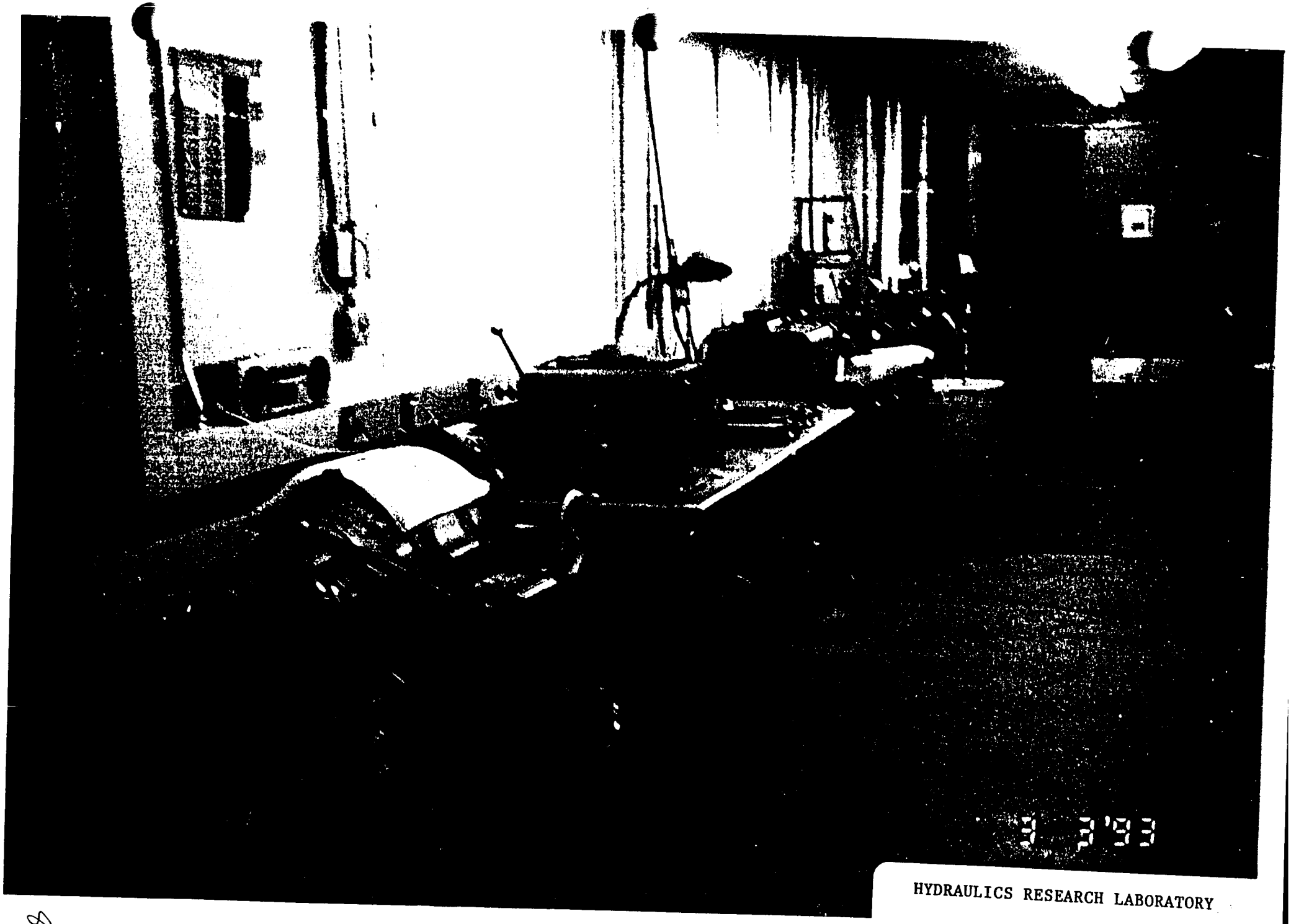
T&E Functional Area: **Air Vehicles** UIC = **62269 into 00421**

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

4/8



HYDRAULICS RESEARCH LABORATORY

018

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

119

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**

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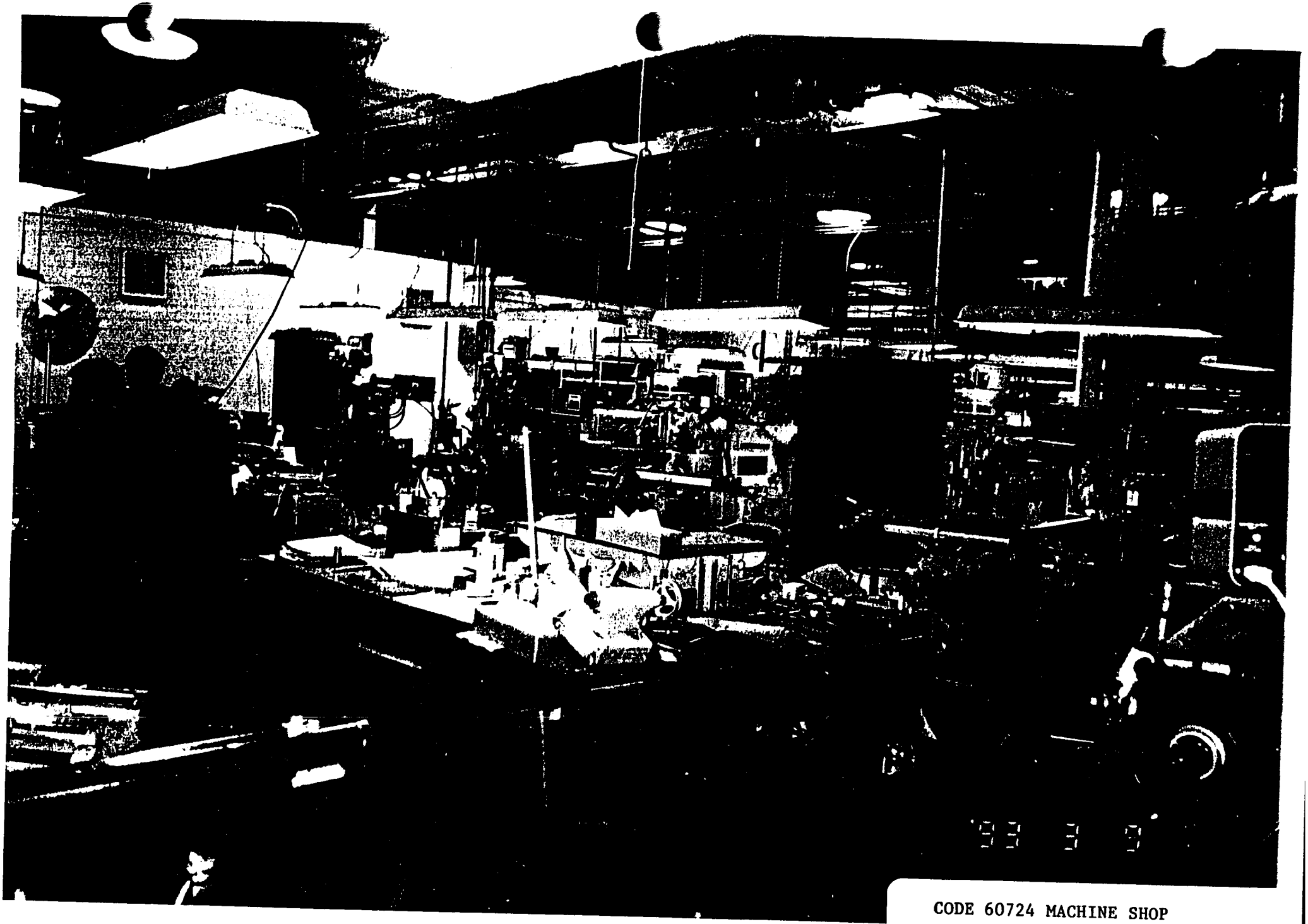


CODE 60724 MACHINE SHOP

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

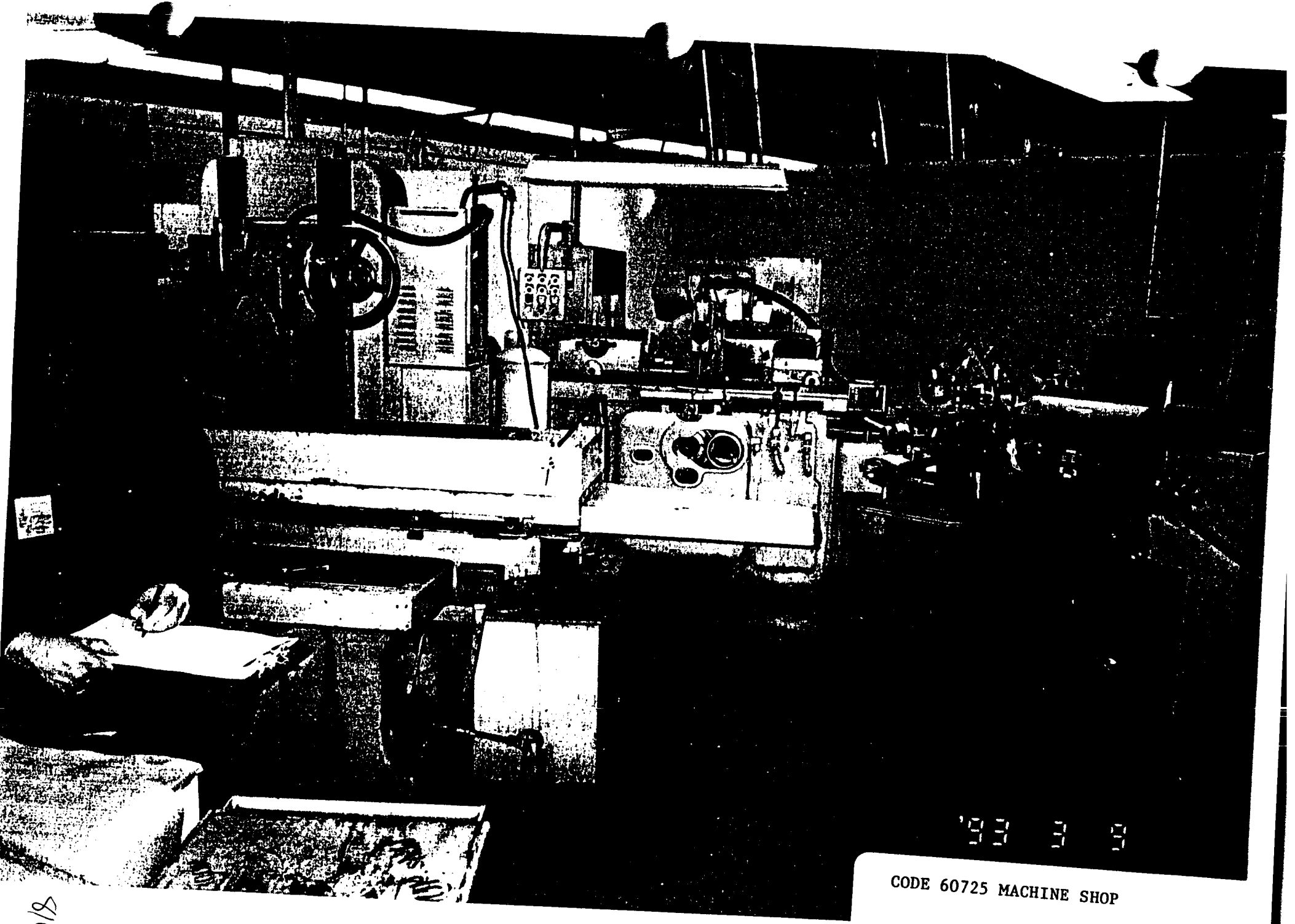
4/8

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**

518



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CODE 60725 MACHINE SHOP

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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**

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VH Facility Executive Transport

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

828

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							

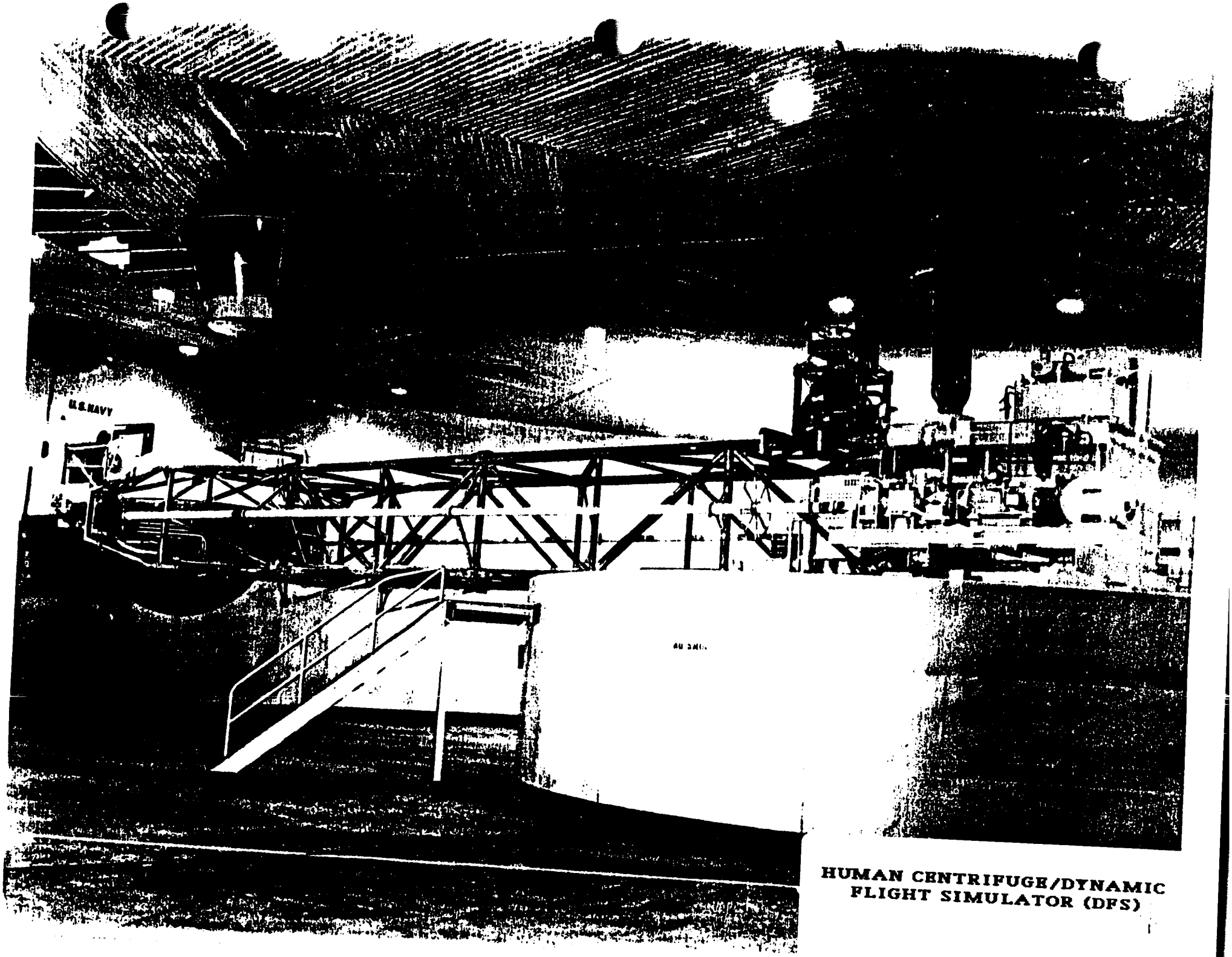
Total in Breakout Must Equal "Percentage Use" On First Line

422

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.**



HUMAN CENTRIFUGE/DYNAMIC FLIGHT SIMULATOR (DFS)

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.

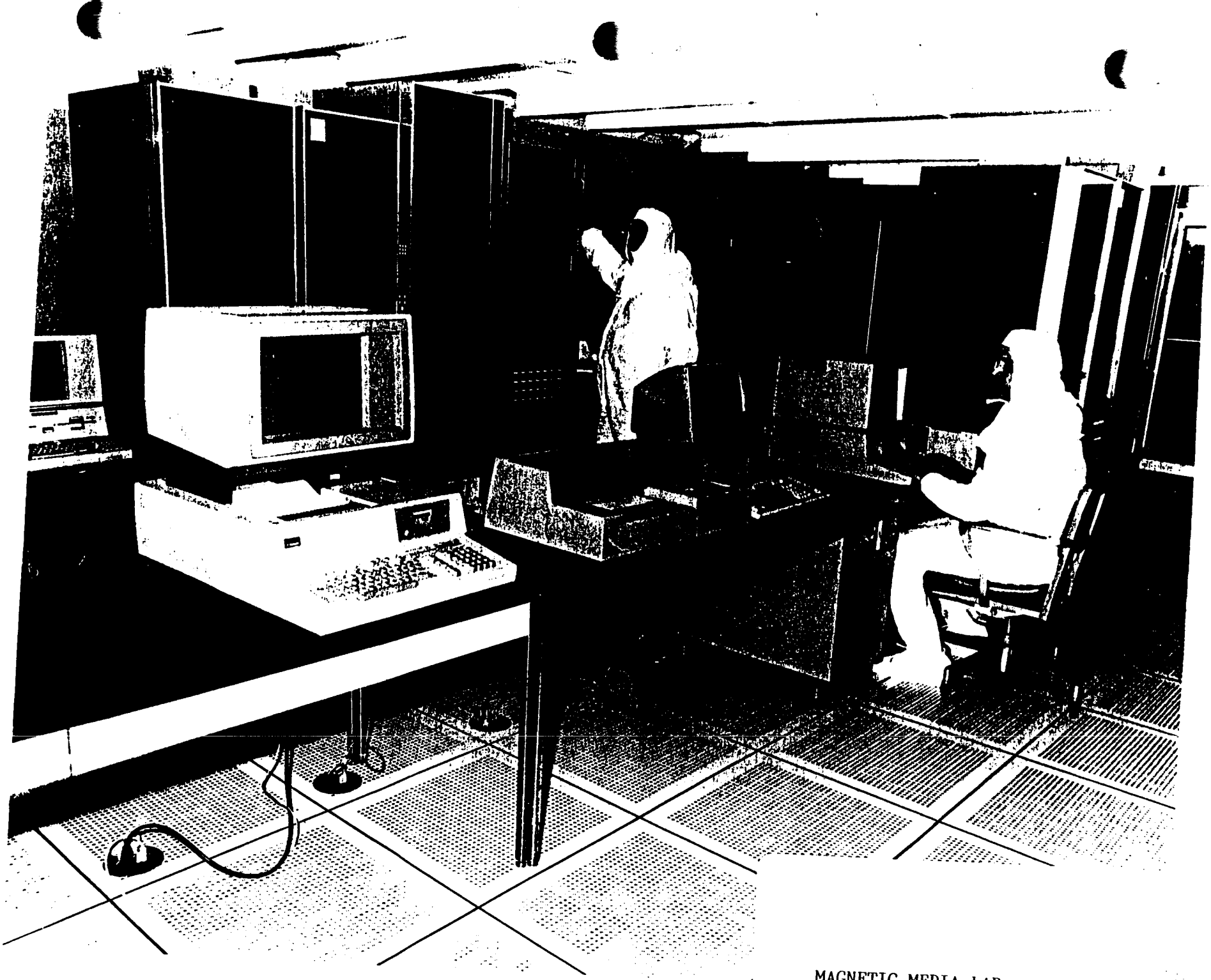
Summary of Technical Capabilities:

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

926



MAGNETIC MEDIA LAB

DATA CALL 13
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.

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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

BARTON D. STRONG
NAME (Please type or print)

Barton D. Strong
Signature

MAY 13 1994
Date

COMMANDER
Title

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

*NAVAIR did not provide data for inclusion in this package.

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BRAC 95
DATA CALL 13

PATUXENT RIVER SITE
NAWC AIRCRAFT DIVISION

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. Strohsahl, RADM, USN
NAME (Please type or print)

Signature

Commander
Title

5/16/94
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.

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

16 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

27 May 1994
Date

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

NEXT ECHELON LEVEL (if applicable)

W. E. NEWMAN, RADM, USN
NAME (Please type or print)

W E Newman
Signature

COMMANDER
Title

9/16/94
Date

NAVAL AIR WARFARE CENTER
Activity

94-09-30 13:26 RCVD

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)

W C Bowes
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 and belief.

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

M A. EARNER
NAME (Please type or print)

N S Earner
Signature

Title

9/26/94
Date

WC G-1

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 8 December 1993

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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)

John B Patterson
Signature

ACTING COMMANDER
Title

9/14/94
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG **UIC:** N00421

Facility/Capability Title: ELECTRONIC WARFARE/AVIONICS FLIGHT TEST FACILITY/DATACALL #13, APPENDIX A, TAB #11

T&E Test Facility Category: MF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)	X	
Infrared (IR)	X	
Millimeter Waves (MMW)	X	
Ultra Violet (UV)	X	
Laser	X	

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No___.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG **UIC:** N00421

Facility/Capability Title: ATLAS/DATACALL #13, APPENDIX A, TAB #12

T&E Test Facility Category: MF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)		X
Infrared (IR)		X
Millimeter Waves (MMW)	X	
Ultra Violet (UV)		X
Laser		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No ___.

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T&E JCSG CLARIFICATION - FORM #3
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: ATLAS/DATACALL #13, APPENDIX A, TAB #12

T&E Test Facility Category: MF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated T&E testing can be conducted by this Measurement Facility

Spectra	Yes	No
Environmental T&E		X
Safety T&E	X	
Warhead Performance T&E		X
Faze T&E		X
Seaker, sensor, and guidance/control performance and target/background signature characterization	X	
Propulsion Performance T&E		X
Airframe/aerodynamic/aerothermal performance T&E across subsonic, transonic, and hypersonic regimes		X
Gun Performance T&E		X
Electromagnetic Environmental Effects		X
Directed Energy		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No___.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG **UIC:** N00421

Facility/Capability Title: COMBAT IDENTIFICATION SYSTEMS DATACALL #13, APPENDIX A, TAB #15

T&E Test Facility Category: MF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)		X
Infrared (IR)		X
Millimeter Waves (MMW)		X
Ultra Violet (UV)		X
Laser		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: GRATF/DATACALL #13, APPENDIX A, TAB #16

T&E Test Facility Category: MF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)		X
Infrared (IR)		X
Millimeter Waves (MMW)	X	
Ultra Violet (UV)		X
Laser		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

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T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: COMTEL/DATACALL #13, APPENDIX A, TAB #18

T&E Test Facility Category: MF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)		X
Infrared (IR)		X
Millimeter Waves (MMW)		X
Ultra Violet (UV)		X
Laser		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No___.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG **UIC:** N00421

Facility/Capability Title: STARS/DATACALL #13, APPENDIX A, TAB #19

T&E Test Facility Category: MF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)		X
Infrared (IR)		X
Millimeter Waves (MMW)		X
Ultra Violet (UV)		X
Laser		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: ACETEF/DATACALL #13, APPENDIX A, TAB #26

T&E Test Facility Category: ISTF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)	X	
Infrared (IR)	X	
Millimeter Waves (MMW)	X	
Ultra Violet (UV)	X	
Laser	X	

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No___.

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T&E JCSG CLARIFICATION - FORM #2
Armament/Weapons (HITL & ISTF)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: ACETEF/DATACALL #13, APPENDIX A, TAB #26

T&E Test Facility Category: ISTF
(HITL or ISTF)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)	X	
Infrared (IR)	X	
Millimeter Waves (MMW)	X	
Ultra Violet (UV)		X
Laser	X	
Midcourse Inertial/GPS (HITL only)	X	

Is this Facility/Capability equipped to support Top Secret or Special Access Required work? Yes X No____.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: CHESAPEAKE TEST RANGE (CTR)/DATACALL #13, APPENDIX A, TAB #27

T&E Test Facility Category: OAR
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)	X	
Infrared (IR)	X	
Millimeter Waves (MMW)	X	
Ultra Violet (UV)	X	
Laser	X	

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No___.

Note: CTR provides the space and supporting capability for flight testing including support of the Electronic Warfare/Avionics Flight Test Facility. Therefore, CTR is involved in providing the test spectra shown.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: TELEMETRY DATA SYSTEM FACILITY/DATACALL #13, APPENDIX A, TAB #28

T&E Test Facility Category: OAR
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability. N/A.

Spectra	Yes	No
Radio Frequency (RF)		
Electro-Optical (EO)		
Infrared (IR)		
Millimeter Waves (MMW)		
Ultra Violet (UV)		
Laser		

Note: Telemetry Data reception and processing provides no "spectra to test against". Therefore, not applicable. But, this capability can be used to support telemetry data collection and processing in support of testing involving any/all of these areas.

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No___.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: AIRBORNE INSTRUMENTATION SUPPORT FACILITY/DATACALL #13, APPENDIX A, TAB #29

T&E Test Facility Category: OAR
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)		X
Infrared (IR)		X
Millimeter Waves (MMW)	X	
Ultra Violet (UV)		X
Laser	X	

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No___.

Note: Calibration Standards used to provide calibration support of generic purpose test equipment at other Measurement Facilities (RF, MMW, Laser). However, Airborne Instrumentation support provides airborne data collection to support all EC programs (RF, EO, IR, MMW, UV).

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG UIC: N00421

Facility/Capability Title: Target Support Facility/DATACALL #13, APPENDIX A, TAB #30

T&E Test Facility Category: OAR
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)	X	
Infrared (IR)	X	
Millimeter Waves (MMW)		X
Ultra Violet (UV)		X
Laser	X	

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No ___.

Note: Target Support Facility can support Data Transfer to any level of classification including Special Access and Top Secret. Other capabilities up to Secret are available and Special Access with appropriate handling.

T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAWCAD FTEG **UIC:** N00421

Facility/Capability Title: Test and Evaluation Data Processing (Software and Applications)/DATACALL #13, APPENDIX A, TAB #31

T&E Test Facility Category: OAR
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability. N/A.

Spectra	Yes	No
Radio Frequency (RF)		
Electro-Optical (EO)		
Infrared (IR)		
Millimeter Waves (MMW)		
Ultra Violet (UV)		
Laser		

Note: Test and Evaluation Data Processing (Software and Applications) provides no Spectra to Test against. This capability supports TM Real-Time and Postflight data collection processing and analysis including on-board aircraft data collection. This provides a capability for supporting tests involving all the above spectra.

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No___.

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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

Distribution:
COMNAVAIRWARCENWPNDIV
COMNAVAIRWARCENACDIV
NAVAIRWARTRASYSDIV

DATA CALL #13 - AUDIT
BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 8 December 1993

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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
Date

ACTING COMMANDER
Title

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD

Data Call #15
Audit Changes
Pax 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)

L L Lundberg
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

DONALD V. BOECKER, RADM USN
~~V. C. BOWES, VADM, USN~~
NAME (Please type or print)

Donald V. Boecker
Signature

COMMANDER (ACTING)
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)

W Earner
Signature

Title

9/29/94
Date