

DCN 913

\* ATTN:

Continuation of previous  
fax with this same  
coversheet.



TO: Mr Dowsley

OFFICE: BRAC

OFFICE NO.: (703) 696-0504 FAX NO.: (703) 696-0550

NUMBER OF PAGES (INCLUDING THIS PAGE): 146 pages

SUBJECT: Engine Depot Consolidation Study

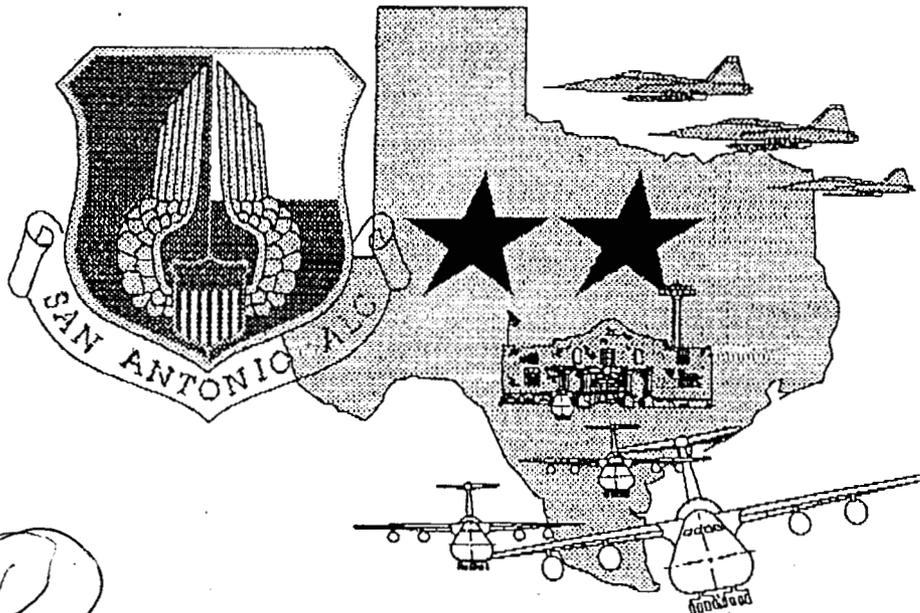
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A/SA

FROM: Maj Walker

OFFICE: SA-ALC/CCF (Executive officer)

OFFICE NO.: DSN 945-6916 FAX #: (DSN) 945-9928  
Comm (210) 925-6916 (COMM) 210-925-9928

# SAN ANTONIO AIR LOGISTICS CENTER FAX COVER SHEET



*AL*

## KELLY AIR FORCE BASE

TO: Mr Dwsley

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**DISCUSSION ITEM**

**ON**  
**ENGINE DEPOT CONSOLIDATION**

1. DISCUSSION OF TOPIC: A study was conducted to determine the cost and benefit of consolidating engine depot maintenance that is now performed at SA-ALC and OC-ALC.

2. RELEVANT FACTS: Depot maintenance on engines and related components is conducted at two ALCs. As the force structure is reduced, both of these depots have excess capacity. This study was chartered to estimate the cost of relocating all engine and related (including components such as fuel accessories, gas turbine engines, secondary power systems and engine start systems). The study was expanded to include an option to relocate the engine depot at a third ALC, an option to relocate the management function only at one ALC and to identify and evaluate alternatives for consolidating component repair. The FY96 projected workload and the FY01 Unit Manning Document was used to estimate the manpower involved in the move. Four major cost categories were definitized: Military Construction (MILCON), equipment transfer, manpower and one-time costs such as red center shop floor vacate, green center shop rearrangement, minor construction, prototyping, process qualification, transition support, and a 20% contingency factor for hidden costs. In addition, a risk assessment was performed against each scenario. The Cost of Base Realignment Actions (COBRA) model was run using Air Force standards. Facility and equipment data were gathered from United States AF Real Property Inventory Change Report, (AR)7115, and the G017 Depot Maintenance Equipment List. Site surveys performed at both SA-ALC and OC-ALC for the purpose of data validation and process assessment. Engineering estimates were developed and were determined to be valid assessments. For the purposes of the study, the "third" ALC was identified as WR-ALC and the assumption was made that none of the engine processes and facilities are available, but that adequate industrial equipment is available at that site.

3. ANALYSIS:

a. The study validated that both SA-ALC and OC-ALC possess capabilities in all of the core processes required for modern engine overhaul.

b. The payback for all scenarios related to consolidation of depot maintenance and management or management only exceeds 101 years. The costs of consolidation were computed as:

	<u>TO SA-ALC</u>	<u>TO OC-ALC</u>	<u>TO THIRD ALC</u>
Depot Maintenance & Management	\$266.8M	\$365.7M	\$1,139.8M*
Management Only	\$ 63.5M	\$ 76.5M	

\* Third ALC costs are estimates. Due to time constraints and sensitivity, no site visits were made to WR-ALC.

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c. MILCON costs required for consolidation of engine depot maintenance at either SA-ALC (\$10.2M) or OC-ALC (\$8.7M) are relatively insignificant. The MILCON cost at a third ALC was estimated to be \$474.0M.

d. Equipment transfer consisted primarily of peculiar equipment with only a minimal amount required to expand existing capabilities in order to accommodate the workload increase. The estimated total equipment transfer cost to consolidate the workload at SA-ALC was \$35.8M, at OC-ALC was \$54.6M and at a WR-ALC was \$112.5M.

e. Manpower was the largest cost driver of any scenario. Standard COBRA model assumptions (transfers versus retirements/separations) were used to compute severance pay, new hire costs, movement of household goods and relocation costs. The resulting cost estimate to consolidate at SA-ALC was \$161.5M, at OC-ALC was \$238.6M and at WR-ALC as \$445.4M.

f. One-time costs were calculated for consolidation of workload at SA-ALC as \$59.3M, at OC-ALC as \$63.8M and at WR-ALC as \$107.9M.

g. Risk was assessed on the basis of five categories and probability of occurrence: wartime support, peacetime surge, skill base erosion, vulnerability and competitiveness. The overall risk associated with consolidation of depot repair and management at any single source is very high with the major factor being skill base erosion.

4. CONCLUSION: This study clearly indicates the consolidation of depot repair and management, or even management only, is not cost effective. Further study will be necessary to determine whether there is reasonable payback associated with the consolidation of component repair.

5. RECOMMENDATION: Retain engine depot repair capability and management at SA-ALC and OC-ALC.

6. CERTIFICATION: I certify that this information is correct and accurate to the best of my knowledge and belief.

STUDY GROUP CHAIRED

ORIGINATOR (OPR) BY SA-ALC/LR\* DATE \_\_\_\_\_

OC-ALC REVIEWER MICHAEL BURCH/LPAM\* DATE 22 Feb 94

SA-ALC REVIEWER ROBERT CASTORENA/FMPF\* DATE 17 Feb 94

\* See signatures on original Feasibility Study.

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## FEASIBILITY STUDY ON ENGINE DEPOT CONSOLIDATION

1. **ISSUE:** Conduct a study to determine feasibility and estimate costs of consolidating the AFMC engine depot maintenance workloads now performed at SA-ALC and OC-ALC at a single engine depot. The study was expanded to three separate scenarios: consolidation of depot maintenance and management at SA-ALC, OC-ALC or a third ALC; consolidation of management only at SA-ALC or OC-ALC, and consolidation of engine component workloads.

2. **STUDY METHODOLOGY:** The study was based on a SA-ALC and OC-ALC coordinated set of assumptions (Atch 1). Four major cost categories were definitized: Military Construction (MILCON), equipment transfer, manpower and one-time costs (detail is provided in briefing charts at Atch 2). In addition, a risk assessment was performed against each scenario and the COBRA model was run (products at Atch 3) using Air Force (AF) standards. Facility and equipment data were gathered from United States AF Real Property Inventory Change Report, (AR)7115, and the G017 Depot Maintenance Equipment List, as well as, site surveys performed at both SA-ALC and OC-ALC for the purpose of data validation and process assessment. Engineering estimates were developed and were determined to be valid assessments. Only current FY94 data was available from the Defense Logistics Agency (DLA) and was utilized as provided by that source. For the purposes of the study, the "third" ALC was identified as WR-ALC and the assumption was made that none of the engine processes and facilities are available, but that adequate industrial equipment is available at that site. If the third center were determined to be elsewhere, costs would be different due to the different regional factors and movement distances. The SA-ALC workload hours deviate from the HQ AFMC March 1993 workload review baseline because those numbers could not be validated. The hours used were those that could be supported based upon the same workload review.

### 3. FINDINGS:

a. The study validated that both SA-ALC and OC-ALC possess capabilities in all of the core processes required for modern engine overhaul, but that each center possesses varying levels of technologies within these processes.

b. The payback for all scenarios related to consolidation of depot maintenance and management or management only exceeds 101 years. The costs of consolidation were computed as (see Atch 2, charts J and P):

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	<u>TO SA-ALC</u>	<u>TO OC-ALC</u>	<u>TO THIRD ALC</u>
Depot Maintenance & Management	\$266.8M	\$365.7M	\$1,139.8M*
Management Only	\$ 63.5M	\$ 76.5M	

\* Third ALC costs are estimates. Due to time constraints and sensitivity, no site visits were made to WR-ALC.

c. MILCON costs required for consolidation of engine depot maintenance at either SA-ALC (\$10.2M) or OC-ALC (\$8.7M) are relatively insignificant. For both ALCs, the primary cost driver is the requirement to renovate existing test cells to accommodate the other center's workload. The MILCON cost at a third ALC was estimated to be \$474.0M, including a facility for engine management personnel (see Atch 2, charts J-1 through J-9).

d. Equipment transfer consisted primarily of peculiar equipment with only a minimal amount required to expand existing capabilities in order to accommodate the workload increase. Transfer of Depot Maintenance Supply Center (DMSC) and DLA warehouse inventories are included in this category. Depot maintenance equipment and DMSC inventory transportation were computed using replacement cost and distance, but the cost to move the warehouse inventory was computed by DLA based upon estimated truckloads and distance. The estimated total equipment transfer cost to consolidate the workload at SA-ALC was \$35.8M, at OC-ALC was \$54.6M and at a WR-ALC was \$112.5M (see Atch 2, charts J-10 and J-11).

e. Manpower was the largest cost driver of any scenario. The standard COBRA model assumption that 60 percent (%) of the workforce would move with the workload was used to compute severance pay, new hire costs, movement of household goods and relocation costs against the FY01 manpower authorizations (see Atch 2, charts I-1 through I-4). The resulting cost estimate to consolidate at SA-ALC was \$161.5M, at OC-ALC was \$238.6M and at WR-ALC as \$445.4M. The total cost of manpower impacts were insensitive to adjustments made in the percentage of people transferring versus separating or retiring. The COBRA model was run using both 40% and 80% transfers. The total manpower costs did not significantly change from the calculations made using the 60%. A sensitivity analysis was accomplished to assess the impact of varying manpower adjustments beyond the six percent efficiency currently used in AFMC 21 exercises. Additional scenarios were set at 10, 15 and 20 percent of personnel eliminations for non-Depot Maintenance Business Area direct labor. The cost of eliminating personnel is almost equal to the cost of moving them. Payback is still exceeds 101 years (Atch 4).

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f. One-time costs included "red" center shop floor vacate costs and "green" center shop rearrangement (including administrative rearrangement for consolidation of management), minor construction, prototyping and process qualification costs. In addition, a 20% contingency factor was applied to the facilities-related one-time costs to address costs that could not be documented such as repair of equipment damaged during transit, asbestos clean-up, etc. Finally, transition support was computed to cover the increased production prior to the workload transfer to minimize impacts on customer support. These costs totaled \$59.3M moving to SA-ALC, \$63.8M to OC-ALC, and \$107.9M to the third ALC. Costs associated with consolidation of management at SA-ALC was \$.1M and, at OC-ALC, was \$.2M. For the third ALC option, "green" center facilities-related costs were addressed by MILCON, but all remaining cost elements applied (see Atch 2, charts J-12 through J-30).

g. Risk was assessed on the basis of five categories for each scenario: wartime support, peacetime surge, skill base erosion, vulnerability and competitiveness. The overall risk associated with consolidation of depot repair and management at any single source is very high with the major factor being skill base erosion (see Atch 2, chart M). For consolidation of management only, risk was determined to be high primarily due to skills base erosion and the impact on peacetime surge capability (see Atch 2, chart R).

h. Potential candidates for component consolidation were identified, but were not studied in-depth. Further study will be performed to determine the feasibility and whether there is any payback associated with such an effort.

#### 4. OTHER CONSIDERATIONS:

##### a. Consolidate Depot Repair and Management:

(1) The capability to surge depot repair will be limited after consolidation. The gaining center will operate during peacetime on a full 5-day, 2-shift basis. The wartime requirement will be a 7-day, 3-shift operation with no slack available for unplanned requirements.

(2) A single depot repair activity increases the vulnerability of the AF to natural disasters or acts of war. By consolidating Two Level engines, the AF will have a single point maintenance capability. Any act of God or war that disrupts the depot operations will quickly ground the force. There will not be timely fall back capability available. Contract repair is possible, but would require at least six months lead-time based on the experience of the fire at Tinker AFB in 1985.

(3) If the engine depots are consolidated, AFMC will be unable to compete for engine workload and the losing depot will not be competitive for any workload. This workload represents 32% of the work at OC-ALC and 41% of the work at

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SA-ALC. The gaining depot will be consumed by the requirement to transfer work, hire and training 40% of the workforce, and produce quality engines on time. There will be no capability to bid and perform on additional new engine work.

(4) At the losing ALC, the impact on the local community will be significant (annual impact of approximately \$510M to San Antonio and \$260M to Oklahoma City).

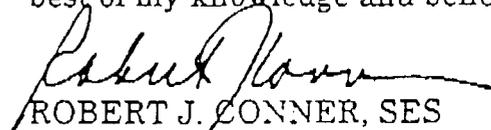
b. Consolidate Management only

(1) Collocation of depot repair and materiel management functions is a long held management principle in AFMC. Collocation provides the opportunity for integration of engineering and maintenance with requirements and contracting. This integrated team pre-dated the Integrated Weapon System Management philosophy, but corresponds exactly to the current definition of an integrated product team. By moving management, we will lose the integration and its benefits.

(2) Communication will be more difficult. Engineering support often is facilitated by hands-on inspections and analyses in the maintenance shops by the engineers. After consolidation, this level of support will require extensive temporary duty travel between centers.

5. CONCLUSION: This study clearly indicates the consolidation of depot repair and management, or even management only, is not cost effective. Further study will be necessary to determine whether there is reasonable payback associated with the consolidation of component repair. This team will refocus efforts to identify potential candidates to minimize redundancies, accentuate technology strengths, strengthen mission support and minimize command investments.

6. CERTIFICATION: I certify that this information is correct and accurate to the best of my knowledge and belief.

  
ROBERT J. CONNER, SES  
Propulsion Product Group Manger

- 4 Atch
- 1. Assumptions
- 2. Briefing Charts
- 3. COBRA Model Runs
- 4. Sensitivity Analysis

ORIGINATOR (OPR) STUDY GROUP (See next page) DATE \_\_\_\_\_

OC-ALC REVIEWER Michael Burch DATE 2-22-94

SA-ALC REVIEWER [Signature] DATE 17 Feb 94

# OC-ALC PRIMARY TEAM MEMBERS

NAME	GRADE/RANK	OFFICE
MIKE BURCH	GM-14	LPAM
LARRY PULLIAM	GM-13	FMPBW
WAYNE COGBURN	GM-13	FMPSC
JOHN McKEE	GS-12	FMPSC
GENE LEITERMAN	GM-13	LPPES
MIKE BLASDEL	GS-12	LPPES
HERBERT BARRINGER	GM-13	LPPNP
GRIZELDA LOY-KRAFT	GS-12	LPPNP
GREG HUGHES	GS-13	LIPEB
STEVE BOUSE	GS-12	MO
DAVID GOSS	GS-12	TIPEE
ELAINE PATTERSON	GS-11	DDOO/XO

# SA-ALC PRIMARY TEAM MEMBERS

NAME	GRADE/RANK	OFFICE
BOB CASTORENA	GM-14	FMPF
DEBORAH WILSON	GS-13	FMPF
KARTIK SAHA	GM-13	FMPF
RICHARD PEARSON	GS-12	FMPF
BEVERLY RUSSEAU	GM-13	FMXC
JEFF ISOM	CAPT	FMXC
ROGER LOZANO	GM-13	LDTI
ROBERT ROMAN	GS-12	LPPEA
KEITH DEVER	GS-12	LPPEB
JERRY TURNER	GM-13	TIMCE
CHARLES DePIETRO	GS-12	TICR
DIANE SOWELL	GS-12	DDST

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## ENGINE DEPOT CONSOLIDATION ASSUMPTIONS

### SCOPE:

1. The scope of this project will center on all current organic engine related workloads including: turbofan and turboprop jet engines, gas turbine engines, and associated engine commodities and accessories (including engine core, blades, vanes, fuel controls, etc.).
2. All management functions, to include system program management, resource management, procurement and general management will relocate or be eliminated depending upon the gaining center's capacity. Related functions in LD/LI, TI, FM, DP, SC, LG, DLA, etc., will also relocate.
3. The manpower, infrastructure, facilities, technologies, industrial processes and Two Level Maintenance (2LM) will be considered.
4. A complete (100%) transfer of engine and related workloads between centers will occur.
5. A complete (100%) transfer of peculiar tooling, fixtures, and other non-capital equipment which directly supports engine and related workloads between centers will occur. Multi-purpose equipment required for other workloads will remain at the original depot.
6. The transfer of common use capital equipment (machinery) will be determined by the need for that equipment based upon available capability as assessed by the gaining center.
7. Future competitions, Depot Maintenance Interservice Support Agreements (DMISAs), and Foreign Military Sales (FMS) workload will not be a factor in the study.
8. There will be no organic second source of repair.
9. Cost of floor vacate and disposal of excess equipment will be included.
10. Data must be certifiable per Air Force Materiel Command (AFMC) 21 Study.
11. This transfer study will be independent of all other exercises.

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12. A modified form of the depot activation planning process will be used to perform the assessment.

13. Environmental clean-up costs will not be included. These costs will be incurred regardless of the realignment decision.

COST:

14. All costs will be expressed in Fiscal Year 1994 (FY94) dollars.

15. Base Operating Support (BOS) tail will be computed using 8.0% for civilians and 9.6% for military adjusted authorizations.

16. COBRA model factors will be used to compute: severance pay, new hire costs, movement of household goods, relocation costs, and equipment transfer costs. Other costs will be used as a direct input to the model.

17. Existing Military Construction (MILCON) projects will be funded and accomplished on schedule.

18. Assume 1370 Depot Product Standard Hour (DPSH) = 1 Personnel Equivalent (PE).

SCHEDULE:

19. The time schedule for transfer: FY96 start to FY01 completion.

WORKLOAD:

20. Workload Review of March 1993 will be used in this exercise. Computations will be adjusted for 2LM if it was not included in the March 1993 review.

21. Manpower is based upon FY01 authorizations.

22. Surge requirements:

- 88% wartime surge requirement factor
- 1.8 wartime surge capability factor
- 7% degradation factor for second shift operation
- 8-hour/5-day standard work week/two shifts per day
- 10-hour/6-day surge work week/two shifts per day

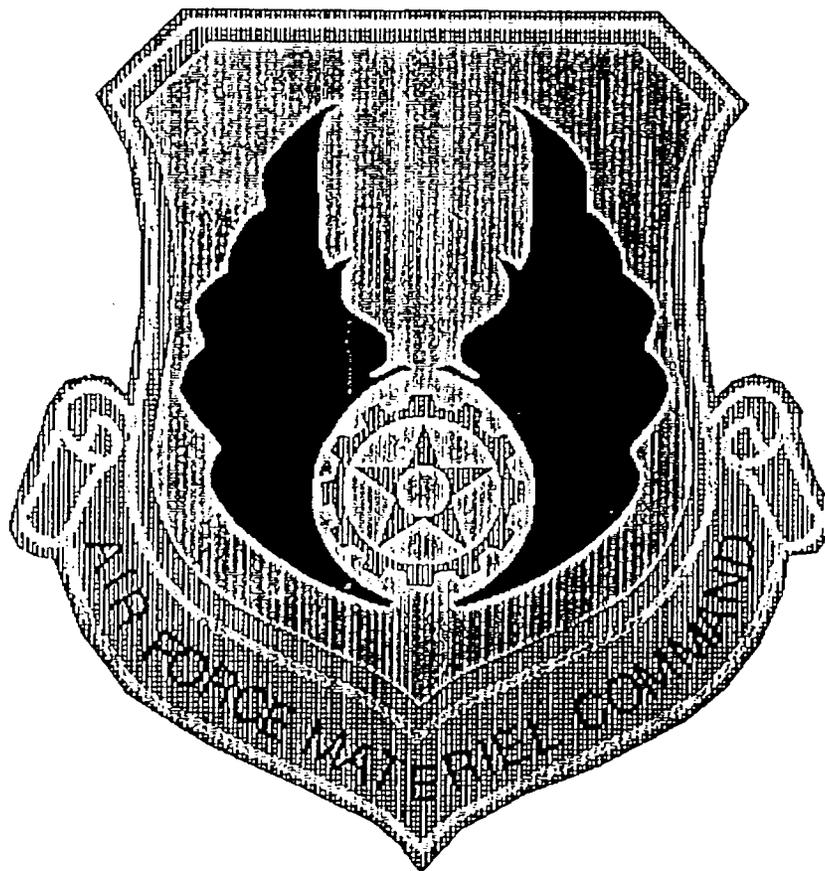
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23. Both ALCs possess capabilities in all basic/core processes required for modern engine overhaul. However, each center possesses varying levels of technology within these processes.

24. There will be no additional Interim Contractor Support (ICS) workload generated by the move.

25. Moving specific workload to a contractor will not be considered as an option.

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# ENGINE DEPOT STUDY

MR ROBERT CONNER  
SA-ALC/LR

# BACKGROUND

- AFMC 21 STUDY
- FALL HORIZONS
  - CC TASKING
- PPGM STUDY

# OVERVIEW

- **CONSOLIDATE DEPOT REPAIR & MANAGEMENT**
  - AT SA-ALC OR OC-ALC OR THIRD ALC
- **CONSOLIDATE MANAGEMENT ONLY**
  - AT SA-ALC OR OC-ALC
- **CONSOLIDATE COMPONENT REPAIR**

# METHODOLOGY

- **WORKLOAD ESTIMATES**
  - **FY96 WORKLOAD (FY93 REVIEW)**
  - **FY01 MANAGEMENT UMD**
- **ENGINEERING ESTIMATES**
  - **SITE VISITS**
  - **PROCESS ASSESSMENT**
- **COST ESTIMATES**
  - **AFMC 21 COMPLIANT**
- **RISK ASSESSMENT**

# ASSUMPTIONS

- CONSIDER ALL CURRENT ORGANIC ENGINE RELATED WORKLOADS INCLUDING LARGE JET ENGINES, SMALL JET ENGINES, GAS TURBINE ENGINES/STARTERS & ASSOCIATED EXCHANGEABLES
- ENGINE & ENGINE-RELATED FUNCTIONS WILL RELOCATE INCLUDING PRODUCTION, MANAGEMENT, AND SUPPORTING TENANTS
- FUNDED WORKLOAD REVIEW OF MAR 93 (FY96 WORKLOAD)
- 8-HOUR, 5-DAY, STANDARD WORK WEEK, 2 SHIFTS
- MANPOWER BASED ON FY01
- NO NEW CONTRACTOR REPAIR GENERATED BY THE MOVE

# ASSUMPTIONS (CONT)

- COSTS EXPRESSED IN FY94 DOLLARS
- EXISTING ENGINE-RELATED MILCON PROJECTS CONSIDERED
- FUTURE COMPETITIONS/DMISAs NOT CONSIDERED
- NO SECOND SOURCES OF REPAIR
- COST TO VACATE FACILITY INCLUDED (EXCEPT ENVIRONMENTAL)
- STUDY IS INDEPENDENT OF AFMC 21 OPTIONS
- DATA MUST BE CERTIFIABLE PER AFMC 21

# RISK ASSESSMENT

## PROBABILITY

## IMPACT

LITTLE

SIGNIFICANT

SEVERE

NOT LIKELY

LOW

MODERATE

HIGH

LIKELY

LOW

MODERATE

HIGH

VERY LIKELY

LOW

HIGH

VERY HIGH

# RISK ASSESSMENT

<b>CATEGORY</b>	<b>PROBABILITY</b>
<b>WARTIME SUPPORT</b>	<b>NOT LIKELY</b>
<b>PEACETIME SURGE</b>	<b>VERY LIKELY</b>
<b>SKILL BASE EROSION</b>	<b>VERY LIKELY</b>
<b>VULNERABILITY</b>	<b>NOT LIKELY</b>
<b>COMPETITIVENESS</b>	<b>LIKELY</b>

# WORKLOAD

(FY96 - DPSH x 1000)

	OC-ALC	SA-ALC	TOTAL
ENGINES	1276	1261	2537
MODULES		965	965
EXCHANGEABLES	868	977	1845
GTEs		365	365
TOTAL	2144	3568	5712

# FY96 JET ENGINE WORKLOAD

	OH QTY	2LM QTY	OH DPSH	2LM DPSH
<b>OC-ALC</b>				
TF30	89	187	66	143
TF33	36	631	26	492
F101	0	207	0	142
F108	0	45	0	19
F110	25	206	24	188
F118	0	43	0	37
SUBTOTAL	150	1319	116	1020
<b>SA-ALC</b>				
F100	186	521	330	333
T56	170	362	48	183
TF39	28	203	68	299
SUBTOTAL	384	1086	446	815
<b>TOTAL</b>	<b>534</b>	<b>2405</b>	<b>562</b>	<b>1835</b>

(DPSH x 1000)

# FY96 WORKLOAD CHANGES FROM BASELINE

WORKLOAD	SOR	+/- DPSH
T56 ENGINE (NAVY)	SA-ALC	180,000+
T56 GEARBOX (FROM CONTRACT)	SA-ALC	114,000+
T-38 GEARBOX	SA-ALC	25,000+
PATRIOT ENGINE & AGPU	SA-ALC	22,000+
<b>TOTAL</b>		<b>341,000+</b>

# OCCASIONAL MANAGED ENGINES

ENGINE	TOTAL INVENTORY	ENGINE	TOTAL INVENTORY
--------	-----------------	--------	-----------------

F101-102	457	TF30-109	311
F108	1,487	TF30-111	230
F110-100	842	TF33-3/103	880
F110-129	202	TF33-5	147
J57-43	1,708	TF33-7	1,333
J57-59	1,019	TF33-9	132
J79-15	1,898	TF33-100	178
J79-17	977	TF33-102	854
T58	144	TF33-102A	34
T64	136		

TOTAL 12,969

# SA-ALC MANAGED ENGINES

ENGINE	TOTAL INVENTORY	ENGINE	TOTAL INVENTORY
F100-100	1,579	J85-17	48
F100-200	1,085	J85-21	2
F100-220/E	1,162	J85-100	70
F100-229	226	TF34	1,464
F103	21	TF39	667
F117	56	T53-11	7
J60	190	T53-13	51
J56	11	T56-7	1,546
J69-9	6	T56-9	405
J69-25	1,382	T56-15	1,987
J69-41	2	T400-400	51
J69-406	2	T700-700	116
J85-5	1,848	T700-701	113
J85-7	80		
		<b>TOTAL</b>	<b>14,136</b>

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# CONSOLIDATE DEPOT REPAIR & MANAGEMENT

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# CONSOLIDATE DEPOT REPAIR & MANAGEMENT DESCRIPTION

	OC-ALC	SA-ALC	TOTAL
INDUSTRIAL SPACE (SF)	1.4M	2.1M	3.5M
OFFICE SPACE (SF)	0.1M	0.1M	0.2M
EQUIPMENT	\$223.1M	\$169.2M	\$392.3M
<b>MAINTENANCE PERSONNEL*</b>			
DIRECT	1,410	2,604	4,014
OVERHEAD	477	1,024	1,486
<b>MANAGEMENT PERSONNEL*</b>			
OTHER SUPPORT	861	1,276	2,152
<b>TOTAL PERSONNEL*</b>	<b>3,151</b>	<b>5,503</b>	<b>8,654</b>

\* FY01 UMD

# MANPOWER SUMMARY

	OC-ALC AUTH	SA-ALC AUTH
MANAGEMENT (O&M/COD)	403	599
PRODUCTION (DMBA)	1,887	3,634
CLSS (O&M)	41	89
STAFF & SUPPORT (O&M/COD)	289	378
BOS (ABG)	248	355
MEDICAL/GDIP/XXXXXR	12	15
DLA MANPOWER	271	433
TOTAL	3,151	5,503

# MANPOWER DETAIL CONSOLIDATE ENGINE MANAGEMENT

	OC-ALC AUTH	SA-ALC AUTH
• MANAGEMENT (O&M/COD)		
- SYSTEM PROGRAM MANAGMENT	311	434
- CONTRACTING	60	122
- COMPETITION ADVOCATE	10	6
- CEMS	22	37
<b>TOTAL</b>	<b>403</b>	<b>599</b>

# OC-ALC MANPOWER DETAIL CONSOLIDATE DEPOT REPAIR

AUTH AUTH AUTH  
OVERHEAD DIRECT TOTAL

• PRODUCTION (DMBA)			
- ENGINES PRODUCTION (LPP & LPM)	279	1,131	1,410
- COMMODITIES PRODUCTION (LIP & LIC)	36	207	243
- SOFTWARE SUPPORT (LAS)	4	36	40
- OTHER DMBA SUPPORT (CI, EM, FM, LG & TI)	158	36	194
TOTAL	477	1,410	1,887

\* DOES NOT INCLUDE 2 OVERHEAD & 58 DIRECT LABOR FOR OPERATION OF PLATING, HEAT TREAT & CLEANING

# SA-ALC MANPOWER DETAIL CONSOLIDATE DEPOT REPAIR

	AUTH OVERHEAD	AUTH DIRECT	AUTH TOTAL
• PRODUCTION (DMBA)			
- ENGINES PRODUCTION (LPP)	494	1,792	2,286
- COMMODITIES PRODUCTION (LDT)	129	432	561
- SOFTWARE SUPPORT (TIS)	5	0	5
- OTHER DMBA SUPPORT (EM, FM, LG & TI)	396	386	782
TOTAL	1,024	2,610	3,634

# COSTS

## CONSOLIDATE DEPOT REPAIR & MANAGEMENT (\$ MILLION)

	TO OC-ALC	TO SA-ALC	TO THIRD ALC
MILCON	8.7	10.2	474.0
EQUIPMENT TRANSFER	54.6	35.8	112.5
MANPOWER	238.6	161.5	445.4
ONE-TIME	63.8	59.3	107.9
TOTAL	365.7	266.8	1139.8
PAYBACK (YEARS)	101+	101+	101+

# COSTS

## MILCON REQUIREMENTS CONSOLIDATE DEPOT REPAIR & MANAGEMENT

FACILITY	TO OC-ALC		TO SA-ALC	
	SCOPE (KSF)	COST (\$M)	SCOPE (KSF)	COST (\$M)
BEARING BAY			*	1.4
LARGE TEST CELL	2**	5.0	2**	6.0
GTE TEST		*		0.7
FUEL TEST	16.0	1.6		
AIR/FUEL PNEUMATIC	5.2	1.2	18.9	1.2
FUEL ACCESSORIES O/H			*	0.6
CRUISE MISSILE TEST			4**	1.0
TOTAL		8.7		10.2

\* REFURBISHMENT TO EXISTING SPACE

\*\* TEST CELL REFURBISHMENT QUANTITY NEEDED

# OC-ALC MILCON REQUIREMENTS

- **MODIFY ENGINE TEST CELLS, B3703**
  - SCOPE: 2 TEST CELLS
  - COST: \$5.030M
- **ADD/ALTER FUEL TEST FACILITY, B3902**
  - SCOPE: 16,042SF
  - COST: \$1.604M
- **CONSTRUCTION FUEL/AIR DRIVEN FACILITY**
  - SCOPE: 5,200 SF
  - COST: \$1.392M
- **MODIFY GTE TEST FACILITY, B214**
  - SCOPE: 12,920 SF
  - COST: \$0.648M
- **TOTAL COST: \$8.674M**

# OC-ALC MILCON REQUIREMENT

## TEST CELL COST BREAKOUT (\$000)

### CONSOLIDATE DEPOT REPAIR & MANAGEMENT

---

PROCURE	2 EA	2LM TF39 ADAPTERS	\$1,500
PROCURE	1 EA	O/H TF39 ADAPTERS	750
MODIFY	2 EA	F110 ADAPTERS TO F100	80
PROCURE	1 EA	F100 ADAPTERS	700
MODIFY	2 EA	TEST CELLS (B3703) FOR T56 ENGINE DYNAMOMETER	2,000
TOTAL			\$5,030

# SA-ALC MILCON REQUIREMENT BEARING BAY

REQUIREMENT: CLEAN ROOM  
(1000 PARTICLES/SQ IN)

SIZE: 5,200 SF

COST/SF: \$264

TOTAL COST: \$1,372,800

SITE: RENOVATION OF BLDG 324

# SA-ALC MILCON REQUIREMENT JET ENGINE TEST CELLS

**COST:**

**REQUIREMENT: UPGRADE 2 UNUSED J79 CELLS  
TO UNIVERSAL CELLS**

**TOTAL COST: \$6,000,000**

**COST AVOIDANCE:**

**REQUIREMENT: UPGRADE 2 PROP CELLS TO  
UNIVERSAL CELLS**

**TOTAL COST: \$14,000,000**

# SA-ALC MILCON REQUIREMENT AIR/FUEL PNEUMATIC

WORKLOAD: VALVE & GOVERNOR SHOP  
ENGINE ACCESSORY HYDRAULICS

REQUIREMENT: 18,900 SF FACILITY  
(35,000 SF @ OC-ALC)

COST/SF: \$65

TOTAL COST: \$1,228,500

SITE: NEW FACILITY

# SA-ALC MILCON REQUIREMENT TEST CELL UPGRADE

WORKLOAD: SMALL CRUISE MISSILE ENGINES

REQUIREMENT: 4 CELLS

COST/CELL: \$250,000

TOTAL COST: \$1,000,000

SITE: 600 AREA

# SA-ALC MILCON REQUIREMENT REFURBISHMENT

WORKLOAD: FUEL ACCESSORIES OVERHAUL

REQUIREMENT: 12,262 SF

COST/SF: \$50

TOTAL COST: \$613,100

SITE: BLDG 347

# ASSUMPTIONS CONSOLIDATION AT THIRD ALC

- WR-ALC USED AS GAINING CENTER
- NO BUILDINGS/FACILITIES AVAILABLE
- MCP CONSTRUCTION REQUIRED
- COST FOR CONSTRUCTION ARE CIVIL ENGINEERING ESTIMATES
- CLEANING/PLATING COST BASED ON COST DATA USED FOR CURRENT PLATING RENOVATION
- ADEQUATE INDUSTRIAL EQUIPMENT WILL BE AVAILABLE

# MILCOR COSTS CONSOLIDATION AT THIRD ALC

TYPE	(\$M)
ENGINE SHOPS	109.0
HEAT TREAT	12.0
CLEANING/PLATING	80.0
TEST CELL	158.0
ACCESSORIES	75.0
PLANT SERVICES	12.0
WASTE WATER TREATMENT	15.0
MANAGEMENT (ADMIN)	13.0
TOTAL	474.0

# COSTS

## EQUIPMENT TRANSPORTATION CONSOLIDATE DEPOT REPAIR & MANAGEMENT

	TO OC-ALC (\$M)	TO SA-ALC (\$M)	TO THIRD ALC (\$M)
EQUIPMENT*	12.9	11.2	25.7
INVENTORY	41.7	24.6	86.8
TOTAL	54.6	35.8	112.5

\* INCLUDES CAPITAL EQUIPMENT & TOOLING/FIXTURES  
COMPUTED BASED UPON COBRA APPLIED FACTORS/ASSUMPTIONS

# EQUIPMENT TRANSPORTATION COSTS CONSOLIDATE DEPOT REPAIR & MANAGEMENT

- **EQUIPMENT: 5% OF REPLACEMENT VALUE**
  - **FOR THIRD ALC**
    - **5% APPLIED TO 70% OF TOTAL OC-ALC AND SA-ALC REPLACEMENT VALUE**
    - **MILEAGE DISTANCE BASED ON ACTUAL FROM EACH ALC**
- **INVENTORY: DLA/LG ESTIMATE TO MOVE**
- **PERSONNEL EQUIPMENT:  
PERSONNEL QUANTITY x WEIGHT x COST**
- **VEHICLE: VEHICLE QUANTITY x MILES x COST**

**NOTE: TRANSPORTATION SPREADSHEET IS USED AT ALL ALCs**

# COSTS

## ONE-TIME

# CONSOLIDATE DEPOT REPAIR & MANAGEMENT

	TO OC-ALC (\$M)	TO SA-ALC (\$M)	TO THIRD ALC (\$M)
RED CENTER			
SHOP FLOOR VACATE	9.1	7.7	16.9
GREEN CENTER			
SHOP REARRANGEMENT	6.6	5.9	**
MINOR CONSTRUCTION		0.3	**
PROTOTYPING	20.3	26.7	47.0
PROCESS QUALIFICATION	2.5		2.5
SUBTOTAL	38.5	40.6	66.4
CONTINGENCY *	3.1	2.8	3.4
TRANSITION SUPPORT	22.2	15.9	38.1
TOTAL	63.8	59.3	107.9

\* 20% OF SHOP REARRANGEMENT, VACATE & MINOR CONSTRUCTION

\*\* ADDRESSED BY MILCON

# **ASSUMPTIONS VACATE SHOP FLOOR CONSOLIDATE DEPOT REPAIR & MANAGEMENT**

- **REMOVE UTILITIES BACK TO SOURCE**
- **PRESERVE AND SKID ALL SHOP EQUIPMENT**
- **NO MAJOR REARRANGEMENT FOR USABLE SPACE**
- **FOR THIRD ALC, TOTAL OC-ALC & SA-ALC SHOP VACATE COSTS**

# ONE-TIME COST SHOP FLOOR VACATE CONSOLIDATE DEPOT REPAIR & MANAGEMENT

- 
- LIGHT INDUSTRIAL \$5.00/SF
  - MEDIUM INDUSTRIAL \$7.50/SF
  - HEAVY INDUSTRIAL \$15.00/SF
  - UNIQUE PROCESSES ENGR ESTIMATES

COST DATA DERIVED FROM PLANT MANAGEMENT PROJECT HISTORY AND ENGINEERING ESTIMATES

# ONE-TIME COSTS

## OC-ALC SHOP FLOOR VACATE CONSOLIDATE DEPOT REPAIR & MANAGEMENT

	SF	COST
LPP	649,166	4,653,312
LIP	301,422	2,380,086
TIP	33,600	167,985
DLA	300,000	525,000
<b>TOTAL</b>	<b>1,284,188</b>	<b>7,726,383</b>

# SA-ALC ONE-TIME COSTS

## SHOP FLOOR VACATE

	SF	TOTAL
LPP	574,860	\$4,289,413
LDT/S	319,737	\$3,014,235
TI	95,734	\$605,505
DLA	700,000	\$1,225,000
	1,690,331	\$9,134,153

# COSTS - ONE-TIME SA-ALC SHOP FLOOR VACATE

LP AREA	SF	COST/SF	TOTAL
B360 - ASSY/DSSY	223,750	\$5.00	\$118,750
B360 - FPI/CLEAN AREA	56,520	\$15.00	\$847,800
B360 - EQT AREAS	192,500	\$7.50	\$1,443,750
B360 - STACKER			\$90,000
B324 - FPI	5,000	\$15.00	\$75,000
B324 - EQT AREA	91,465	\$7.50	\$685,988
B324 - F100 AUG ASSY/DSSY	5,625	\$5.00	\$28,125
<b>TOTAL</b>			<b>\$4,289,413</b>

# SA-ALC ONE-TIME COSTS SHOP FLOOR VACATE

LD AREA	SF	COST/SF	TOTAL
B308	15,812	\$7.50	\$118,590
B308	2,790	\$5.00	\$13,950
B323	2,200	\$5.00	\$11,000
B324	6,600	\$5.00	\$33,000
B324	4,400	\$7.50	\$33,000
B328	4,971	\$5.00	\$24,855
B329	194,402	\$5.00	\$972,010
B331	1,500	\$7.50	\$11,250
B333	7,140	\$5.00	\$35,700
B333	7,140	\$7.50	\$53,550
B340	29,880	\$7.50	\$224,100
B345	3,643	\$7.50	\$27,322
B347	10,879	\$7.50	\$81,593
B347	9,084	\$5.00	\$45,420
B1566	19,296	\$5.00	\$96,480
<b>TOTAL</b>	<b>319,737</b>		<b>\$3,014,235</b>

# SA-ALC ONE-TIME COSTS SHOP FLOOR VACATE

AREA	SF	COST/SF	TOTAL
TI			
TIM - B303	50,734	\$7.50	\$380,505
TIP	45,000	\$5.00	\$225,000
SUBTOTAL			\$605,505
DLA	700,000	\$1.75	\$1,225,000

# COSTS - ONE-TIME OC-ALC SHOP REARRANGEMENT

	FUNCTION	BLDG	SF	COST
ENGINES	BACKSHOPS	3,001	7,122	\$0.142
	CRYO SPIN	3,105	6,674	\$0.267
	2LM	2,101	125,000	\$2.500
	BLADES	3,221	54	\$0.001
GTE	OVERHAUL	3,221	80,000	\$1.600
ENG ACCY	FUEL TEST	3,108	37,189	\$0.743
	FUEL TEST	3,902	4,350	\$0.087
	FUEL OVHL	3,001	25,885	\$0.518
	MACH/WELD	3,001	10,000	\$0.200
	RUBBER	2,211	2,000	\$0.040
	EEC	230	12,000	\$0.240
MANAGEMENT		3,001	60,000	\$0.228
	TOTAL		370,274	\$6.566

# COSTS - ONE-TIME OC-ALC MANAGEMENT REARRANGEMENT

<u>ACTION</u>	<u>COST</u>
MOVEMENT OF 599 PERSONNEL @ \$336 EACH	\$201K
SHIPMENT OF 172 CUBICLES FROM SA @ \$154 EACH	\$27K
TOTAL COST	\$228K

# COSTS - ONE-TIME

## SA-ALC SHOP REARRANGEMENT

### CONSOLIDATE DEPOT REPAIR & MANAGEMENT

	RATIONALE	TOTAL
LP	192,267 SF x \$20/SF	\$3,845,340
LD	ESTIMATED INSTALLATION	\$1,939,539
TIM	5,280 SF x \$20/SF	\$105,600
MANAGEMENT	403 PEs x \$120/STATION	\$48,360
<b>TOTAL</b>		<b>\$5,938,839</b>

# ONE-TIME COSTS

## SA-ALC SHOP REARRANGEMENT

(\$20/SF)

LP AREA	SF	TOTAL
B360	134,333	\$2,686,660
B324	4,294	\$85,880
B301	1,720	\$34,400
B339	620	\$12,400
B329	31,000	\$620,000
B323	11,000	\$220,000
B375	9,300	\$186,000
<b>TOTAL</b>	<b>192,267</b>	<b>\$3,845,340</b>

# COSTS - ONE-TIME SA-ALC SHOP REARRANGEMENT

	METHODOLOGY	TOTAL
LDT/LDS	ESTIMATED INSTALLATION	\$1,939,539
TIM	5280 x \$20/SF	\$105,600
TOTAL		\$2,045,139

# COSTS - ONE-TIME SA-ALC MANAGEMENT REARRANGEMENT

PEs	FACTOR	TOTAL
403	\$120/STATION	\$48,360

# **COSTS - ONE-TIME SA-ALC MINOR CONSTRUCTION**

**WORKLOAD: FUEL ACCESSORIES OVERHAUL**

**REQUIREMENT: REFURBISH 6,269 SF**

**COST/SF: \$50**

**TOTAL COST: \$313,450**

**SITE: BLDG 329**

# COSTS - ONE-TIME PROTOTYPING

- ASSUMPTIONS: MAJOR ENGINES \$2M EACH  
GTEs AND SMALL ENGINES \$.250M EACH
- OC-ALC ENGINES
  - 12 TMS @ \$2M = \$24M
  - 1 TMS @ \$2.2M = \$2.2M  
(ADD 10% FOR PECULIAR GEARBOX)
  - 2 TMS @ \$.250M = \$.5M
  - TOTAL \$26.7M
- SA-ALC ENGINES
  - 7 TMS @ \$2M = \$14M
  - 25 TMS @ \$.250M = \$6.25M
  - TOTAL \$20.3M (ROUND TO 1 DECIMAL)

# **COSTS - ONE-TIME QUALIFICATION ISSUE**

- **TRANSFER OF WORKLOAD TO OC-ALC REQUIRES CERTIFICATION**
- **PEOPLE PERFORMING WORK WILL TRANSFER**
- **MANAGEMENT ENGINEERS WILL TRANSFER**
- **OC-ALC PROCESS ENGINEERS OF ALL DISCIPLINES HAVE EXTENSIVE EXPERIENCE WITH JET ENGINE REPAIR (GE/PRATT WHITNEY/ALLISON)**
- **PROCESS CERTIFICATION SHOULD NOT BE REQUIRED**

# COSTS - ONE-TIME TRANSITION SUPPORT

- OVERTIME DURING TRANSITION
  - 10% OF DIRECT LABOR/YEAR REMAINING AT RED CENTER
  - USED MAR 93 WKLD RVW FOR FY96 AS BASELINE
  - ASSUMED WG-10/4 OVERTIME RATES
    - OC-ALC: \$22.55/HR
    - SA-ALC: \$19.05/HR
  
- PRODUCTION OVERHEAD IS 10% OF DIRECT OVERTIME HOURS
  - SCHEDULERS, PLANNERS, ETC.
  - ASSUMED GS-9/4 OVERTIME RATES
    - OC-ALC: \$21.98
    - SA-ALC: \$21.98

# COSTS - ONE-TIME TRANSITION OVERTIME COST

YEAR	TO OC-ALC		TO SA-ALC	
	HOURS	COST (\$M)	HOURS	COST (\$M)
1	356.8	6.80	214.0	4.82
2	258.4	4.92	171.5	3.87
3	214.0	4.10	128.6	2.90
4	142.6	2.72	85.7	1.93
5	71.2	1.37	42.8	0.97
DIRECT TOTAL	1043.0	19.91	642.6	14.49
PROD OVHD	104.3	2.29	64.3	1.41
TOTAL		22.20		15.90

# CONSIDERATIONS

## CONSOLIDATION OF DEPOT REPAIR & MANAGEMENT

- ABILITY TO SURGE
  - PEACETIME EMERGENCIES
  - WARTIME SUPPORT
- TWO LEVEL MAINTENANCE
  - VULNERABILITY
- IMPACT TO LOSING ALC
  - DEPOT RATES
  - COMPETITIVENESS
- COMMUNITY IMPACTS

# RISKS

## CONSOLIDATE DEPOT REPAIR & MANAGEMENT

CATEGORY	PROBABILITY	IMPACT	RISK
WARTIME SUPPORT	NOT LIKELY	SEVERE	HIGH
PEACETIME SURGE	VERY LIKELY	SIGNIFICANT *	HIGH
SKILL BASE EROSION	VERY LIKELY	SEVERE	VERY HIGH
VULNERABILITY	NOT LIKELY	SEVERE	HIGH
COMPETITIVENESS	LIKELY	SEVERE	HIGH
OVERALL RISK			VERY HIGH

\* SEVERE IMPACT FOR THIRD ALC

FOR OFFICIAL USE ONLY  
INFRASTRUCTURE SENSITIVE

# CONSOLIDATE ENGINE MANAGEMENT

FOR OFFICIAL USE ONLY  
INFRASTRUCTURE SENSITIVE

# CONSOLIDATE ENGINE MANAGEMENT DESCRIPTION

	OC-ALC	SA-ALC	TOTAL
OFFICE SPACE (SF)	0.1M	0.1M	0.2M
PERSONNEL	403	599	1002

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SA-ALC/OC

210 925 9928 P.34

# COSTS

## CONSOLIDATE ENGINE MANAGEMENT (\$ MILLION)

	TO OC-ALC	TO SA-ALC
MANPOWER	76.3	63.8
OFFICE SPACE REARRANGEMENT	0.2	0.1
TOTAL	76.5	63.9
PAYBACK (YEARS)	101+	101+

# CONSIDERATIONS CONSOLIDATE ENGINE MANAGEMENT

- INTEGRATION OF MANAGEMENT WITH DEPOT REPAIR
  - IWSM TENET
  - IPT
- COMMUNICATION
  - ENGINEERING SUPPORT
  - TDY COST

# RISKS

## CONSOLIDATE ENGINE MANAGEMENT

CATEGORY	PROBABILITY	IMPACT	RISK
WARTIME SUPPORT	NOT LIKELY	SIGNIFICANT	MODERATE
PEACETIME SURGE	VERY LIKELY	SIGNIFICANT	HIGH
SKILL BASE EROSION	VERY LIKELY	SIGNIFICANT	HIGH
VULNERABILITY	NOT LIKELY	SIGNIFICANT	LOW
COMPETITIVENESS	LIKELY	LITTLE	LOW
OVERALL RISK			HIGH

# CONSOLIDATE

# COMPONENT REPAIR

# CONSOLIDATE COMPONENT REPAIR

- REFOCUS TEAM TO IDENTIFY POTENTIAL CANDIDATES
- ASSESS COMMAND-WIDE OPPORTUNITIES FOR COST REDUCTIONS
- MINIMIZE REDUNDANCIES
- ACCENTUATE TECHNOLOGY STRENGTHS
- STRENGTHENS MISSION SUPPORT
- MINIMIZE COMMAND INVESTMENTS
- ECD: 15 MAR 94

# CONSOLIDATE COMPONENT REPAIR DESCRIPTION

## POTENTIAL CANDIDATES

## POTENTIAL SOURCE

TYPE II BLADE REPAIR

OC-ALC

BEARING REPAIR

OC-ALC

PNEUMATIC ACCESSORIES

OC-ALC

FUEL ACCESSORIES

SA-ALC

SMALL ENGINES/GTEs

SA-ALC

# SUMMARY

CONSOLIDATE	COST	PAYBACK	RISK
DEPOT REPAIR & MANAGEMENT	\$ .3-\$1.1B	101+ YEARS	VERY HIGH
MANAGEMENT ONLY	\$63.9-76.5M	101+ YEARS	HIGH

# RECOMMENDATION

- PPGM CONSOLIDATE SELECTED COMPONENT REPAIR
  - BRIEF AFMC BUSINESS BOARD
- CONSIGN DATA & FINDINGS TO AFMC 21 STUDY TEAM

INPUT SCREEN THREE - MOVEMENT TABLE (COBRA v4.04) - Page 3  
 Data As Of 08:52 01/13/1994, Report Created 15:28 02/17/1994

Transfers from Tinker AFB, OK to Kelly AFB, TX

	1996	1997	1998	1999	2000	2001
	----	----	----	----	----	----
Officers:	2	4	10	10	10	2
Enlisted:	10	20	50	60	50	10
Civilians:	140	280	701	840	701	140
Students:	0	0	0	0	0	0
Missn Eqpt (tons):	0	0	0	0	0	0
Suppt Eqpt (tons):	0	0	0	0	0	0
Mil Light Vehic:	0	0	0	0	0	0
Heavy/Spec Vehic:	0	0	0	0	0	0

Transfers from Kelly AFB, TX to Tinker AFB, OK

	1996	1997	1998	1999	2000	2001
	----	----	----	----	----	----
Officers:	0	0	0	0	0	0
Enlisted:	0	0	0	0	0	0
Civilians:	0	0	0	0	0	0
Students:	0	0	0	0	0	0
Missn Eqpt (tons):	0	0	0	0	0	0
Suppt Eqpt (tons):	0	0	0	0	0	0
Mil Light Vehic:	0	0	0	0	0	0
Heavy/Spec Vehic:	0	0	0	0	0	0

(See final page for Explanatory Notes)

To: Sf

Atch 3

INPUT SCREEN FIVE - DYNAMIC BASE INFO (COBRA v4.04) - Page 6  
Data As Of 08:52 01/13/1994, Report Created 15:28 02/17/1994

Name: Tinker AFB, OK

	1996	1997	1998	1999	2000	2001
	----	----	----	----	----	----
1-Time Unique(\$K):	2,819	5,637	14,093	16,916	14,093	2,819
1-Time Moving(\$K):	1,794	3,589	8,972	10,766	8,972	1,794
Env Mitig Req(\$K):	0	0	0	0	0	0
Act Misn Cost(\$K):	0	0	0	0	0	0
Misc Rec Cost(\$K):	0	0	0	0	0	0
Property (Acres):	0	0	0	0	0	0
Property (\$K):	0	0	0	0	0	0
(Positive indicates buys, negative indicates sales)						
Construc Sched(%):	0%	0%	0%	0%	0%	0%
Shutdown Sched(%):	0%	23%	12%	16%	22%	27%
Constr Avoid (\$K):	0	0	0	0	0	0
FamHousAvoid (\$K):	0	0	0	0	0	0
Procur Avoid (\$K):	0	0	0	0	0	0
Facility Shut Down (SqFt):						0
Percent of Family Housing ShutDown:						0.0%

Name: Kelly AFB, TX

	1996	1997	1998	1999	2000	2001
	----	----	----	----	----	----
1-Time Unique(\$K):	375	749	1,873	2,248	1,873	375
1-Time Moving(\$K):	0	0	0	0	0	0
Env Mitig Req(\$K):	0	0	0	0	0	0
Act Misn Cost(\$K):	0	0	0	0	0	0
Misc Rec Cost(\$K):	0	0	0	0	0	0
Property (Acres):	0	0	0	0	0	0
Property (\$K):	0	0	0	0	0	0
(Positive indicates buys, negative indicates sales)						
Construc Sched(%):	23%	12%	16%	22%	11%	16%
Shutdown Sched(%):	0%	0%	0%	0%	0%	0%
Constr Avoid (\$K):	0	0	0	0	0	0
FamHousAvoid (\$K):	0	0	0	0	0	0
Procur Avoid (\$K):	0	0	0	0	0	0
Facility Shut Down (SqFt):						0
Percent of Family Housing ShutDown:						0.0%

(See final page for Explanatory Notes)

	Officer	Enlisted	Civilian	Total
1. Base Population				
1.a. Adjusted Population (Eng)	41	212	2,898	3,151
1.b. Engines Man Manpower	31	121	2,488	2,620
1.b.(1) DQBA	12	35	1,840	1,887
1.b.(2) Stock Fund	8	3	462	473
1.b.(3) OAM	11	83	166	260
1.b.(4) RTAE	0	0	0	0
1.c. Base Ops Support	7	83	156	248
1.d. Engines "Must Move"	3	6	3	12
1.e. Tenant Population	0	0	271	271
2. Adjusted Population (TOTAL)	1,524	6,440	12,526	20,490
3. Break Out of DQBA				
3.a. DQBA Direct Labor	0	34	1,376	1,410
3.b. DQBA Overhead	17	1	464	477
4. Manpower Adjustments				
4.a. Preadjusted Manpower	31	87	1,363	1,481
4.b. Adjusted Manpower	29	82	1,281	1,392
5. Hardline Manpower	32	122	2,660	2,814
6. Compute BOS Tail				
6.a. Raw Tail Calculation	3	12	213	228
6.b. Portion	2,828	34,278	62,908	99,998
6.b.(1) BOS Tail	6	78	143	227
7. Personnel Movement	38	200	2,803	3,041
8. Personnel Eliminated	3	12	95	110

SHOP REARRANGEMENT AT SA-ALC

\$108,600 TIM  
 \$1,939,539 LD  
 \$3,843,340 LP  
 \$48,360 Office Rearrangement  
 \$5,938,839

SHOP FLOOR CLEAN-UP AT OC-ALC

\$167,985 TI  
 \$2,380,086 LI  
 \$4,653,312 LP  
 \$525,000 PLA  
 \$7,726,383 Total

Calculating Baseline "Must Move"

Take the total Military (Officer and Enlisted) for both basewide and for the Engine workload alone. Divide Engine Personnel total by Basewide total. This fraction is then multiplied against total "must move" personnel to derive engines' fair share. Allocate on the basis of ratio of officer, enlisted and civilian for "must move" category.

	(30+170)/(1524+6440)*610 =	12	17
	131	331	128
Off:	151/610*11 =	3	3
Enl:	331/610*11 =	6	6
Civ:	128/610*11 =	3	3

Calculating Baseline PCS

Take the total personnel (Officer, Enlisted and civilian) for both basewide and for the Engine workload alone. Divide Engine Personnel total by Basewide total. This fraction is then multiplied against total PCS personnel to derive engines' fair share. Allocate on the basis of ratio of officer, enlisted and civilian for PCS category.

	(31+121+2468+271)/(1524+6440+12526)*17	248	248
	50	603	1,102
Off:	50/1755*248 =	7	7
Enl:	603/1755*248 =	85	85
Civ:	1102/1755*248 =	156	156

EQUIPMENT TRANSFER		OC-ALC
<b>EQUIPMENT</b>		
WEAPON SYSTEM SUPPORT EQUIPMENT		\$0
APPROPRIATED FUND		\$0
OVER 5K		\$161,098,031
UNDER 5K		\$58,404,237
		=====
TOTAL		\$219,502,268
<b>EXCESS EQUIPMENT</b>		
	PERCENT	
WEAPON SYSTEM SUPPORT EQUIPMENT	0.00%	\$0
APPROPRIATED FUND	0.00%	\$0
NON APPROPRIATED FUND	0.00%	\$0
OTHER	0.00%	\$0
		=====
TOTAL		\$0
<b>REPURCHASE VS MOVE</b>		
WEAPON SYSTEM SUPPORT EQUIPMENT	5.00%	\$0
APPROPRIATED FUND	5.00%	\$0
NON APPROPRIATED FUND	0.00%	\$0
OTHER	0.00%	\$0
		=====
TOTAL		\$0
<b>COST TO RELOCATE EQUIPMENT</b>		
REMAINING EQUIPMENT VALUE		\$219,502,268
P.C.H (WESTING HOUSE)	3.50%	\$7,682,579
TRANSPORTATION (DST)	0.50%	\$1,087,511
REMOVE AND REINSTALL (SA-ALC/MADE)	1.0%	\$2,195,023
		=====
TOTAL COST TO MOVE		\$10,875,113
<b>COST TO DISPOSE OF EQUIPMENT (DRMO)</b>		
EQUIPMENT VALUE		\$0
DISPOSAL COST REMOVE AND TRANSPORT	2.00%	\$0
<b>TOTAL EQUIPMENT COST</b>		
RELOCATE		\$10,975,113
DISPOSE		\$0
BUY		\$0
<b>(A) TOTAL</b>		
		\$10,875,113
<b>INVENTORIES DO33, GO72, G402A</b>		
STOCK FUND		\$4,000,000
OTHER		\$0
		\$0
		\$0
		\$0
		=====
TOTAL		\$4,000,000
AMOUNT TO MOVE	100.00%	\$4,000,000
COST TO RELOCATE		\$80,000
DLA ESTIMATE TO RELOCATE	2.00%	\$24,560,405
<b>(B) TOTAL</b>		
		\$24,840,405
<b>MATERIAL DAMAGE</b>		
EQUIPMENT		\$219,502,268
(TVA)*TIMES HANDLED*.0001	HANDLING	
	8	\$176,602
INVENTORY		\$4,000,000
((TVA INVENTORY)*TIMES HANDLED*.0001)	HANDLING	
	4	\$1,800

PERSONNEL EQUIPMENT

NUMBER OF PEOPLE		
	CIVILIAN	1,882
	MILITARY	238
		<u>1,920</u>

NUMBER OF POUNDS PER PERSON		710
		<u><u>1,363,200</u></u>

LBS IN CWT		13,632
COST PER CWT		\$0.33
		<u><u></u></u>

OFFICE EQUIPMENT COST		\$4,499
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TRANSPORTATION

NUMBER OF TRUCKS		34
NUMBER OF MILES		481
		<u><u></u></u>

TOTAL MILES		16,354
COST PER MILE		\$25,512

TOTAL COST		\$30,011.
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VEHICLE MOVEMENT

MILITARY LIGHT VEHICLE		15
AVG NUMBER OF MILES		481
COST PER MILE		\$0.41
		<u><u></u></u>

\$2,958

MILITARY SPECIAL VEHICLE		82
AVG NUMBER OF MILES		481
COST PER MILE		\$1.32
		<u><u></u></u>

\$52,063

TOTAL COST		\$55,022
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TOTAL TRANSPORTATION COST OC-ALC

EQUIPMENT RELOCATION		\$10,975,113
EQUIPMENT DISPOSAL		\$0
PURCHASE VS MOVE		\$0
INVENTORY		\$24,640,406
MATERIAL DAMAGE		\$177,202
EQUIPMENT PERSONNEL		\$30,011
VEHICLE		\$55,022
TOTAL		\$35,877,754

**FOR OFFICIAL USE ONLY**

COBRA REALIGNMENT SUMMARY (COBRA v4.04)

Data As Of 08:52 01/13/1994, Report Created 10:17 02/22/1994

Group : AFMC  
 Service : USAF  
 Option Package : TWO VS ONE ENG DEPOT

Starting Year : 1996  
 Break Even Year: 2096+ (Year 101+)  
 ROI Year : 2102+ (100+ Years)

Option NPV in 2015 (\$K) : 179,952  
 Total One-Time Cost (\$K) : 266,792

	Net Costs (\$K) Constant Dollars						
	1996	1997	1998	1999	2000	2001	Beyond
Misn	0	0	0	0	0	0	0
Pers	-99	-412	-1,120	-2,274	-3,436	-4,161	-4,292
Ovhd	14,564	11,028	8,586	6,481	4,621	2,835	-745
Cons	2,249	2,346	2,805	2,346	468	0	0
Movg	4,232	8,466	21,164	25,399	21,164	4,232	0
Othr	6,221	12,434	31,092	37,255	31,092	6,221	0
<b>TOT</b>	<b>27,168</b>	<b>33,861</b>	<b>62,526</b>	<b>69,207</b>	<b>53,910</b>	<b>9,127</b>	<b>-5,038</b>

	1996	1997	1998	1999	2000	2001	TOTAL
<b>FORCE STRUCTURE REDUCTIONS</b>							
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	0	0	0	0	0	0	0
<b>POSITIONS ELIMINATED</b>							
Officers	0	0	1	1	1	0	3
Enlisted	1	1	3	3	3	1	12
Civilian	5	10	24	27	24	5	95
<b>PERSONNEL REALIGNMENTS</b>							
Officers	2	4	10	10	10	2	38
Enlisted	10	20	50	60	50	10	200
Students	0	0	0	0	0	0	0
TOT MIL	12	24	60	70	60	12	238
Civilian	140	280	701	840	701	140	2,802
<b>TOTAL</b>	<b>152</b>	<b>304</b>	<b>761</b>	<b>910</b>	<b>761</b>	<b>152</b>	<b>3,040</b>

Summary:

The Oklahoma City Air Logistics Center (OC-ALC) is the Red Team in this scenario. Its engine repair capability will be transferred to the San Antonio Air Logistics Center (SA-ALC). The OC-ALC will remain open however to handle other types of workload. This scenario will calculate the cost of realigning the engine workload to the SA-ALC.

## FOR OFFICIAL USE ONLY

COBRA REALIGNMENT SUMMARY (COBRA v4.04) - Page 2  
 Data As Of 08:52 01/13/1994, Report Created 10:18 02/22/1994

Costs (\$K)	Constant Dollars						
	1996	1997	1998	1999	2000	2001	Beyond
Misn	0	0	0	0	0	0	0
Pers	21	63	168	282	386	407	407
Ovhd	14,564	11,028	8,586	6,481	4,621	2,835	-745
Cons	2,249	2,346	2,805	2,346	468	0	0
Movg	4,249	8,499	21,248	25,498	21,248	4,249	0
Othr	6,221	12,434	31,092	37,255	31,092	6,221	0
TOT	27,305	34,371	63,899	71,861	57,817	13,713	-338

Savings (\$K)	Constant Dollars						
	1996	1997	1998	1999	2000	2001	Beyond
Misn	0	0	0	0	0	0	0
Pers	120	476	1,288	2,555	3,822	4,569	4,700
Ovhd	0	0	0	0	0	0	0
Cons	0	0	0	0	0	0	0
Movg	17	34	85	99	85	17	0
Othr	0	0	0	0	0	0	0
TOT	137	509	1,373	2,654	3,907	4,586	4,700

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## FOR OFFICIAL USE ONLY

TOTAL ONE-TIME COST REPORT (COBRA v4.04)  
 Data As Of 08:52 01/13/1994, Report Created 10:17 02/22/1994

(All values in Dollars)

MilCon w/o Avoidances	10,215,000
+ Moving	84,657,091
+ Eliminated Military PCS	90,252
+ Administrative/Support	47,516,130
+ Mothball/Shutdown	0
+ Civilian RIF	32,068,580
+ Civilian Early Retirement	1,077,253
+ Civilian New Hires	7,516,000
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	63,870,000
+ HAP / RSE	13,755,311
+ Unemployment	6,026,800
+ Info Management Account	0
-----	
= Total One-Time Costs	266,792,418

Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0

Total One-Time Costs	266,792,418
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	266,792,418

FOR OFFICIAL USE ONLY

# FOR OFFICIAL USE ONLY

BASE ONE-TIME COST REPORT (COBRA v4.04)  
 Data As Of 08:52 01/13/1994, Report Created 10:17 02/22/1994

Base: Tinker AFB, OK  
 (All values in Dollars)

MilCon w/o Avoidances	0
+ Moving	84,657,091
+ Eliminated Military PCS	90,252
+ Administrative/Support	47,516,130
+ Mothball/Shutdown	0
+ Civilian RIF	32,068,580
+ Civilian Early Retirement	1,077,253
+ Civilian New Hires	0
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	56,377,000
+ HAP / RSE	13,755,311
+ Unemployment	6,026,800
+ Info Management Account	0
-----	
= Total One-Time Costs	241,568,418
Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0
Total One-Time Costs	241,568,418
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	241,568,418

# FOR OFFICIAL USE ONLY

**FOR OFFICIAL USE ONLY**

BASE ONE-TIME COST REPORT (COBRA v4.04) - Page 2  
 Data As Of 08:52 01/13/1994, Report Created 10:17 02/22/1994

Base: Kelly AFB, TX  
 (All values in Dollars)

MilCon w/o Avoidances	10,215,000
+ Moving	0
+ Eliminated Military PCS	0
+ Administrative/Support	0
+ Mothball/Shutdown	0
+ Civilian RIF	0
+ Civilian Early Retirement	0
+ Civilian New Hires	7,516,000
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	7,493,000
+ HAP / RSE	0
+ Unemployment	0
+ Info Management Account	0
-----	
= Total One-Time Costs	25,224,000

Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0

Total One-Time Costs	25,224,000
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	25,224,000

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INPUT SCREEN ONE - GENERAL SCENARIO (COBRA v4.04)  
Data As Of 08:52 01/13/1994, Report Created 15:43 02/17/1994

Group : AFMC  
Service : USAF  
Option Package : TWO VS ONE ENG MGT

Model Year One : FY 1996

Model does Time-Phasing of Construction/Shutdown: Yes

Base Name .....	Strategy:
Tinker AFB, OK	Realignment
Kelly AFB, TX	Realignment

Summary:

The Oklahoma City Air Logistics Center (OC-ALC) is the Red Team in this scenario. Its engine management will be transferred to the San Antonio Air Logistics Center (SA-ALC). The OC-ALC will remain open however to handle other types of workload. This scenario will calculate the cost of realigning the engine management to the SA-ALC.

(See final page for Explanatory Notes)

INPUT SCREEN THREE - MOVEMENT TABLE (COBRA v4.04) - Page 3  
 Data As Of 08:52 01/13/1994, Report Created 07:52 02/04/1994

Transfers from Tinker AFB, OK to Kelly AFB, TX

	1996	1997	1998	1999	2000	2001
	----	----	----	----	----	----
Officers:	0	1	2	4	2	0
Enlisted:	1	1	4	3	4	1
Civilians:	19	39	97	116	97	19
Students:	0	0	0	0	0	0
Missn Eqpt (tons):	0	0	0	0	0	0
Suppt Eqpt (tons):	0	0	0	0	0	0
Mil Light Vehic:	0	0	0	0	0	0
Heavy/Spec Vehic:	0	0	0	0	0	0

Transfers from Kelly AFB, TX to Tinker AFB, OK

	1996	1997	1998	1999	2000	2001
	----	----	----	----	----	----
Officers:	0	0	0	0	0	0
Enlisted:	0	0	0	0	0	0
Civilians:	0	0	0	0	0	0
Students:	0	0	0	0	0	0
Missn Eqpt (tons):	0	0	0	0	0	0
Suppt Eqpt (tons):	0	0	0	0	0	0
Mil Light Vehic:	0	0	0	0	0	0
Heavy/Spec Vehic:	0	0	0	0	0	0

(See final page for Explanatory Notes)

INPUT SCREEN FIVE - DYNAMIC BASE INFO (COBRA v4.04) - Page 6  
 Data As Of 08:52 01/13/1994, Report Created 15:43 02/17/1994

Name: Tinker AFB, OK

	1996	1997	1998	1999	2000	2001
	----	----	----	----	----	----
1-Time Unique(\$K):	32	64	157	181	157	32
1-Time Moving(\$K):	0	1	1	1	1	0
Env Mitig Req(\$K):	0	0	0	0	0	0
Act Misn Cost(\$K):	0	0	0	0	0	0
Misc Rec Cost(\$K):	0	0	0	0	0	0
Property (Acres):	0	0	0	0	0	0
Property (\$K):	0	0	0	0	0	0
(Positive indicates buys, negative indicates sales)						
Construc Sched(%):	0%	0%	0%	0%	0%	0%
Shutdown Sched(%):	0%	23%	12%	16%	22%	27%
Constr Avoid (\$K):	0	0	0	0	0	0
FamHousAvoid (\$K):	0	0	0	0	0	0
Procur Avoid (\$K):	0	0	0	0	0	0
Facility Shut Down (SqFt):						0
Percent of Family Housing ShutDown:						0.0%

Name: Kelly AFB, TX

	1996	1997	1998	1999	2000	2001
	----	----	----	----	----	----
1-Time Unique(\$K):	2	5	12	15	12	2
1-Time Moving(\$K):	0	0	0	0	0	0
Env Mitig Req(\$K):	0	0	0	0	0	0
Act Misn Cost(\$K):	0	0	0	0	0	0
Misc Rec Cost(\$K):	0	0	0	0	0	0
Property (Acres):	0	0	0	0	0	0
Property (\$K):	0	0	0	0	0	0
(Positive indicates buys, negative indicates sales)						
Construc Sched(%):	23%	12%	16%	22%	11%	16%
Shutdown Sched(%):	0%	0%	0%	0%	0%	0%
Constr Avoid (\$K):	0	0	0	0	0	0
FamHousAvoid (\$K):	0	0	0	0	0	0
Procur Avoid (\$K):	0	0	0	0	0	0
Facility Shut Down (SqFt):						0
Percent of Family Housing ShutDown:						0.0%

(See final page for Explanatory Notes)

	FY96	FY97	FY98	FY99	FY00	FY01	Total	XCHX
Eliminations Officer	5,000	10,000	25,000	30,000	25,000	5,000	100,000	
Enlisted	0	0	0	1	0	0	1	1
Civilian	0	0	1	1	0	0	2	2
	1	3	7	7	7	1	26	26
Transfers Officer	0	1	2	4	2	0	9	9
Enlisted	1	1	4	3	4	1	14	14
Civilian	19	39	97	116	91	19	387	387
Civilian Loan Civs	8	16	39	45	39	8	155	155
Hours	1,600	3,200	7,800	9,000	7,800	1,600	31,000	31,000
Civilian Leave	\$32,144	\$64,280	\$156,702	\$100,810	\$156,702	\$32,144	\$622,790	\$622,790
ONE-TIME UNIQUE @ OC	\$32,144	\$64,280	\$156,702	\$100,810	\$156,702	\$32,144	\$622,790	\$622,790
Breakout	5,000	10,000	25,000	30,000	25,000	5,000	100,000	
Transportation	\$217	\$435	\$1,007	\$1,306	\$1,007	\$217	\$4,349	\$4,349
ONE-TIME MOVE	\$217	\$435	\$1,007	\$1,306	\$1,007	\$217	\$4,349	\$4,349
Office Rearrangement	\$2,418	\$4,836	\$12,090	\$14,508	\$12,090	\$2,418	\$48,360	\$48,360
ONE-TIME UNIQUE @ SA	\$2,418	\$4,836	\$12,090	\$14,508	\$12,090	\$2,418	\$48,360	\$48,360

DC-ALC as red center				
	Officer	Enlisted	Civilian	Total
1. Base Population				
1.a. Adjusted Population (Eng)	10	16	413	439
1.b. Engines Man Manpower	9	3	391	403
1.b.(1) DMBA	0	0	0	0
1.b.(2) Stock Fund	9	3	391	403
1.b.(3) O&M	0	0	0	0
1.b.(4) RDT&E	0	0	0	0
1.c. Base Ops Support	1	12	22	35
1.d. Engines "Must Move"	0	1	0	1
1.e. Tenant Population	0	0	0	0
2. Adjusted Population (Total)	1,524	6,440	12,526	20,490
3. Break Out of DMBA				
3.a. DMBA Direct Labor	0	0	0	0
3.b. DMBA Overhead	0	0	0	0
4. Manpower Adjustments				
4.a. Preadjusted Manpower	9	3	391	403
4.b. Adjusted Manpower	8	3	368	379
5. Hardline Manpower	8	4	368	380
6. Compute BOS Tail				
6.a. Rsw Tail Calculation	1	0	29	30
6.b. Portion	2.86%	34.29%	62.86%	100.01%
6.b.(1) BOS Tail	1	10	19	30
7. Personnel Movement	9	14	387	410
8. Personnel Eliminated	1	2	25	29

Calculating Baseline "Must Move"

Take the total Military (Officer and Enlisted) for both basewide and for the Engine workload alone. Divide Engine Personnel total by Basewide total. This fraction is then multiplied against total "must move" personnel to derive engines' fair share. Allocate on the basis of ratio of officer, enlisted and civilian for "must move" category.

	(9+3)/(1524+6440)*610 =		1	1
	151	331	128	610
Off:	151/610*1 =		0	
Enl:	331/610*1 =		1	
Civ:	128/610*1 =		0	

Calculating Baseline BOS

Take the total personnel (Officer, Enlisted and Civilian) for both basewide and for the Engine workload alone. Divide Engine Personnel total by Basewide total. This fraction is then multiplied against total BOS personnel to derive engines' fair share. Allocate on the basis of ratio of officer, enlisted and civilian for BOS category.

	(9+3+391)/(1524+6440+12526)*1755 =		35	35
	50	603	1,102	1,755
Off:	50/1755*35 =		1	
Enl:	603/1755*35 =		12	
Civ:	1102/1755*35 =		22	

EQUIPMENT

EQUIPMENT			
WEAPON SYSTEM SUPPORT EQUIPMENT			\$0
APPROPRIATED FUND			\$0
OVER 5K			\$0
UNDER 5K			\$0
		=====	
TOTAL			\$0

EXCESS EQUIPMENT	PERCENT		
WEAPON SYSTEM SUPPORT EQUIPMENT	0.00%		\$0
APPROPRIATED FUND	0.00%		\$0
NON APPROPRIATED FUND	0.00%		\$0
OTHER	0.00%		\$0
		=====	
TOTAL			\$0

REPURCHASE VS MOVE			
WEAPON SYSTEM SUPPORT EQUIPMENT	5.00%		\$0
APPROPRIATED FUND	5.00%		\$0
NON APPROPRIATED FUND	0.00%		\$0
OTHER	0.00%		\$0
		=====	
TOTAL			\$0

COST TO RELOCATE EQUIPMENT			
REMAINING EQUIPMENT VALUE			\$0
P,C,H (WESTING HOUSE)	3.50%		\$0
TRANSPORTATION (DST)	0.50%		\$0
REMOVE AND REINSTALL (SA-ALC/MADE)	1.0%		\$0
TOTAL COST TO MOVE			\$0

COST TO DISPOSE OF EQUIPMENT (DRMO)			
EQUIPMENT VALUE			\$0
DISPOSAL COST REMOVE AND TRANSPORT	2.00%		\$0

EQUIPMENT COST			
RELOCATE			\$0
DISPOSE			\$0
BUY			\$0
(A) TOTAL			\$0

INVENTORIES DO33, GO72, G402A			
STOCK FUND			\$0
OTHER			\$0
			\$0
			\$0
		=====	
TOTAL			\$0
AMOUNT TO MOVE	100.00%		\$0
COST TO RELOCATE	2.00%		\$0
DLA ESTIMATE TO RELOCATE			\$0
(B) TOTAL			\$0

MATERIAL DAMAGE			
EQUIPMENT			\$0
(TVA)*TIMES HANDLED*.0001	HANDLING	8	\$0
INVENTORY			\$0
((TVA INVENTORY)*TIMES HANDLED*.0001)	HANDLING	4	\$0

PERSONNEL EQUIPMENT

NUMBER OF PEOPLE		
	CIVILIAN	232
	MILITARY	23
		<u>255</u>

NUMBER OF POUNDS PER PERSON		710
		<u>181,050</u>

LBS IN CWT		1,811
COST PER CWT		\$0.33
		<u>\$597</u>

OFFICE EQUIPMENT COST		\$597
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TRANSPORTATION

NUMBER OF TRUCKS		5
NUMBER OF MILES		481
		<u>2,405</u>

TOTAL MILES		2,405
COST PER MILE		\$3,752

TOTAL COST		\$4,349
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VEHICLE MOVEMENT

MILITARY LIGHT VEHICLE		0
AVG NUMBER OF MILES		481
COST PER MILE		\$0.41
		<u>\$0</u>

MILITARY SPECIAL VEHICLE		0
AVG NUMBER OF MILES		481
COST PER MILE		\$1.32
		<u>\$0</u>

TOTAL COST		\$0
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TOTAL TRANSPORTATION COST OC-ALC

EQUIPMENT RELOCATION		\$0
EQUIPMENT DISPOSAL		\$0
PURCHASE VS MOVE		\$0
INVENTORY		\$0
MATERIAL DAMAGE		\$0
EQUIPMENT PERSONNEL		\$4,349
VEHICLE		\$0
TOTAL		\$4,349

COBRA REALIGNMENT SUMMARY (COBRA v4.04)

Data As Of 08:52 01/13/1994, Report Created 15:43 02/17/1994

Group : AFMC  
 Service : USAF  
 Option Package : TWO VS ONE ENG MGT

Starting Year : 1996  
 Break Even Year: 2096+ (Year 101+)  
 ROI Year : 2102+ (100+ Years)

Option NPV in 2015 (\$K) : 43,896  
 Total One-Time Cost (\$K) : 63,519

Net Costs (\$K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Beyond
Misn	0	0	0	0	0	0	0
Pers	-20	-97	-306	-641	-990	-1,157	-1,178
Ovhd	14,466	10,862	8,185	6,138	4,565	3,334	-115
Cons	0	0	0	0	0	0	0
Movg	306	665	1,702	2,063	1,702	306	0
Othr	449	939	2,332	2,737	2,330	449	0
TOT	15,201	12,369	11,914	10,297	7,607	2,933	-1,293

	1996	1997	1998	1999	2000	2001	TOTAL
FORCE STRUCTURE REDUCTIONS							
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	0	0	0	0	0	0	0
POSITIONS ELIMINATED							
Officers	0	0	0	1	0	0	1
Enlisted	0	0	1	1	0	0	2
Civilian	1	3	7	7	7	1	26
PERSONNEL REALIGNMENTS							
Officers	0	1	2	4	2	0	9
Enlisted	1	1	4	3	4	1	14
Students	0	0	0	0	0	0	0
TOT MIL	1	2	6	7	6	1	23
Civilian	19	39	97	116	97	19	387
TOTAL	20	41	103	123	103	20	410

Summary:

The Oklahoma City Air Logistics Center (OC-ALC) is the Red Team in this scenario. Its engine management will be transferred to the San Antonio Air Logistics Center (SA-ALC). The OC-ALC will remain open however to handle other types of workload. This scenario will calculate the cost of realigning the engine management to the SA-ALC.

COBRA REALIGNMENT SUMMARY (COBRA v4.04) - Page 2  
 Data As Of 08:52 01/13/1994, Report Created 15:43 02/17/1994

Costs (\$K)	Constant Dollars						
	1996	1997	1998	1999	2000	2001	Beyond
Misn	0	0	0	0	0	0	0
Pers	1	8	24	51	67	68	68
Ovhd	14,466	10,862	8,185	6,138	4,565	3,334	-115
Cons	0	0	0	0	0	0	0
Movg	308	668	1,711	2,073	1,711	308	0
Othr	449	939	2,332	2,737	2,330	449	0
TOT	15,224	12,477	12,252	11,000	8,674	4,160	-46

Savings (\$K)	Constant Dollars						
	1996	1997	1998	1999	2000	2001	Beyond
Misn	0	0	0	0	0	0	0
Pers	21	105	330	693	1,058	1,226	1,247
Ovhd	0	0	0	0	0	0	0
Cons	0	0	0	0	0	0	0
Movg	1	3	8	10	8	1	0
Othr	0	0	0	0	0	0	0
TOT	22	108	338	703	1,066	1,227	1,247

TOTAL ONE-TIME COST REPORT (COBRA v4.04)  
 Data As Of 08:52 01/13/1994, Report Created 15:43 02/17/1994

(All values in Dollars)

MilCon w/o Avoidances	0
+ Moving	6,746,640
+ Eliminated Military PCS	19,402
+ Administrative/Support	47,516,130
+ Mothball/Shutdown	0
+ Civilian RIF	4,593,084
+ Civilian Early Retirement	147,569
+ Civilian New Hires	1,020,000
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	671,000
+ HAP / RSE	1,942,242
+ Unemployment	863,200
+ Info Management Account	0
-----	
= Total One-Time Costs	63,519,267

Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0

Total One-Time Costs	63,519,267
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	63,519,267

## BASE ONE-TIME COST REPORT (COBRA v4.04)

Data As Of 08:52 01/13/1994, Report Created 15:43 02/17/1994

Base: Tinker AFB, OK  
 (All values in Dollars)

MilCon w/o Avoidances	0
+ Moving	6,746,640
+ Eliminated Military PCS	19,402
+ Administrative/Support	47,516,130
+ Mothball/Shutdown	0
+ Civilian RIF	4,593,084
+ Civilian Early Retirement	147,569
+ Civilian New Hires	0
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	623,000
+ HAP / RSE	1,942,242
+ Unemployment	863,200
+ Info Management Account	0
-----	
= Total One-Time Costs	62,451,267
Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0
Total One-Time Costs	62,451,267
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	62,451,267

BASE ONE-TIME COST REPORT (COBRA v4.04) - Page 2  
Data As Of 08:52 01/13/1994, Report Created 15:43 02/17/1994

Base: Kelly AFB, TX  
(All values in Dollars)

MilCon w/o Avoidances	0
+ Moving	0
+ Eliminated Military PCS	0
+ Administrative/Support	0
+ Mothball/Shutdown	0
+ Civilian RIF	0
+ Civilian Early Retirement	0
+ Civilian New Hires	1,020,000
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	48,000
+ HAP / RSE	0
+ Unemployment	0
+ Info Management Account	0
-----	
= Total One-Time Costs	1,068,000
Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0
Total One-Time Costs	1,068,000
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	1,068,000

## INPUT SCREEN THREE (SA-ALC TO OC-ALC)

		1996 5%	1997 10%	1998 25%	1999 30%	2000 25%	2001 5%	
Officers	41	2	4	10	13	10	2	41
Enlisted	162	8	16	41	48	41	8	162
Civilians	5232	262	523	1308	1569	1308	262	5232
Off Eliminations	2	0	0	1	0	1	0	2
Enl Eliminations	6	0	0	2	2	2	0	6
Civ Eliminations	67	3	7	17	20	17	3	67
Mill Light Vehicles	205	10	21	51	62	51	10	
Heavy/Spec Vehicles	37	2	4	9	11	9	2	

## INPUT SCREEN FIVE (OC-ALC TO SA-ALC)

		Contingency	1996 5%	1997 10%	1998 25%	1999 30%	2000 25%	2001 5%	TOTAL
1 Time Unique	\$68,883,107	\$3,140,031	\$3,601,157	\$7,202,314	\$18,005,785	\$21,606,941	\$18,005,785	\$3,601,157	\$72,023,138
Civilian Leave	\$8,232,954		\$411,648	\$823,295	\$2,058,239	\$2,469,886	\$2,058,239	\$411,648	\$8,232,954
Prototyping	\$20,250,000		\$1,012,500	\$2,025,000	\$5,062,500	\$6,075,000	\$5,062,500	\$1,012,500	\$20,250,000
Shop Rearrange	\$6,566,000	\$1,313,200	\$393,960	\$787,920	\$1,969,800	\$2,363,760	\$1,969,800	\$393,960	\$7,879,200
Clean-Up (OC-ALC)	\$9,134,153	\$1,826,831	\$548,049	\$1,096,098	\$2,740,246	\$3,288,295	\$2,740,246	\$548,049	\$10,960,984
Qualification	\$2,500,000		\$125,000	\$250,000	\$625,000	\$750,000	\$625,000	\$125,000	\$2,500,000
Transition Support	\$22,200,000		\$1,110,000	\$2,220,000	\$5,550,000	\$6,660,000	\$5,550,000	\$1,110,000	\$22,200,000
1 Time Moving	\$54,584,341		\$2,729,217	\$5,458,434	\$13,646,085	\$16,375,302	\$13,646,085	\$2,729,217	\$54,584,341
Spreadsheet	\$12,859,062								
DLA	\$41,725,279								
			1996 23%	1997 12%	1998 16%	1999 22%	2000 11%	2001 16%	
Construction	NEW \$2,996,000	MOD \$5,708,000	\$2,001,920	\$1,044,480	\$1,392,640	\$1,914,880	\$957,440	\$1,392,640	\$8,704,000

PROTOTYPING	\$20,250,000		
TI			
LDT to OC-ALC	\$6,250,000		
LPP to OC-ALC	\$14,000,000		
SHOP REARRANGE	\$6,566,000		
Engines	\$2,910,000		
GTE	\$1,600,000		
Eng Accy	\$1,828,000		
Management	\$228,000		
QUALIFICATION	\$2,500,000		
CLEAN-UP	\$9,134,153		
TI	\$380,505		
LD	\$3,014,235		
LPP	\$4,209,413		
TIP	\$225,000		
DLA	\$1,225,000		
	NEW	MOD	
CONSTRUCTION	\$2,996,000	\$5,708,000	\$8,704,000
LPP		\$5,030,000	
LIP	\$2,996,000		
LIP		\$678,000	

	Officer	Enlisted	Civilian	Total
1. Base Population				
1.a. Adjusted Population (En	43	168	5,299	5,510
1.b. Engines Msn Manpower	38	156	4,506	4,700
1.b.(1) DMBA	8	32	3,594	3,634
1.b.(2) Stock Fund	18	1	586	605
1.b.(3) O&M	12	123	326	461
1.b.(4) RDT&E	0	0	0	0
1.c. Base Ops Support	3	8	344	355
1.d. Engines "Must Move"	2	4	16	22
1.e. Tenant Population	0	0	433	433
2. Adjusted Population (Total	948	4,082	16,940	21,970
3. Break Out of DMBA				
3.a. DMBA Direct Labor	1	32	2,577	2,610
3.b. DMBA Overhead	7	0	1,017	1,024
4. Manpower Adjustments				
4.a. Preadjusted Manpower	37	124	1,929	2,090
4.b. Adjusted Manpower	35	117	1,813	1,965
5. Hardline Manpower	38	153	4,839	5,030
6. Compute BOS Tail				
6.a. Raw Tail Calculation	4	15	387	406
6.b. Portion	0.85%	2.25%	96.90%	100.00%
6.b.(1) BOS Tail	3	9	393	405
7. Personnel Movement	41	162	5,232	5,435
8. Personnel Eliminated	2	6	67	75

EQUIPMENT TRANSFER

SA-ALC TO OC-ALC

EQUIPMENT

WEAPON SYSTEM SUPPORT EQUIPMENT		\$0
APPROPRIATED FUND		\$0
OVER 5K (Assume avg. procurement year = 1985)		\$224,136,424
UNDER 5K (30% factor)		\$67,240,927
TOTAL		<u>\$291,377,351</u>

EXCESS EQUIPMENT

	PERCENT	
WEAPON SYSTEM SUPPORT EQUIPMENT	0.00%	\$0
APPROPRIATED FUND	0.00%	\$0
NON APPROPRIATED FUND	30.00%	\$67,240,927
OTHER	0.00%	\$0
TOTAL		<u>\$67,240,927</u>

REPURCHASE VS MOVE

WEAPON SYSTEM SUPPORT EQUIPMENT	0.00%	\$0
APPROPRIATED FUND	0.00%	\$0
NON APPROPRIATED FUND	0.00%	\$0
OTHER	0.00%	\$0
TOTAL		<u>\$0</u>

COST TO RELOCATE EQUIPMENT

REMAINING EQUIPMENT VALUE		\$224,136,424
P,C,H (WESTING HOUSE)	3.50%	\$7,844,775
TRANSPORTATION (DST)	0.50%	\$1,120,682
REMOVE AND REINSTALL (SM-ALC/MADE)	1.0%	\$2,241,364
TOTAL COST TO MOVE		<u>\$11,206,821</u>

COST TO DISPOSE OF EQUIPMENT (DRMO)

EQUIPMENT VALUE		\$67,240,927
DISPOSAL COST REMOVE AND TRANSPORT	2.00%	\$1,344,819

TOTAL EQUIPMENT COST

RELOCATE		\$11,206,821
DISPOSE		\$1,344,819
BUY		\$0

(A) TOTAL \$12,551,640

INVENTORIES DO33, GO72, G402A

STOCK FUND		\$0
OTHER		\$1,760,000
		\$0
		\$0
TOTAL		<u>\$1,760,000</u>

AMOUNT TO MOVE 33.00% \$580,800

COST TO RELOCATE 2.00% \$11,616

(B) TOTAL \$11,616

MATERIAL DAMAGE			
EQUIPMENT			\$224,136,424
(TVA)*TIMES HANDLED*.0001	HANDLING	8	\$179,309
INVENTORY			\$580,800
((TVA INVENTORY)*TIMES EANDLED*.0001)	HANDLING	4	\$232
(C) TOTAL COST			\$179,541
PERSONNEL EQUIPMENT			
NUMBER OF PEOPLE	CIVILIAN	3,139	
	MILITARY	203	
		<u>3,342</u>	
NUMBER OF POUNDS PER PERSON		710	
		<u>2,372,962</u>	
LBS IN CWT		23,730	
COST PER CWT		50.33	
OFFICE EQUIPMENT COST		<u>\$7,831</u>	
TRANSPORTATION			
NUMBER OF TRUCKS		59	
NUMBER OF MILES		481	
TOTAL MILES		<u>28,535</u>	
COST PER MILE		\$44,514	
TOTAL COST			\$52,345
VEHICLE MOVEMENT			
MILITARY LIGHT VEHICLE		205	
AVG NUMBER OF MILES		491	
COST PER MILE		50.41	
		<u>\$40,428</u>	
MILITARY SPECIAL VEHICLE		37	
AVG NUMBER OF MILES		481	
COST PER MILE		51.32	
		<u>\$23,492</u>	
TOTAL COST			\$63,920

## TOTAL TRANSPORTATION COST

## SA-ALC TO OC-ALC

EQUIPMENT RELOCATION	\$11,206,821
EQUIPMENT DISPOSAL	\$1,344,819
PURCHASE VS MOVE	\$0
INVENTORY	\$11,616
MATERIAL DAMAGE	\$179,541
EQUIPMENT PERSONNEL	\$52,345
VEHICLE	\$63,920
TOTAL	\$12,859,062

COBRA REALIGNMENT SUMMARY (COBRA v4.04)

Data As Of 14:21 01/20/1994, Report Created 12:11 02/17/1994

Group : SA-ALC to OC-ALC  
 Service : AF  
 Option Package : engine study

Starting Year : 1996  
 Break Even Year: 2096+ (Year 101+)  
 ROI Year : 2102+ (100+ Years)

Option NPV in 2015 (\$K) : 281,184  
 Total One-Time Cost (\$K) : 384,681

	Net Costs (\$K) Constant Dollars						
	1996	1997	1998	1999	2000	2001	Beyond
Misn	0	0	0	0	0	0	0
Pers	-75	-314	-949	-1,956	-2,930	-3,479	-3,545
Ovhd	16,076	12,445	10,390	8,704	7,092	5,043	1,078
Cons	2,555	958	-17,722	1,757	878	1,278	0
Movg	6,910	13,773	34,475	41,388	34,475	6,910	0
Othr	9,298	18,600	46,512	55,799	46,512	9,298	0
TOT	34,764	45,462	72,705	105,692	86,027	19,049	-2,467

	1996	1997	1998	1999	2000	2001	TOTAL
FORCE STRUCTURE REDUCTIONS							
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	0	0	0	0	0	0	0
POSITIONS ELIMINATED							
Officers	0	0	1	0	1	0	2
Enlisted	0	0	2	2	2	0	6
Civilian	3	7	17	20	17	3	67
PERSONNEL REALIGNMENTS							
Officers	2	4	10	13	10	2	41
Enlisted	8	16	41	48	41	8	162
Students	0	0	0	0	0	0	0
TOT MIL	10	20	51	61	51	10	203
Civilian	262	523	1,308	1,569	1,308	262	5,232
TOTAL	272	543	1,359	1,630	1,359	272	5,435

COBRA REALIGNMENT SUMMARY (COBRA v4.04) -- Page 2  
 Data As Of 14:21 01/20/1994, Report Created 12:11 02/17/1994

Costs (\$K)	Constant Dollars						
	1996	1997	1998	1999	2000	2001	Beyond
	-----	-----	-----	-----	-----	-----	-----
Misn	0	0	0	0	0	0	0
Pers	-9	-27	-72	-132	-178	-187	-187
Ovhd	16,076	12,445	10,390	8,704	7,092	5,043	1,078
Cons	2,555	958	1,278	1,757	878	1,278	0
Movg	6,924	13,801	34,547	41,474	34,547	6,924	0
Othr	9,298	18,600	46,512	55,799	46,512	9,298	0
TOT	34,844	45,777	92,654	107,602	88,852	22,356	891

Savings (\$K)	Constant Dollars						
	1996	1997	1998	1999	2000	2001	Beyond
	-----	-----	-----	-----	-----	-----	-----
Misn	0	0	0	0	0	0	0
Pers	66	287	877	1,823	2,752	3,292	3,358
Ovhd	0	0	0	0	0	0	0
Cons	0	0	19,000	0	0	0	0
Movg	14	28	72	86	72	14	0
Othr	0	0	0	0	0	0	0
TOT	80	316	19,949	1,909	2,824	3,306	3,358

TOTAL ONE-TIME COST REPORT (COBRA v4.04)

Data As Of 14:21 01/20/1994, Report Created 12:11 02/17/1994

(All values in Dollars)

MilCon w/o Avoidances	8,704,000
+ Moving	137,930,251
+ Eliminated Military PCS	49,486
+ Administrative/Support	51,978,062
+ Mothball/Shutdown	0
+ Civilian RIF	61,874,023
+ Civilian Early Retirement	2,062,467
+ Civilian New Hires	14,156,000
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	72,023,000
+ HAP / RSE	24,879,825
+ Unemployment	11,024,000
+ Info Management Account	0
-----	
= Total One-Time Costs	384,681,115
Milcon Cost Avoidances	19,000,000
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	19,000,000
Total One-Time Costs	384,681,115
- Total One-Time Savings	19,000,000
-----	
= Total Net One-Time Costs	365,681,115

BASE ONE-TIME COST REPORT (COBRA v4.04)  
 Data As Of 14:21 01/20/1994, Report Created 12:11 02/17/1994

Base: Kelly AFB, TX  
 (All values in Dollars)

MilCon w/o Avoidances	0
+ Moving	137,930,251
+ Eliminated Military PCS	49,486
+ Administrative/Support	51,978,062
+ Mothball/Shutdown	0
+ Civilian RIF	61,874,023
+ Civilian Early Retirement	2,062,467
+ Civilian New Hires	0
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	72,023,000
+ HAP / RSE	24,879,825
+ Unemployment	11,024,000
+ Info Management Account	0
-----	
= Total One-Time Costs	361,821,115
Milcon Cost Avoidances	19,000,000
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	19,000,000
Total One-Time Costs	361,821,115
- Total One-Time Savings	19,000,000
-----	
= Total Net One-Time Costs	342,821,115

BASE ONE-TIME COST REPORT (COBRA v4.04) - Page 2  
 Data As Of 14:21 01/20/1994, Report Created 12:11 02/17/1994

Base: Tinker AFB, OK  
 (All values in Dollars)

MilCon w/o Avoidances	8,704,000
+ Moving	0
+ Eliminated Military PCS	0
+ Administrative/Support	0
+ Mothball/Shutdown	0
+ Civilian RIF	0
+ Civilian Early Retirement	0
+ Civilian New Hires	14,156,000
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	0
+ HAP / RSE	0
+ Unemployment	0
+ Info Management Account	0
-----	
= Total One-Time Costs	22,860,000
Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0
Total One-Time Costs	22,860,000
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	22,860,000

INPUT SCR

Officers  
 Enlisted  
 Civilians  
 Off Eliminat  
 Enl Eliminat  
 Civ Eliminat  
 Mil Light Ve  
 Heavy/Spa

INPUT SCR

1 Time Uniq  
 SA-ALC  
 OC-ALC  
 Third Ce  
 Civilian Le  
 SA-ALC  
 OC-ALC  
 Prototypin  
 SA-ALC  
 OC-ALC  
 Clean-Up  
 SA-ALC  
 OC-ALC  
 Qualificati  
 Transition:

1 Time Moving	\$112,486,948	\$5,624,347	\$11,248,695	\$28,121,737	\$33,746,084	\$28,121,737	\$5,624,347	\$112,486,948
SA-ALC	\$67,189,743	\$3,359,487	\$8,718,974	\$18,797,436	\$20,156,923	\$16,797,436	\$3,359,487	\$67,189,743
OC-ALC	\$45,297,204	\$2,264,860	\$4,529,720	\$11,324,301	\$13,589,161	\$11,324,301	\$2,264,860	\$45,297,204
Spreadsheet	\$25,710,058							
DLA	\$86,776,090							

	NEW	MOD	1996	1997	1998	1999	2000	2001	
Construction	\$473,600,000		23%	12%	16%	22%	11%	16%	\$0
			\$108,928,000	\$56,832,000	\$75,776,000	\$104,192,000	\$52,096,000	\$75,776,000	\$473,600,000

<u>SA-ALC to OC-ALC</u> PROTOTYPING	\$20,250,000	<u>OC-ALC to SA-ALC</u> PROTOTYPING	\$26,700,000
QUALIFICATION	\$2,500,000	QUALIFICATION	
CLEAN-UP	\$9,134,153	CLEAN-UP	\$7,726,383
	<u>NEW</u>	<u>MOD</u>	
CONSTRUCTION	\$473,600,000	\$0	
Engine Shops	\$108,600,000		
Heat Treat	\$12,000,000		
Cleaning/Plating	\$80,000,000		
Test Cells	\$158,000,000		
Accessories	\$75,000,000		
Plant Services	\$12,000,000		
Waste Water Treatment	\$15,000,000		
Mgt/Admin Space	\$13,000,000		

EQUIPMENT TRANSFER		SA-ALC TO THIRD CENTER	
<b>EQUIPMENT</b>			
	WEAPON SYSTEM SUPPORT EQUIPMENT		\$0
	APPROPRIATED FUND		\$0
	OVER 5K		\$224,136,424
	UNDER 5K		\$67,240,927
	<b>TOTAL</b>		<b>\$291,377,351</b>
<b>EXCESS EQUIPMENT</b>			
	WEAPON SYSTEM SUPPORT EQUIPMENT	0.00%	\$0
	APPROPRIATED FUND	0.00%	\$0
	NON APPROPRIATED FUND	30.00%	\$67,240,927
	OTHER	0.00%	\$0
	<b>TOTAL</b>		<b>\$67,240,927</b>
<b>REPURCHASE VS MOVE</b>			
	WEAPON SYSTEM SUPPORT EQUIPMENT	0.00%	\$0
	APPROPRIATED FUND	0.00%	\$0
	NON APPROPRIATED FUND	0.00%	\$0
	OTHER	0.00%	\$0
	<b>TOTAL</b>		<b>\$0</b>
<b>COST TO RELOCATE EQUIPMENT</b>			
	REMAINING EQUIPMENT VALUE		\$224,136,424
	P,C,H (WESTING HOUSE)	3.50%	\$7,844,775
	TRANSPORTATION (DST)	0.50%	\$1,120,682
	REMOVE AND REINSTALL (SH-ALC/MADE)	1.0%	\$2,241,364
	<b>TOTAL COST TO MOVE</b>		<b>\$11,206,821</b>
<b>COST TO DISPOSE OF EQUIPMENT (DRMO)</b>			
	EQUIPMENT VALUE		\$67,240,927
	DISPOSAL COST REMOVE AND TRANSPORT	2.00%	\$1,344,819
<b>TOTAL EQUIPMENT COST</b>			
	RELOCATE		\$11,206,821
	DISPOSE		\$1,344,819
	BUY		\$0
	<b>(A) TOTAL</b>		<b>\$12,551,640</b>
<b>INVENTORIES DO33, GO72, G402A</b>			
	STOCK FUND		\$0
	OTHER		\$1,760,000
			\$0
			\$0
	<b>TOTAL</b>		<b>\$1,760,000</b>
	AMOUNT TO MOVE	33.00%	\$580,800
	COST TO RELOCATE	2.00%	\$11,616
	<b>(B) TOTAL</b>		<b>\$11,616</b>

TERIAL DAMAGE			
EQUIPMENT			\$224,136,424
(TVA)*TIMES HANDLED*.0001	HANDLING	8	\$179,309
INVENTORY			\$580,800
((TVA INVENTORY)*TIMES HANDLED*.0001)	HANDLING	4	\$232
(C) TOTAL COST			\$179,541
PERSONNEL EQUIPMENT			
NUMBER OF PEOPLE	CIVILIAN	3,139	
	MILITARY	203	
		<u>3,342</u>	
NUMBER OF POUNDS PER PERSON		710	
		<u>2,372,962</u>	
LBS IN CWT		23,730	
COST PER CWT		<u>\$0.33</u>	
OFFICE EQUIPMENT COST		\$7,831	
TRANSPORTATION			
NUMBER OF TRUCKS		59	
NUMBER OF MILES		1038	
TOTAL MILES		<u>61,578</u>	
COST PER MILE		\$96,062	
TOTAL COST			\$103,893
VEHICLE MOVEMENT			
MILITARY LIGHT VEHICLE		205	
AVG NUMBER OF MILES		1038	
COST PER MILE		<u>\$0.41</u>	
		\$87,244	
MILITARY SPECIAL VEHICLE		37	
AVG NUMBER OF MILES		1038	
COST PER MILE		<u>\$1.32</u>	
		\$50,696	
TOTAL COST			\$137,940

TOTAL TRANSPORTATION COST	SA-ALC TO THIRD CENTER
EQUIPMENT RELOCATION	\$11,206,821
EQUIPMENT DISPOSAL	\$1,344,819
PURCHASE VS MOVE	\$0
INVENTORY	\$11,616
MATERIAL DAMAGE	\$179,541
EQUIPMENT PERSONNEL	\$103,893
VEHICLE	\$137,940
TOTAL	\$12,984,630

EQUIPMENT TRANSFER		OC-ALC TO THIRD CENTER	
<b>EQUIPMENT</b>			
WEAPON SYSTEM SUPPORT EQUIPMENT			\$0
APPROPRIATED FUND			\$0
OVER 5K		\$194,641,703	
UNDER 5K		\$58,392,511	
TOTAL			<u>\$253,034,214</u>
<b>EXCESS EQUIPMENT</b>			
WEAPON SYSTEM SUPPORT EQUIPMENT	PERCENT		\$0
APPROPRIATED FUND	0.00%		\$0
NON APPROPRIATED FUND	30.00%	\$58,392,511	
OTHER	0.00%		\$0
TOTAL			<u>\$58,392,511</u>
<b>REPURCHASE VS MOVE</b>			
WEAPON SYSTEM SUPPORT EQUIPMENT	0.00%		\$0
APPROPRIATED FUND	0.00%		\$0
NON APPROPRIATED FUND	0.00%		\$0
OTHER	0.00%		\$0
TOTAL			<u>\$0</u>
<b>COST TO RELOCATE EQUIPMENT</b>			
REMAINING EQUIPMENT VALUE		\$194,641,703	
P,C,H (WESTING HOUSE)	3.50%	\$7,844,775	
TRANSPORTATION (DST)	0.50%	\$1,120,682	
REMOVE AND REINSTALL (SM-ALC/MADE)	1.0%	\$2,241,364	
TOTAL COST TO MOVE			<u>\$11,206,821</u>
<b>COST TO DISPOSE OF EQUIPMENT (DRMO)</b>			
EQUIPMENT VALUE		\$58,392,511	
DISPOSAL COST REMOVE AND TRANSPORT	2.00%	\$1,167,850	
<b>TOTAL EQUIPMENT COST</b>			
RELOCATE		\$11,206,821	
DISPOSE		\$1,167,850	
BUY		\$0	
(A) TOTAL			<u>\$12,374,671</u>
<b>INVENTORIES DO33, GO72, G402A</b>			
STOCK FUND		\$0	
OTHER		\$2,600,000	
		\$0	
		\$0	
		\$0	
TOTAL			<u>\$2,600,000</u>
AMOUNT TO MOVE	33.00%	\$858,000	
COST TO RELOCATE	2.00%	\$17,160	
(B) TOTAL			<u>\$17,160</u>

MATERIAL DAMAGE

EQUIPMENT			\$194,641,703
(TVA)*TIMES HANDLED*.0001	HANDLING	8	\$155,713
INVENTORY			\$858,000
((TVA INVENTORY)*TIMES HANDLED*.0001)	HANDLING	4	\$343
(C) TOTAL COST			\$156,057

PERSONNEL EQUIPMENT

NUMBER OF PEOPLE			
	CIVILIAN		1,692
	MILITARY		235
			<u>1,927</u>
NUMBER OF POUNDS PER PERSON			710
			<u>1,368,170</u>
LBS IN CWT			13,682
COST PER CWT			\$0.33
OFFICE EQUIPMENT COST			<u>\$4,515</u>

TRANSPORTATION

NUMBER OF TRUCKS			34
NUMBER OF MILES			929
TOTAL MILES			<u>31,776</u>
COST PER MILE			\$49,570

TOTAL COST			\$54,085
------------	--	--	----------

VEHICLE MOVEMENT

MILITARY LIGHT VEHICLE			205
AVG NUMBER OF MILES			929
COST PER MILE			\$0.41
			<u>\$78,082</u>
MILITARY SPECIAL VEHICLE			37
AVG NUMBER OF MILES			929
COST PER MILE			\$1.32
			<u>\$45,372</u>

TOTAL COST			\$123,455
------------	--	--	-----------

TOTAL TRANSPORTATION COST	OC-ALC TO THIRD CENTER
EQUIPMENT RELOCATION	\$11,206,821
EQUIPMENT DISPOSAL	\$1,167,850
PURCHASE VS MOVE	\$0
INVENTORY	\$17,160
MATERIAL DAMAGE	\$156,057
EQUIPMENT PERSONNEL	\$54,085
VEHICLE	\$123,455
TOTAL	\$12,725,428

COBRA REALIGNMENT SUMMARY (COBRA v4.04)

Data As Of 16:40 01/25/1994, Report Created 12:13 02/17/1994

Group : BOTH TO ROBINS AFB  
 Service : AF  
 Option Package : OPTION 1

Starting Year : 1996  
 Break Even Year: 2096+ (Year 101+)  
 ROI Year : 2102+ (100+ Years)

Option NPV in 2015 (\$K) : 925,897  
 Total One-Time Cost (\$K) :1,136,226

Net Costs (\$K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Beyond
Misn	0	0	0	0	0	0	0
Pers	-169	-686	-1,979	-4,028	-6,067	-7,276	-7,456
Ovhd	36,467	28,435	24,218	21,143	18,281	14,125	5,230
Cons	104,356	108,664	111,130	108,664	21,786	0	0
Movg	12,823	22,759	64,481	77,347	64,481	12,823	0
Othr	14,511	29,012	72,536	86,930	72,536	14,511	0
TOT	167,988	188,184	270,386	290,057	171,016	34,183	-2,226

	1996	1997	1998	1999	2000	2001	TOTAL
FORCE STRUCTURE REDUCTIONS							
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	0	0	0	0	0	0	0
POSITIONS ELIMINATED							
Officers	0	0	2	1	2	0	5
Enlisted	1	1	5	5	5	1	18
Civilian	7	15	37	42	37	7	145
PERSONNEL REALIGNMENTS							
Officers	4	7	18	20	18	4	71
Enlisted	15	29	72	84	72	15	287
Students	0	0	0	0	0	0	0
TOT MIL	19	36	90	104	90	19	358
Civilian	390	780	1,950	2,339	1,950	390	7,799
TOTAL	409	816	2,040	2,443	2,040	409	8,157

COBRA REALIGNMENT SUMMARY (COBRA v4.04) - Page 2  
 Data As Of 16:40 01/25/1994, Report Created 12:13 02/17/1994

Costs (\$K) Constant Dollars							
	1996	1997	1998	1999	2000	2001	Beyond
	-----	-----	-----	-----	-----	-----	-----
Misn	0	0	0	0	0	0	0
Pers	1	11	28	51	67	68	68
Ovhd	36,467	28,435	24,218	21,143	18,281	14,125	5,230
Cons	104,356	108,664	130,130	108,664	21,786	0	0
Movg	12,850	22,810	64,608	77,494	64,608	12,850	0
Othr	14,511	29,012	72,536	86,930	72,536	14,511	0
TOT	168,185	188,933	291,519	294,282	177,278	41,554	5,298

Savings (\$K) Constant Dollars							
	1996	1997	1998	1999	2000	2001	Beyond
	-----	-----	-----	-----	-----	-----	-----
Misn	0	0	0	0	0	0	0
Pers	170	698	2,006	4,079	6,135	7,344	7,525
Ovhd	0	0	0	0	0	0	0
Cons	0	0	19,000	0	0	0	0
Movg	27	51	127	147	127	27	0
Othr	0	0	0	0	0	0	0
TOT	197	748	21,133	4,226	6,261	7,371	7,525

TOTAL ONE-TIME COST REPORT (COBRA v4.04)  
Data As Of 16:40 01/25/1994, Report Created 12:13 02/17/1994

(All values in Dollars)

MilCon w/o Avoidances	473,600,000
+ Moving	254,714,638
+ Eliminated Military PCS	139,738
+ Administrative/Support	117,736,493
+ Mothball/Shutdown	0
+ Civilian RIF	92,752,663
+ Civilian Early Retirement	3,097,593
+ Civilian New Hires	21,040,000
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	117,442,000
+ HAP / RSE	39,177,565
+ Unemployment	16,525,600
+ Info Management Account	0
<hr style="border-top: 1px dashed black;"/>	
= Total One-Time Costs	999,999,999
Milcon Cost Avoidances	19,000,000
+ Procurement Cost Avoidances	0
+ Land Sales	0
<hr style="border-top: 1px dashed black;"/>	
= Total One-Time Savings	19,000,000
Total One-Time Costs	999,999,999
- Total One-Time Savings	19,000,000
<hr style="border-top: 1px dashed black;"/>	
= Total Net One-Time Costs	999,999,999

BASE ONE-TIME COST REPORT (COBRA v4.04)  
Data As Of 16:40 01/25/1994, Report Created 12:13 02/17/1994

Base: KELLY AFB, TX  
(All values in Dollars)

MilCon w/o Avoidances	0
+ Moving	155,128,293
+ Eliminated Military PCS	49,486
+ Administrative/Support	51,978,062
+ Mothball/Shutdown	0
+ Civilian RIF	58,916,146
+ Civilian Early Retirement	1,967,578
+ Civilian New Hires	0
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	17,367,000
+ HAP / RSE	23,538,411
+ Unemployment	10,497,000
+ Info Management Account	0
-----	
= Total One-Time Costs	319,441,976
Milcon Cost Avoidances	19,000,000
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	19,000,000
Total One-Time Costs	319,441,976
- Total One-Time Savings	19,000,000
-----	
= Total Net One-Time Costs	300,441,977

BASE ONE-TIME COST REPORT (COBRA v4.04) - Page 2  
Data As Of 16:40 01/25/1994, Report Created 12:13 02/17/1994

Base: TINKER AFB, OK  
(All values in Dollars)

MilCon w/o Avoidances	0
+ Moving	99,586,345
+ Eliminated Military PCS	90,252
+ Administrative/Support	65,758,431
+ Mothball/Shutdown	0
+ Civilian RIF	33,836,516
+ Civilian Early Retirement	1,130,014
+ Civilian New Hires	0
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	12,523,000
+ HAP / RSE	15,639,154
+ Unemployment	6,028,600
+ Info Management Account	0
-----	
= Total One-Time Costs	234,592,314
Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0
Total One-Time Costs	234,592,314
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	234,592,314

BASE ONE-TIME COST REPORT (COBRA v4.04) - Page 3  
Data As Of 16:40 01/25/1994, Report Created 12:13 02/17/1994

Base: ROBINS AFB, GA  
(All values in Dollars)

MilCon w/o Avoidances	473,600,000
+ Moving	0
+ Eliminated Military PCS	0
+ Administrative/Support	0
+ Mothball/Shutdown	0
+ Civilian RIF	0
+ Civilian Early Retirement	0
+ Civilian New Hires	21,040,000
+ Civilian PPS	0
+ Land Purchases	0
+ Environmental Mitigation	0
+ One-Time Unique Costs	87,552,000
+ HAP / RSE	0
+ Unemployment	0
+ Info Management Account	0
-----	
= Total One-Time Costs	582,192,000
Milcon Cost Avoidances	0
+ Procurement Cost Avoidances	0
+ Land Sales	0
-----	
= Total One-Time Savings	0
Total One-Time Costs	582,192,000
- Total One-Time Savings	0
-----	
= Total Net One-Time Costs	582,192,000

<i>Engine Study Sensitivity Analysis</i>									
<i>Option 1- SA -ALC to OC-ALC</i>					<i>OC-ALC to SA-ALC</i>				
<b>Efficiency Factor</b>									
	6%	10%	15%	20%	6%	10%	15%	20%	
Break Even Year	101+	101+	101+	101+		101+	101+	101+	101+
ROI Year	100+	100+	100+	100+	100+	100+	100+	100+	100+
NPV in 2015 (\$K)	\$281,184	\$246,740	\$204,560	\$162,975	\$182,578	\$159,783	\$131,040	\$103,130	
Total One-Time Cost (\$K)	\$384,681	\$383,885	\$383,322	\$382,733	\$270.00	\$269.70	\$269.30	\$268.70	
<p>Results: Changes in the efficiency factor indicate that the net present value is sensitive to the increases. The NPV is a measure of the total costs (over the 20-year period of analysis) to be realized by taking the closure/realignment actions in the scenario. Since the number is positive, this indicates that the costs over the 20 year period are reduced.</p> <p>The efficiency factor is a measure of the amount of manpower that can be reduced at each Center. This is reflected in the personnel eliminations.</p>									
<b>PERCENTAGE OF PEOPLE MOVING</b>									
	40%	60%	80%						
Break Even Year	101+	101+	101+						
ROI Year	100+	100+	100+						
NPV in 2015 (\$K)	\$277,169	\$281,184	\$285,017						
Total One-Time Cost (\$K)	\$379,694	\$384,681	\$389,444						
<p>Results: Changes in the number of percentages of people moving is insignificant. The changes represent approximately a 1.5% change in the NPV and the Total One-Time cost.</p>									

Memorandum for LR, FM-1, HQ AFMC/LGP (Lt Col Pitcher)

22-Dec-93

Subject: Two Versus One (2 vs 1) Engine Depot Study

1. The 2 vs 1 Engine Depot Study was initiated on 10 Dec 93 with Mr. Steve Doneghy (FM-1) providing the initial direction. The study charter is to determine the cost, benefit, and risk of consolidating all or some of the depot engine workload, currently residing at OC-ALC and SA-ALC, at one site. The study team will complete a detailed analysis of evaluate all factors including facilities, equipment, peculiar capabilities, related costs, cost/benefits, and risks. This study is the result of the initial assessment made by HQ AFMC/LGP that showed, based on workload capacity, either center could absorb the entire engine workload. Mr. Doneghy stressed the importance of the data certification requirement for all data generated as a result of this study. This memorandum documents the progress made to date to complete the study.

2. Team members:

	OFFICE	DSN	E-MAIL
OC-ALC:			
Mike Burch	LPA	336-2976	mburch@ocdis01
Larry Pullium	FM	336-7532	
Mike Coonce	LIP		
Bob Bolinger	LPPE	336-2411	bolinger@ocdis01
Ken Brashers	LPP		
Gary Richey	LPP		
<i>John McRae</i> <i>Wingnut Support</i>		339-7370 339-7370	
SA-ALC			
Maj Dwight Chase	LR	945-0441	dchase@sadis01
Roger Lozano	LDTI	945-4275	rlozano@sadis01
Keith Dever	LPPEB	945-4614	kdever@lppsver
Robert Roman	LPPEA	945-7074	rroman@sadis01
Augie Marmolejo	FMPF	945-0346	amarmole@sadis01
Capt Jeff Isom	FMXC	945-6137	jlisom@sadis05 <i>fax</i>
Reynoldo Espinosa	FMPF	945-4757	respinos@sadis05
Debbie Wilson	FMPF	945-0346 <i>4211</i>	dewilson@sadis03 <i>5-1274</i>
Charlie DiPietro	TICR	945-5290	cdipietr@sadis05
Linda Olivarez	FMPF	945-4211	loivare@sadis01
Boyce Marting	FMXC	945-6137	bmarting@sadis03
Renee Schroeder	FMPF	945-4211	rschroed@sadis03
Beverly Russeau	FMXC	945-6137	brusseau@sadis01

*#0 AFMC/LGP*

*Lt Col Pitcher*

*787-3588 / -5969*

2. The SA-ALC and OC-ALC teams met by VTCN on 14 Dec to outline the study approach. I have provided the approach presented at this meeting in Atch 1 (The study schedule has been revised to reflect the 31 Jan suspense). The team's initial task is to assemble the centers' infrastructure data and projected workloads. Other study efforts including preparation for the 93 BRAC have identified most of the data need for this study. Along with this data, projected engine related workloads for each center will be assembled.

3. The assessment team developed a set of options and assumptions (Atch 2) to insure everyone involved is using the same ground rules. MGen Curtis and MGen Spiers, SA-ALC/CC and OC-ALC/CC respectively, have been provided the options and assumptions for their review.

4. During the first week in January, the review team is planning to conduct site surveys at each center and review the process data and workload data generated at each center.



DWIGHT S. CHASE, Major, USAF  
2 vs 1 Study IPT Leader

2 Atch

1. 2 vs 1 Engine Depot Study Approach
2. 2 vs 1 Engine Depot Study Options and Assumptions

STAFF SUMMARY SHEET

31-

TO	ACTION	SIGNATURE (Surname), GRADE AND DATE	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
P	COORD	<i>[Signature]</i> 4/5/94	6	<del>COORD</del>	
M	COORD	<i>[Signature]</i> 5/28/94	7	<del>COORD</del>	
CD	COORD	<i>[Signature]</i> 1/31/94	8		
CC	COORD	<i>[Signature]</i> LEWIS E. 8 Major General, USAF Commander			02 FEB 1994

SURNAME OF ACTION OFFICER AND GRADE	SYMBOL	PHONE	TYPIST'S INITIALS	SUSPENSE DATE
Major Dwight Chase	SA-ALC/LR	50441	dq	

SUBJECT: Two vs One Engine Depot Study  
DATE: 3 Jan 94

SUMMARY

- Tab 1 provides the study options and assumptions to be used for the Two vs One Engine Depot Study. Included in the study are engines and accessories, gas turbine engines, secondary power units, and engine start systems.
- The study options include:
  - Status Quo (provides the baseline to evaluate other options).
  - Consolidate all engine workload at one ALC.
  - Consolidate all engine workload at a third ALC.
  - Maintain two engine depots but consolidate some component repair where cost effective.
  - Maintain two engine depots but consolidate management responsibility at one center.
- The assumptions provide a common framework for all team members to use during the study. The primary assumptions include:
  - FY96 consolidation start with workload transfers complete in FY01.
  - Projected workload will be based on Mar 93 comps and adjusted for two-level maintenance if not included in the computation. (*Navg T56?*)
  - Future workload changes because of competitions, etc will not be included in the cost analysis.

RECOMMENDATION

4. Approve the study options and assumptions by signing Block 4 above.

*[Signature]*  
ROBERT J. CONNER  
Propulsion Product Group Manager

1 Tab  
Two vs One Engine Depot Study  
Options/Assumptions

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Two vs. One Engine Depot Study Options/Assumptions

21-Jan-94

Rev 5

SCOPE:

1. The scope of the project will center on all current organic engine related workloads including: turbofan and turboprop jet engines, gas turbines engines, and associated engine commodities and accessories. (Includes engine core, blades, vanes, fuel controls, etc.)
2. The options of this study are:
  - a. Status Quo: Two engine depots at SA-ALC and OC-ALC.
  - b. One engine depot at OC-ALC.
  - c. One engine depot at SA-ALC.
  - d. One engine depot at another ALC (Not OC-ALC or SA-ALC).
  - e. Two engine depots at SA-ALC and OC-ALC but consolidate some component repair where cost effective.
  - f. Two engine depot maintenance activities at SA-ALC and OC-ALC but consolidate management responsibility at one center.
3. All LP's functions, which include system program management, resource management, procurement, and general management will relocate or be eliminated depending on gaining center's capacity. Related functions in TI, LI/LD, FM, DP, SC, and LG (formerly DS) will also relocate.
4. The manpower, infrastructure, facilities, technologies, industrial processes, and Two-Level maintenance will be considered.
5. A complete (100%) transfer of engine and related workloads between centers will occur.
6. A complete (100%) transfer of peculiar tooling, fixtures, and other non-capital equipment which directly supports engine and related workloads between centers will occur. Multipurpose equipment required for other workloads will remain at the original depot.

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INFRASTRUCTURE SENSITIVE

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INFRASTRUCTURE SENSITIVE

7. The transfer of common use capital equipment (machinery) will be determined by the need for that equipment based upon available capability as assessed by the gaining center.
8. Future competitions, DMISA, and FMS workload will not be a factor in the study.
9. There will be no organic second source of repair.
10. Cost of floor clean-up and disposal of excess equipment will be included.
11. Data must be certifiable per AFMC 21 Study.
12. This transfer study will be independent of all other exercises.
13. A modified form of the depot activation planning process will be used to perform the assessment.
14. Environmental clean-up costs will not be included. These costs will be incurred regardless of the realignment decision.

COST:

15. All costs will be expressed in FY 94 dollars.
16. BOS tail will be computed by using 8.0% for civilians and 9.6% for military adjusted authorizations.
17. (Deleted)
18. COBRA model factors will be used to compute: severance pay, new hire costs, movement of household goods, relocation costs, and equipment transfer costs. Other costs will be used as a direct input to the model.
19. MILCON projects will be funded and accomplished on schedule.
20. Assume \_\_\_ DPSH = 1 PE. (To be determined)

SCHEDULE:

21. The time schedule for transfer: FY 96 start to FY 01 completion.

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WORKLOAD:

22. Workload Review of March 1993 will be used in this exercise. Computations will be adjusted for Two-Level Maintenance if it was not included in the Mar 93 review.

23. Surge requirements:

- 88% wartime surge requirement factor
- 1.6 wartime surge capability factor
- 7% degradation factor for second shift operation
- 8 hour/5 days standard work week/2 shifts per day
- 10 hour/6 day surge work week/2 shifts per day

24. Both ALCs possess capabilities in all basic/core processes required for modern engine overhaul. However, each center possesses varying levels of technology within these processes.

25. There will be no additional Interim Contractor Support (ICS) requirements will generated by the move.

26. Moving specific workload to a contractor will not be considered as an option.

STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1		COORD	<i>[Signature]</i> 4/5/94	6	LD	COORD	<i>[Signature]</i>
2	M	COORD		7	TI	COORD	
3	CD	COORD		8			
4	CC	COORD		9			
5				10			

SURNAME OF ACTION OFFICER AND GRADE	SYMBOL	PHONE	TYPIST'S INITIALS	SUSPENSE DATE
Major Dwight Chase	SA-ALC/LR	50441	dq	

SUBJECT	DATE
Two vs One Engine Depot Study	3 Jan 94

**SUMMARY**

1. Tab 1 provides the study options and assumptions to be used for the Two vs One Engine Depot Study. Included in the study are engines and accessories, gas turbine engines, secondary power units, and engine start systems.

2. The study options include:

- a. Status Quo (provides the baseline to evaluate other options).
- b. Consolidate all engine workload at one ALC.
- c. Consolidate all engine workload at a third ALC.
- d. Maintain two engine depots but consolidate some component repair where cost effective.
- e. Maintain two engine depots but consolidate management responsibility at one center.

3. The assumptions provide a common framework for all team members to use during the study. The primary assumptions include:

- a. FY96 consolidation start with workload transfers complete in FY01.
- b. Projected workload will be based on Mar 93 comps and adjusted for two-level maintenance if not included in the computation. (Navy T54?)
- c. Future workload changes because of competitions, etc will not be included in the cost analysis.

**RECOMMENDATION**

4. Approve the study options and assumptions by signing Block 4 above.

*[Signature]*  
 ROBERT J. CONNER  
 Propulsion Product Group Manager

1 Tab  
 Two vs One Engine Depot Study  
 Options/Assumptions

STAFF SUMMARY SHEET

TO	ACTION	SIGNATURE (Surname), GRADE AND DATE	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
	COORD	<i>[Signature]</i> SA-ALC/CC 15 Jan 94	LD	COORD	
M	COORD		TI	COORD	<i>[Signature]</i> CHARITY A. BROWN, Deputy Director, Technology & Industrial Support
3	CD				
4	CC				
5					

SURNAME OF ACTION OFFICER AND GRADE	SYMBOL	PHONE	TYPIST'S INITIALS	SUSPENSE DATE
Major Dwight Chase	SA-ALC/LR	50441	dq	

SUBJECT	DATE
Two vs One Engine Depot Study	3 Jan 94

**SUMMARY**

- Tab 1 provides the study options and assumptions to be used for the Two vs One Engine Depot Study. Included in the study are engines and accessories, gas turbine engines, secondary power units, and engine start systems.
- The study options include:
  - Status Quo (provides the baseline to evaluate other options).
  - Consolidate all engine workload at one ALC.
  - Consolidate all engine workload at a third ALC.
  - Maintain two engine depots but consolidate some component repair where cost effective.
  - Maintain two engine depots but consolidate management responsibility at one center.
- The assumptions provide a common framework for all team members to use during the study. The primary assumptions include:
  - FY96 consolidation start with workload transfers complete in FY01.
  - Projected workload will be based on Mar 93 comps and adjusted for two-level maintenance if not included in the computation. (*May 756?*)
  - Future workload changes because of competitions, etc will not be included in the cost analysis.

**RECOMMENDATION**

4. Approve the study options and assumptions by signing Block 4 above.

*[Signature]*  
 ROBERT J. CONNER  
 Propulsion Product Group Manager

1 Tab  
 Two vs One Engine Depot Study  
 Options/Assumptions

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Two vs. One Engine Depot Study Options/Assumptions

21-Jan-94

Rev 5

SCOPE:

1. The scope of the project will center on all current organic engine related workloads including: turbofan and turboprop jet engines, gas turbines engines, and associated engine commodities and accessories. (Includes engine core, blades, vanes, fuel controls, etc.)
2. The options of this study are:
  - a. Status Quo: Two engine depots at SA-ALC and OC-ALC.
  - b. One engine depot at OC-ALC.
  - c. One engine depot at SA-ALC.
  - d. One engine depot at another ALC (Not OC-ALC or SA-ALC).
  - e. Two engine depots at SA-ALC and OC-ALC but consolidate some component repair where cost effective.
  - f. Two engine depot maintenance activities at SA-ALC and OC-ALC but consolidate management responsibility at one center.
3. All LP's functions, which include system program management, resource management, procurement, and general management will relocate or be eliminated depending on gaining center's capacity. Related functions in TI, LI/LD, FM, DP, SC, and LG (formerly DS) will also relocate.
4. The manpower, infrastructure, facilities, technologies, industrial processes, and Two-Level maintenance will be considered.
5. A complete (100%) transfer of engine and related workloads between centers will occur.
6. A complete (100%) transfer of peculiar tooling, fixtures, and other non-capital equipment which directly supports engine and related workloads between centers will occur. Multipurpose equipment required for other workloads will remain at the original depot.

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7. The transfer of common use capital equipment (machinery) will be determined by the need for that equipment based upon available capability as assessed by the gaining center.
8. Future competitions, DMISA, and FMS workload will not be a factor in the study.
9. There will be no organic second source of repair.
10. Cost of floor clean-up and disposal of excess equipment will be included.
11. Data must be certifiable per AFMC 21 Study.
12. This transfer study will be independent of all other exercises.
13. A modified form of the depot activation planning process will be used to perform the assessment.
14. Environmental clean-up costs will not be included. These costs will be incurred regardless of the realignment decision.

COST:

15. All costs will be expressed in FY 94 dollars.
16. BOS tail will be computed by using 8.0% for civilians and 9.6% for military adjusted authorizations.
17. (Deleted)
18. COBRA model factors will be used to compute: severance pay, new hire costs, movement of household goods, relocation costs, and equipment transfer costs. Other costs will be used as a direct input to the model.
19. MILCON projects will be funded and accomplished on schedule.
20. Assume \_\_\_ DPSH = 1 PE. (To be determined)

SCHEDULE:

21. The time schedule for transfer: FY 96 start to FY 01 completion.

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WORKLOAD:

22. Workload Review of March 1993 will be used in this exercise. Computations will be adjusted for Two-Level Maintenance if it was not included in the Mar 93 review.

23. Surge requirements:

- 88% wartime surge requirement factor
- 1.6 wartime surge capability factor
- 7% degradation factor for second shift operation
- 8 hour/5 days standard work week/2 shifts per day
- 10 hour/6 day surge work week/2 shifts per day

24. Both ALCs possess capabilities in all basic/core processes required for modern engine overhaul. However, each center possesses varying levels of technology within these processes.

25. There will be no additional Interim Contractor Support (ICS) requirements will generated by the move.

26. Moving specific workload to a contractor will not be considered as an option.

Attendees

13 Dec 93

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Mike Burch  
 mburch@sadisø1  
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Attendees - 10 Dec 93

FAX

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CHARLIE DiPIETRO	TICR	55290	0060	cdipietr@φ5
ROBERT ROMAN	LPPE	57074	0274	rroman@φ1
ROBERT CASTORENA	FMPF	54211	6139	rcastore@φ1
Maya Dwight Chase	LR	50441	0446	dchase@φ1

ju

UTEN

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AFMC 21 STUDY (✓)  
- ONE vs TWO ENGINE DEPOTS -

1. THE FOLLOWING IS REQUIRED AS FOLLOW-ON TO THE HQ AFMC/LGP ISSUE PAPER "ENGINE DEPOT MAINTENANCE CENTERS" DATED 4 NOV 93 AND AS DIRECTED AT THE T&E HORIZONS '93 16-17 NOV AT EGLIN AFB, FL. THE RESULTS OF THE REFERENCED LGP ISSUE PAPER ARE COMPLETED AS THEY APPLY TO WORKLOAD AND AVAILABLE MANHOURS. HOWEVER, DETAILED ANALYSIS NOW NEEDS TO BE APPLIED TO SUCH BED DOWN FACTORS AS FACILITIES, EQUIPMENT, PECULIAR CAPABILITIES, RELATED COSTS AND BENEFIT/RISK ANALYSIS.

2. THE STUDY WILL BE A JOINT EFFORT BETWEEN HQ AFMC/LGP, OC-ALC, SA-ALC AND THE PROPULSION PGM. AN INTEGRATED PRODUCT TEAM WILL BE ESTABLISHED AS REFERENCED BELOW TO PERFORM THE STUDY USING THE CHARTER ABOVE.

REPRESENTATIVE

- .. SA-ALC/LR : PROPULSION PGM (CHAIR) MAJ Dwight CHASE 50441 ✓
- .. OC-ALC/FMP
- {
- ..
- ..
- ..
- .. SA-ALC/FMP
- .. /LPP
- .. /LPR
- .. /LDT
- .. /LDP
- .. /TIC
- HQ LGPW
- Ms. Debbie Wilson 50346 ✓
- Mr. Robert Roman 57074
- Mr. Walter Wilen 55959
- Mr. ROGER LOZANO 54275 ✓
- Mr. Ellwood Rasmussen 57775 ✓
- LT Col BARRY PITCHER 787-89

3. MILESTONES

- ESTABLISH BASIC CHARTER & IPT - 2 DEC 92
- ESTABLISH IPD MEMBERS - 3 DEC 93
- 1ST VTC MEETING/DISCUSS - 6-10 DEC 93
- CHARTER, APPROACH & ACTION
- 1ST DRAFT REPORT - 10 JAN 93
- FINAL REPORT TO HQ AFMC/LG - 18 JAN 93

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- 1. Brief Plan - Tasks
  - what
  - who
  - when

Bob Conner

Joe Simmons  
OCALC AFMC 21  
Study Facilitator  
339-3426  
FAX 2887

4 NOV 93

ISSUE PAPER  
ONFile

## ENGINE DEPOT MAINTENANCE CENTERS

(Deliverable 2.8)

1. **ISSUE:** Conduct a study to determine if it is reasonable to perform detailed infrastructure studies considering the consolidation of current and projected AFMC engine depot maintenance workloads, now performed at SA-ALC and OC-ALC, at a single engine depot.
  
2. **STUDY METHODOLOGY:** The data of this study evaluated man-hour considerations associated with consolidation of peacetime and wartime workloads considering both single and double shift operations at the remaining single engine depot. This study accepted as fact that both ALCs possess all the basic processes required for modern engine overhaul, and accepted that considerably more in-depth study would be needed to determine specific changes required at either depot to accomplish the full volume of workload associated with the total future engine depot maintenance requirement. The study looked at FY87 through FY98 engine workload and capability figures submitted by the two centers involved (see Table 1). The highest annual workloads accomplished at each center during this period was used to define "Peak Capability" at each center. Single shift Peak Capability for OC-ALC was 4,974K Depot Program Standard Hours (DPSH) and 5,091K DPSH for SA-ALC. While it is possible that additional capability could be achieved, these figures represent the largest demonstrated capability. Standard planning factors were applied in the analysis summarized in Tables 2 & 3 which portray the two scenarios where all work is consolidated at OC-ALC and SA-ALC respectively. These factors include an 88 percent wartime surge requirement factor, a 1.6 wartime surge capability factor, a 7 percent degradation factor for the second shift operation, an 8-hr/5-day standard work week, and a 10-hr/6-day surge work week.
  
3. **FINDINGS:** Study findings indicate:
  - a. It would be unreasonable to consider consolidating engine workloads at either center if the gaining center only operates a single shift. The "% OF CAPABILITY" lines in Tables 2 & 3 indicate that, in all years, such a consolidation would exceed 100% of either center's demonstrated Peak Capability.
  
  - b. However, it would be reasonable to consider consolidating engine workloads at either remaining depot if the gaining center expanded to double shift operations for

## (Deliverable 2.8)

some of its activities. Tables 2 & 3 indicate on their "2 SHIFT % OF CAPABILITY" and "WAR % OF CAPABILITY" lines that, since FY 91, routine peacetime and surged wartime workloads could be accomplished at either center when operating some activities on double shifts.

**4. ADDITIONAL CONSIDERATIONS:** Several important additional factors associated with consolidating engine workloads at a single ALC must be considered prior to deciding this issue:

a. Limitations associated with Option I of the infrastructure study restricted this analysis to consider only the projected Air Force and interservice engine workloads currently conducted at these depots. Additional engine workloads possible under other options; such as Air Force as "Executive Agent" for aviation maintenance, significantly increased foreign military sales support requirements, or substantially expanded competition for interservice workloads, can be expected to significantly affect these results.

b. While we could not now justify the creation of a second engine repair center, the two centers operated today give the Air Force tremendous flexibility in engine support, a critical area of aircraft sustainment operations. Catastrophic events, such as the 1984 fire at the OC-ALC engine facility, could otherwise rapidly compromise flight operations throughout the Air Force. AFMC's current posture of two engine repair ALCs effectively mitigates the risk of such catastrophes. Additionally, virtually every newly fielded engine experiences significant problems as it matures, requiring unprogrammed depot maintenance for the entire inventory as quickly as possible. Without this redundancy in engine depots, AFMC flexibility would be significantly reduced. Long lead times associated with obtaining contract support for unpredicted future engine depot maintenance requirements is one example of this loss of flexibility. The two engine ALCs in operation today enhance AFMC's flexibility in meeting all such needs.

c. The importance of current flexibility will be of increasing importance as the Air Force fully implements the Two Levels of Maintenance (2LM) initiative and centralizes its jet engine intermediate maintenance (JEIM) capability from the operational units. These two depots are currently planned to provide the majority of primary and secondary 2LM JEIM support in the future. By consolidating to a single engine repair depot, the Air Force would have to posture all 2LM second sources of engine repair at non-engine repair depots.

d. Engine overhaul constitutes approximately 30 percent of industrial operations at both of these ALCs. Unless all other workloads were also moved from the ALC giving up engine workload, there may be insufficient savings to offset the cost of transferring

## Sensitive Infrastructure

## (Deliverable 2.8)

these ALCs would make substantial industrial facilities and sophisticated processes available to support similar workloads. This factor will affect the workload distribution of many potential options still to be considered during the current infrastructure review.

e. It was accepted that some capital investment would be required to overcome currently unidentified facility limitations at the remaining engine depot to adjust the facilities to support the full volume of future engine depot maintenance requirements. Additional studies are required to determine the extent of these adjustments at either ALC.

f. The projection of future engine workloads shown in Tables 1 - 3 will change depending on the outcome of pending and planned Service depot maintenance competitions. Success in these competitions will increase projected engine workloads by the size of the other Service's workloads won in these competitions. Likewise, losses in any of these competitions will reduce projected Air Force engine workloads by the amount of Air Force requirements associated with unsuccessful competitions.

5. **RECOMMENDATION:** While this study was far from a definitive effort, it does present strong evidence that the consolidation of the engine workloads warrants further study. The next question must be: What are the costs and benefits associated with consolidation of engine depot maintenance in light of specific future study options? Recommend the AFMC 21 study group pursue these cost / benefit issues as part of future infrastructure study options.

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Tables 1 - 3

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TABLE 1

## TOTAL ENGINE WORKLOAD AND CAPABILITY (DPSH 000)

	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98
<b>OC-ALC</b>												
ENGINE WORKLOAD	4,974	3,875	4,183	3,658	3,020	2,783	2,019	2,471	2,289	2,147	2,056	2,083
PEAK CAPABILITY	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974
% OF CAPABILITY	100%	78%	84%	74%	61%	56%	41%	50%	46%	43%	41%	42%
<b>SA-ALC</b>												
ENGINE WORKLOAD	3,848	4,835	5,091	4,848	4,237	3,984	3,653	3,904	4,304	4,455	4,286	4,112
PEAK CAPABILITY	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091
% OF CAPABILITY	76%	95%	100%	95%	83%	78%	72%	77%	85%	88%	84%	81%
<b>TOTAL</b>												
ENGINE WORKLOAD	8,822	8,710	9,274	8,506	7,257	6,767	5,672	6,375	6,593	6,602	6,342	6,195
PEAK CAPABILITY	10,065	10,065	10,065	10,065	10,065	10,065	10,065	10,065	10,065	10,065	10,065	10,065
% OF CAPABILITY	88%	87%	92%	85%	72%	67%	56%	63%	66%	66%	63%	62%

TABLE 2

## SCENARIO: ALL ENGINES TO OC (DPSH 000)

ENGINE WORKLOAD	8,822	8,710	9,274	8,506	7,257	6,767	5,672	6,375	6,593	6,602	6,342	6,195
PEAK CAPABILITY	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974	4,974
% OF CAPABILITY	177%	175%	186%	171%	146%	136%	114%	128%	133%	133%	128%	125%
2 SHIFT CAPABILITY	9,600	9,600	9,600	9,600	9,600	9,600	9,600	9,600	9,600	9,600	9,600	9,600
2 SHIFT % OF CAPABILITY	92%	91%	97%	89%	76%	70%	59%	66%	69%	69%	66%	65%
WAR TIME WORKLOAD	16,585	16,375	17,435	15,991	13,643	12,722	10,663	11,985	12,395	12,412	11,923	11,643
WAR TIME CAPABILITY	15,360	15,360	15,360	15,360	15,360	15,360	15,360	15,360	15,360	15,360	15,360	15,360
WAR % OF CAPABILITY	108%	107%	114%	104%	89%	83%	69%	78%	81%	81%	78%	76%

TABLE 3

## SCENARIO: ALL ENGINES TO SA (DPSH 000)

ENGINE WORKLOAD	8,822	8,710	9,274	8,506	7,257	6,767	5,672	6,375	6,593	6,602	6,342	6,195
PEAK CAPABILITY	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091
% OF CAPABILITY	173%	171%	182%	167%	143%	133%	111%	125%	130%	130%	125%	122%
2 SHIFT CAPABILITY	9,826	9,826	9,826	9,826	9,826	9,826	9,826	9,826	9,826	9,826	9,826	9,826
2 SHIFT % OF CAPABILITY	90%	89%	94%	87%	74%	69%	58%	65%	67%	67%	65%	63%
WAR TIME WORKLOAD	16,585	16,375	17,435	15,991	13,643	12,722	10,663	11,985	12,395	12,412	11,923	11,643
WAR TIME CAPABILITY	15,721	15,721	15,721	15,721	15,721	15,721	15,721	15,721	15,721	15,721	15,721	15,721
WAR % OF CAPABILITY	105%	104%	111%	102%	87%	81%	68%	76%	79%	79%	76%	74%

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DISCUSSION ITEM  
ON  
ENGINE DEPOT CONSOLIDATION # 14

1. DISCUSSION OF TOPIC: A study was conducted to determine the cost and benefit of consolidating engine depot maintenance that is currently accomplished at SA-ALC and OC-ALC.

2. RELEVANT FACTS: Depot maintenance on engines and related components is conducted at two ALCs. As the force structure is reduced, both of these depots have excess capacity. This study was chartered to estimate the cost of relocating all engine and related (including components such as fuel accessories, gas turbine engines, secondary power systems, and engine start systems). The study was expanded to include an option to relocate the engine depot at a third ALC, relocating only the management function at one ALC, and to identify and evaluate alternatives for consolidating component repair. The FY 96 projected workload and the FY 01 UMD was used to estimate the manpower involved in the move. Four major cost categories were defined: Military Construction (MILCON), equipment transfer, manpower, and one-time costs such as red center shop floor vacate, green center shop rearrangement, minor construction, prototyping, process qualification, plus a 20% contingency factor and transition support. In addition a risk assessment was performed against each scenario and the COBRA model was run using Air Force standards. Facility and equipment data were gathered from United States Air Force Real Property Inventory Change Report, (AR)7115, and the G017 Depot maintenance Equipment List, and site surveys performed at both SA-ALC and OC-ALC for the purpose of data validation and process assessment. Engineering estimates were developed and were determined to be valid assessments. For the purposes of this study, the "third" ALC was identified as WR-ALC and the assumption was made that none of the engine processes and facilities are available but that adequate industrial equipment is available at that site.

3. ANALYSIS:

a. This study validated that both SA-ALC and OC-ALC possess capabilities in all core processes required for modern engine overhaul.

b. The payback for all scenarios related to consolidation of depot maintenance and management or management only exceeds 101 years. The costs of consolidation were computed as:

	<u>TO SA-ALC</u>	<u>TO OC-ALC</u>	<u>TO THIRD ALC</u>
Depot Maintenance & Management	\$266.8M	\$365.7M	\$1,139.8M*
Management Only	\$63.9M	\$76.5M	

\*The third ALC costs are estimates. Due to time constraints and sensitivity, no site visits were made to WR-ALC.

c. MILCON costs required for consolidation of engine depot maintenance at either SA-ALC (\$10.2M) or OC-ALC (\$8.7M) are relatively insignificant. The MILCON at the third ALC was estimated at \$474.0M.

d. Equipment transfer consisted primarily of peculiar equipment with only a minimal amount required to expand existing capabilities in order to accommodate the workload increase. The estimated equipment transfer cost to consolidate the workload at SA-ALC was \$35.8M, at OC-ALC was \$54.6M, and at WR-ALC was \$112.5M.

e. Manpower was the largest cost driver in any scenario. Standard COBRA model assumptions (transfers versus retirements/separations) were used to compute severance pay, new hire costs, movement of household goods, and relocation costs. The resulting cost estimate to consolidate workload at SA-ALC was \$161.5M, at OC-ALC was \$238.6M, and at WR-ALC as \$445.4M.

f. One time costs were calculated for consolidation of workload at SA-ALC as \$59.3M, for OC-ALC as \$63.8M, and to WR-ALC as \$107.9M.

g. Risk was assessed on the basis of five categories and probability of occurrence: wartime support, peacetime surge, skill base erosion, vulnerability, and competitiveness. The overall risk associated with consolidation of depot repair and management is very high with the major factor being skill base erosion.

4. CONCLUSION: This study clearly indicates the consolidation of depot repair and management, or even management only, is not cost effective. Further study will be necessary to determine whether there is reasonable payback associated with the consolidation of component repair.

5. RECOMMENDATION: Retain engine depot repair capability and management at SA-ALC and OC-ALC.

6. CERTIFICATION: I certify that this information is correct and accurate to the best of my knowledge and belief.

SA-ALC Senior Reviewer

James S. Smith, Sr. 11/2/94

OC-ALC Senior Reviewer \_\_\_\_\_



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS OGDEN AIR LOGISTICS CENTER (AFMC)  
HILL AIR FORCE BASE, UTAH

MEMORANDUM FOR SA-ALC/LR  
ATTENTION: Maj Chase

23 MAR 1994

FROM: OO-ALC/FMP  
7981 Georgia Street  
Hill AFB, UT 84056-5824

SUBJECT: AFMC 21 Study Discussion Item, Engine Depot Consolidation

1. The Ogden ALC AFMC 21 team has reviewed the subject paper and does not concur with it as written. It is likely that our concerns, detailed in the subsequent paragraphs, were considered during the analysis process and may be available in the subject feasibility paper, discussion briefing charts, or briefing notes that were not provided for our review. It is important to provide the relevant points in the discussion paper to eliminate possible questions from the readers mind.

a. The discussion item paper does not identify the delta difference between the equipment and facilities required at each of the respective centers.

(1) While paragraph 3c does indicate the MILCON costs to be insignificant, it is not clear what modifications are required to move the workload, i.e. is it necessary to build an addition on to a building, modify existing facilities, change process lines, or add capability.

(2) What was the purpose in selecting WR-ALC for the third possible site? Would it have not been beneficial to have selected a center that has excess industrial facility and engine test cell capability to minimize the MILCON required?

b. The commonalty between engines has increased through the years with the engines used in the new weapon systems, B-2, B-1, F-16, F-15, being very common. Due to the commonalty between the engines it would appear the repair processes, equipment (other than fixtures), and tools could be shared rather than transferred. It is not clear in the discussion paper that the commonalty between the systems was used to reduce the equipment transfer cost. Paragraph 3d indicates that only a minimal amount of the peculiar equipment was required to be transferred to each of the centers to bring the respective engine processes on line. However, it does not state that only equipment required to provide full capability will be transferred and that that equipment was identified based on the availability of existing in-place equipment at the green center. Nor does it state what would be done with the other engine equipment, i.e. disposal, transfer to a second source of repair depot.

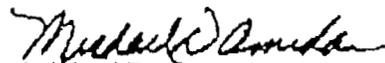
c. The discussion paper does not discuss the impact of two level engine maintenance on the depot requirements nor does it indicate the impact was considered during the analysis. This impact is likely to be realized in the completed repair requirements of the newer weapon system engines, B-1, B-2, F-16, F-15, as these engines are modular in nature and the modular components can be replaced at the two level repair site. Recommend the impact of two level maintenance be discussed and the potential impact on the size of depot level engine facility requirement as a result of the two level maintenance be provided in the discussion item or feasibility paper.

d. With the reduced workload, was consideration given to the possible benefits to be derived by establishing one engine repair depot for the newer engines and contracting out the older engines or some other like scenario. This effort should reduce the consolidation cost and provide private industry with workload for which they so desire.

e. With the commonalty between the engines, why is the concern so great over loss of skills. With like type work at each center, it would seem that the base of experienced personnel with basic engine skills base would be available at either base.

f. Discussion item papers are to provide a synopsis of the results of the relevant points obtained through completing a feasibility study. The guidance provided by the AFMC 21 Study group to us in the development of our discussion papers was that the discussion items did not include any more than the bottom line cost. Detailed costs are to be documented in the paper and those cost were to reflect only the costs related to equipment (purchase or transfer), MILCON (new or add alter), and real estate. The total of those three costs are what is provided in the discussion paper failure to follow the same guidelines of previously written papers will necessitate the rewrite of each paper to ensure each paper is viewed in perspective and the costs provided include the same elements. The other financial costs will be reflected in the COBRA model and be included in the cost reports extracted from the model.

2. POC is Philip Paskett, OO-ALC/FMPC, DSN 458-1127.



Michael D Annidan  
Ch, Business Enhancement Division  
Financial Management Directorate

cc:  
HQ AFMC/XPX  
SA-ALC/FMP