

- Meeting 5 Oct
- Mrs Gordon England, Lockheed Pres, FWD
- Mr Ben Carroll, Lockheed, STAFF
- Mr Matt Behrmann, DBCRC, Exec Staff Director
- Mr Ben Borden, DBCRC, Dir Review & Analysis
- Mr Bob Cook, DBCRC, Issues Team Lead
- Mr Frank Gallo, " A.F. Team Lead
- Mr Alex Ylino, " Navy " "
- Mr Ed Brown, " Army " "
- Ms Conline Simons, " Dir Admin/Pers
- Mr Roger Houck, " AF Team, Deputy Analyst

30 Sep 93

Memorandum for: Matt Behrmann  
Ben Borden  
Caroline Cimonis  
Ed Brown  
Alex Yellin  
Bob Cook

Thru: Frank Cirillo

Subj: Visit by President, Lockheed Corp (Ft Worth Division)  
for Discussions on Public-Private Competition

Mr Gordon Englund (President) and Mr Ben Carroll (Staff Assistant) of Lockheed Corporation, Fort Worth, TX, division (former General Dynamics facility across the runway from Carswell), will be in Washington on **5 Oct** to address a meeting of the Aerospace Industry Association. Mr Englund and Mr Carroll have asked to stop by for a short visit to briefly discuss competition between private industry and Air Force depots (Lockheed recently lost a competition to Hill for an F-16 avionics upgrade package). This visit should provide an opportunity to hear private industry's side of the story.

Since they have an early flight back to Texas, they have asked to meet at **0845**.

Roger Houck

# Document Separator

4 Oct 1993

Memorandum for: Matt Behrmann  
Caroline Cimonis  
Ben Borden  
Ed Brown  
Alex Yellin  
Bob Cook

Thru: Frank Cirillo

Subj: Update on 5 Oct, 0845, Visit by Lockheed, Ft Worth

Mr. Englund (President, Lockheed-Ft Worth) and Ben Carroll (Staff Assistant) plan on arriving at the Commission NLT 0845. Enclosed for your review prior to the meeting is a copy of a fax Mr Carroll sent to me today--as you can see, their concerns are somewhat extensive.

Roger Houck



FACSIMILE REQUEST

DATE: 4 Oct 93 NO. OF PAGES: 12 FAX CENTER MSG NO.: \_\_\_\_\_

ATTN: Boger Houck

COMPANY: \_\_\_\_\_

CITY AND STATE: \_\_\_\_\_

FAX NO.: 703-696-0550 TELEPHONE NO.: 202-653-0823

FROM: B. R. Carroll

DEPT. NO.: 16K-0 MAIL ZONE: 2696 BLOG.: 200

FAX NO.: 817-777-2115 TELEPHONE NO.: 817-763-2188

MESSAGE:

The transmission of Confidential, Secret or Top Secret and any NATO or other foreign classified materials is strictly prohibited. For transmittal, of foreign language material, department head must certify below that information does not contain any of the above prohibited or restricted information.

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Dept. Head / Dept. No.

Transmission of technical data to a foreign entity requires approval/certification from Lockheed Fort Worth Company General Counsel (Legal).

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Legal / Dept. No.

## The Role of DOD Depots Within The Defense-Industrial Base

### PREMISE:

A basis of Depot Consolidation and competition decisions (as part of the Defense Industrial Base restructuring) should be the cost-efficiency of delivering the end product to the using Defense customer.

These critical depot work decisions require comparable and accurate total costs accumulated in accounting for the delivery of the final product

### ISSUES:

- I. What is a Depot? What does it cost to deliver Depot Products?
- II. How is it possible to identify all cost elements (regardless of source or organization) needed to deliver each Depot's final product?
- III. What is the basis for quantifying (costing) the total of all of these elements for each product delivered by either Depots or Industry. Are all "Depot" costs assigned to these Products?
- IV. Will BRACC consider work allocations to optimize depot and industry participation in satisfying user requirements?

## The Role of DOD Depots Within The Defense-Industrial Base

1. Depots have significant design/engineering/manufacturing/repair capabilities which range from activities defined as Core Capabilities to a wide range of related support, management, and administrative infrastructure.

1.1 What is a Depot? What is included in Depot costs?  
What is the actual cost of final products or services?

- 1.1.1 Functional (Supply, Maintenance, Manufacturing, etc.)
- 1.1.2 Geographical (Base boundaries, real estate, facilities)
- 1.1.3 Budget Sources (Appropriation Accounts)
- 1.1.4 Organizational (Service, Command, Directorates, Agencies)
- 1.1.5 Capabilities (Equipment, Critical Skills, etc.)
- 1.1.6 Cost Categories and Costs Included
- 1.1.7 Others (Cost Accounting Standards & Auditing Practices)

*mostly*

1.2 What are the Core Functions -- or Core Capabilities -- of each Depot?

- 1.2.1 Does the definition of "Core" differ between Services?
- 1.2.2 Do certain Core Capabilities reside only within Depots and not in the Private Sector? What are the differentiating criteria?
- 1.2.3 What excess or undesired Core Capability duplication exists between Depots and Industry in specific categories of tasks to be performed?

*Needs more probably not but extent of capability is a factor, ICM Guid*

- Engineering Design?
- Major Mods?
- Weapon System Maintenance/Repair?
- Component Repair?
- Item Management?
- Supply and Distribution?

*"LEVEL" needed for contingency*

1.3 To what extent should the Public Defense Depot system and the Private Defense Industry maintain identical and duplicative core capabilities -- business, technical, and function?

*their thoughts*

1.4 From a national economic perspective, what overall level of nationalized Depot Industrial Capability is required or desired in the future from both a Defense as well as a national economic perspective?

*this is a policy issue to be (hopefully) set by DoD*

2. Structuring Depot Maintenance competition and developing a level playing field for both the private and the public sectors remains a major challenge. Cost concerns impacting Industry-Depot competitions include:

*need their thoughts*

2.1 Can all true and complete costs associated with a Depot activity be defined in terms of all that is required to support each program or product? Will all costs of all of the Depots programs sum to equal the total "Depot Cost" (or "Depot Operating Expense)?

2.2 How can the uncertainty in cost comparability -- and the ambiguity -- that currently exists in comparisons between Depots or in comparing Depot versus Industry costs be equalized? How can it be factored into decisions to optimize the Defense Industrial Base?

2.3 Does the current system of certification by the DCAA that each Depot's bid on each competitive project complies with the "Cost Comparability Handbook" of the Defense Depot Maintenance Council result in a level "playing field" between the public and private sectors? How should Depot rates be revised to reflect differences in the structure, processes, accounting systems, and regulatory requirements of both sectors?

2.4 An all-component definition of "What Is A Depot" is of critical importance in competitions, downsizing, or consolidation rationalization of the Defense Industrial Base

*DoD is and must be in the drivers seat given their need for savings yet D.I.B. solvability*



Depot Maint  
FY 92 \$14.7 B  
FY 93 \$14.6 B

3. The continuing discrepancies in the Defense Business Operating Fund (DBOF) are an indication of problems of cost accountability and auditability in the Depot System (and DOD Product Support/Supply System) associated with multiple DOD organizations involved in the Defense Maintenance system.

Definite  
problem!  
"Not intended"  
for competition  
outside DOD  
even "Joint"  
competition  
is in  
INFANCY

3.1 How are costs allocated/assessed when multiple organizations are involved in receiving, producing, supporting, and delivering the Depot's product?

3.1.1 Depot host (Includes base support, etc.)

3.1.2 Major depot supporting tenants directly involved in the supply/maintenance workload (such as DLA, GSA, etc.)

3.1.3 Secondary tenants or geographically separated DOD entities (such as DCAA, DPRO, Civil Engineering, Real Estate Management, Computer Services, Financial and Cost Systems, etc.)

3.1.4 How are DBOF transfers documented and reconciled?

3.2 Is there an auditable process followed in determining cost impacts or cost-sharing contributions made by other tenants geographically located at the depot (e.g. Operational flying units, other defense agencies, etc.)?

3.3 Depot Costs must be segmented into major functions to properly identify costs associated with Depot Core competed and non-competed functions on a basis which permits comparisons with Industry in undertaking major tasks:

3.3.1 Depot maintenance (end items and components)

3.3.2 Major Mods

3.3.3 Engineering and Design Activities

3.3.4 Depot Manufacturing Activities

3.3.5 Product Support

3.3.6 Others

3.4 What changes in cost accounting visibility or cost information collection should be identified now by the Defense Services in order to provide objectivity in support of Defense Industrial Base decisions in FY 94-97?

4. The JCS Depot Maintenance Consolidation Study (page ES-2) stated:

"Closure of a significant number of depots will be necessary if we are to reduce excess capacity. We believe the only effective way to close depots is through the BRACC process".

↳ Read "Legal"

Because substantial overcapacity exists throughout the Depot system (estimated by the January 1993 JCS Depot Maintenance Study to be as much as 50%), what methodology will the BRACC use to determine the priority in which Depot functions can be combined and Depots eliminated or downsized?

- 4.1 What additional information [on Costs, Industrial Capabilities, alternative public/private work splits, etc.] will be needed by BRACC in the future in their considerations of these Defense Industrial Base issues affecting optimization of the Depot system?
- 4.2 How can Industry assist in providing essential comparable data?
- 4.3 How many of the 37 major Army, Navy, and Air Force Depot activities located in the United States have specialized (core) critical capabilities which support unique military weapon system requirements -- and which capabilities cannot be provided by other Depots)?

questionable  
role  
for  
DBCR

5. In BRACC comparisons between Government Depots and Industry contractors, to what extent do you plan to reconcile the cost comparability of data (cost information) supplied from fundamentally different accounting systems? Some of the particularly difficult issues include:

5.1 Types of "overhead" which are readily identified in Industry (Government Contractor) costs but which are not acknowledged or identified on an equivalent basis by Depot organizations in "cost of work" calculations:

- 5.1.1 Employee fringe benefits and retirement
- 5.1.2 Personnel management
- 5.1.3 Depot "Self insurance" (e.g. fire loss, product liability)
- 5.1.4 Environmental Costs (current and future)
- 5.1.5 Depreciation of equipment
- 5.1.6 Others

5.2 Means of reconciliation of budgetary and expense information from separate (but co-located) agencies?

6. With the variety of tasks accomplished by both Industry and the different Depots (including current inter-service support), what measures of merit (e.g. Quality, Productivity, Cost-Effectiveness, etc.) should be used in comparing the "value" of private and public output:

- 6.1 Rank candidates and alternative Defense Industrial Base scenarios for evaluation of the future desired public-private mix of capabilities needed to perform depot maintenance and defense supply activities?
- 6.2 Provide a common cost accounting baseline to insure competitiveness can be calculated for work performed by the total (Public and Private) Defense Industrial Base?

7. How will the potential benefits of competition to undertake various depot workloads be considered?

- 7.1 Can the overall cost to DOD be minimized if duplicative Depot activities maintained by each Service in multiple depot locations be consolidated through inter-service support? Can other alternatives be regularly considered ?
- 7.2 Can inter-service questions be addressed on a Service-by-Service basis and what level of decision-making should be involved?
- 7.3 Will "competition" between Depots and Private Contractors be "ground ruled" as a factor in BRACC assessments. To what extent will work activities requiring Depot "Core" capabilities also be competed ?
- 7.4 Will private core capabilities (as well as public) be considered in the downsizing rationalization of the Defense Industrial Base?
- 7.5 To what extent can BRACC consider the various alternative cost saving approaches that have been proposed for centralizing indirect support activities (alternatives such as combining support "functions" in a single agency depot system)?

I  
Thinking  
Not

8. There are legislative restrictions that require specific considerations of the amount of work that can be competed/contracted out to industry (e.g. The FY 93 Authorization prohibits the military services from contracting out more than 40 percent of the depot-level "maintenance work" by non-federal employees.) How will considerations of these mandated legislative restrictions be weighted in the BRACC analyses?

- ①
- |   |                      |
|---|----------------------|
| — | NAVY                 |
| — | USAF                 |
| — | ARMY                 |
| — | MARINES              |
| — | SA                   |
| — | NON-DEPT LABS        |
| — | FOREIGN GOVT INSTL   |
| — | INTERMEDIARY SERVICE |

# OF "DEPOTS" BY SERVICES  
— PLUS —  
5 CATEGORIES OF DEPOT-LIKE ORGZNS

- ②
- |      |       |
|------|-------|
| 47%  | NAVY  |
| 34%  | USAF  |
| 17%  | ARMY  |
| 2%   | MARIN |
| 100% |       |

DISTRIBUTION OF DEP BY SERVICE

ROGER HOUCK —  
ACTUAL CHARTS WILL BE FAXED LATER THIS MORNING (MONDAY)  
BEN CARROLL

- ③
- |                        |      |
|------------------------|------|
| 450 SHIPS              | 33%  |
| 20,200 AIRCRAFT        | 45%  |
| 21,000 COMBAT VEHICLES | 5%   |
| 660,000 VEHICLES       | 13%  |
| MISSILES               | 4%   |
|                        | 100% |

WEAPON SYSTEMS SERVICED IN DEPOTS (BY TYPES)

- ④
- |                 |   |
|-----------------|---|
| DATE OF REQmnt  | — |
| ACTION TAKEN BY |   |
| • NAVY          |   |
| • USMC          |   |

REQmnt TO DEFINE "WHAT IS CORE?"

• ARMY  
NO DEFINITIONS EXIST

5

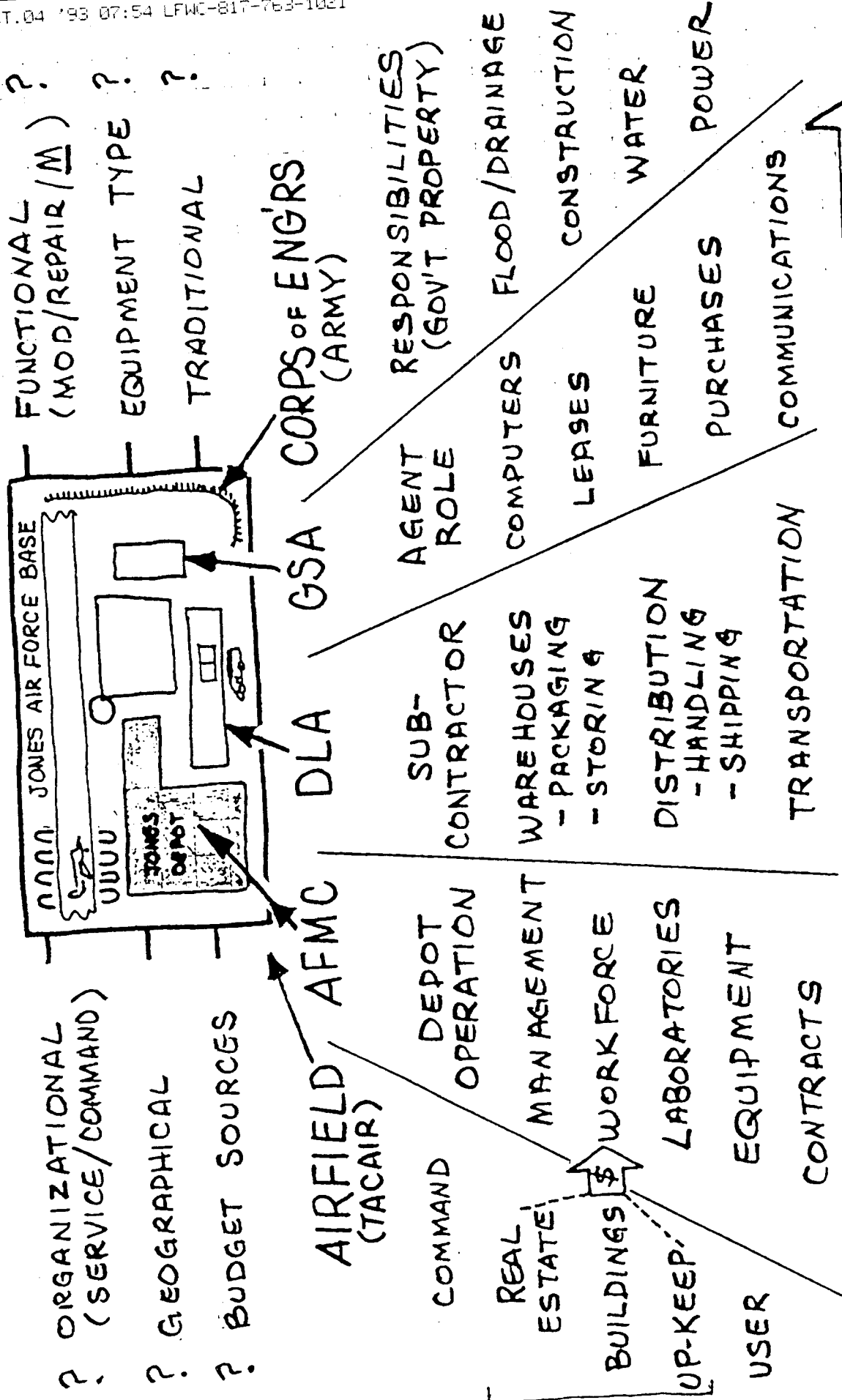
- 150% REQMT
- WARTIME SURGE REQMT
- INTER SERVICE REQMT
- RESIDENT CAPACITY REQMT

• \_\_\_\_\_  
• \_\_\_\_\_

20 YEARS LATER  
TOTALLY NEW ENVIRONMENT

HOW CAN THE TERM  
"DEPOT OVERCAPACITY"  
BE DEFINED?

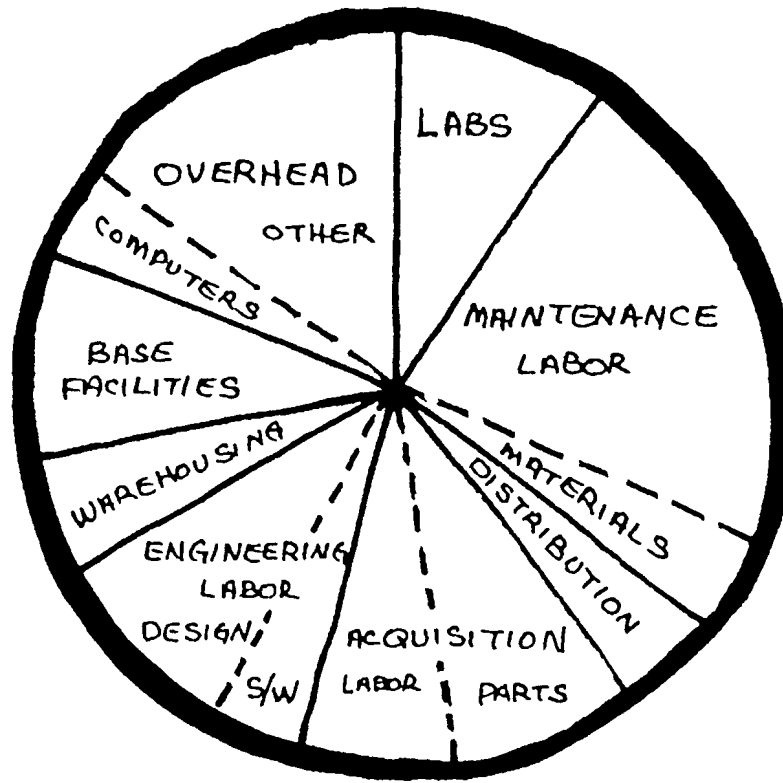
# WHAT IS A DEPOT?



# WHAT IS A DEPOT?

## WHAT ARE THE PROJECTS

- ✓ CUSTOMER
- ✓ SCOPE
- ✓ URGENCY
- ✓ PRIORITY
- ✓ SECURITY



## WHAT ARE THE ESSENTIALS

- SKILLS/SPECIALISTS
- PROCESSES/EQUIPMENT
- ORGANIZ'N/INTERFACES
- FACILITIES/LABS
- COST/BUDGETS

## WHAT SEGMENT OF DEPOT BUSINESS CAN INDUSTRY DO

- AIRCRAFT MODIFICATIONS
- DEPOT LEVEL MAINTENANCE

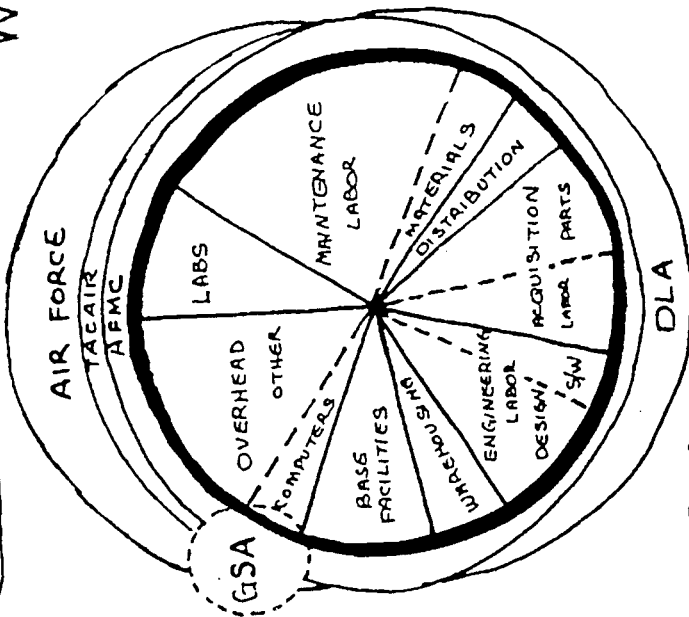
> BETTER, FASTER, CHEAPER?



# DEPOT BIDS

## WHAT COST ELEMENTS

PUBLIC

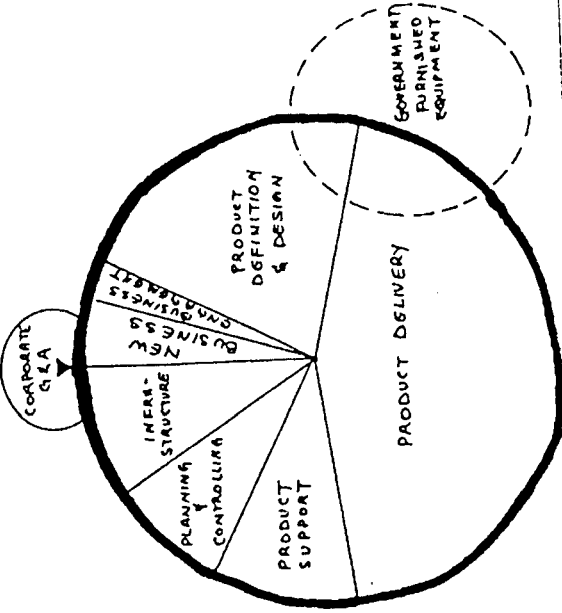


BID

COST ELEMENTS

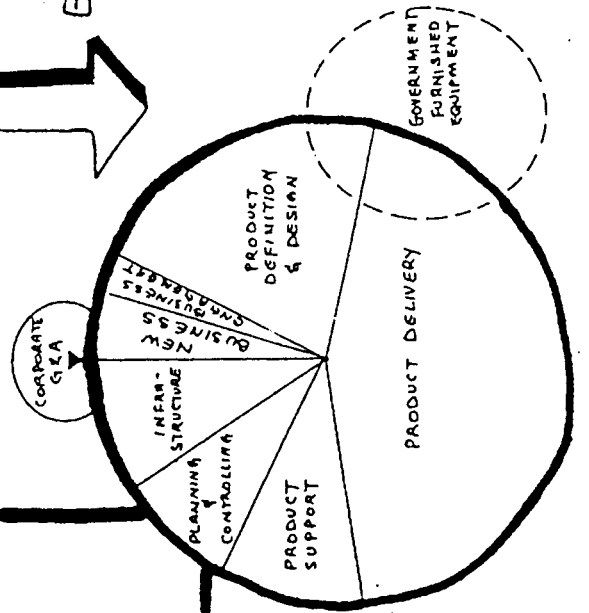


PRIVATE



BID

COST ELEMENTS



## Aircraft Modifications:

- Aircraft modifications encompasses research and engineering, kit fabrication and assembly, and installation (and testing?) of modifications to post-delivery aircraft which may be in or out of production.
- Modifications may be to structures, electronics, weapons, propulsion, and/or other systems.
- Modifications are intended to correct deficiencies and/or improve the operational capabilities and/or reliability and maintainability of existing aircraft. The modification changes, as a minimum, the fit or function of the item.
- Modifications occasionally overlap with new aircraft production when a modification is incorporated in both pre- and post-delivery aircraft.

## Depot Level Maintenance:

- Depot level maintenance encompasses the more complex maintenance and repair of aircraft at a depot-level maintenance facility or at an operating base by a field team.
- Complex maintenance and repair is the major overhaul or a complete rebuild of aircraft parts, assemblies or subassemblies and end items. It can include the emergency manufacture of nonavailable parts, modifications installations, testing, and reclamation.
- Depot level maintenance differs from modifications in that depot level maintenance maintains or restores an aircraft to its original configuration whereas modification results in a new aircraft configuration.
- Depot level maintenance may overlap with modifications in that when an aircraft is down for modification, depot level maintenance may be performed concurrently.

OCT 04 '93 07:57 LFWC-817-753-1021

P.05

# Document Separator

4 Oct 1993

Memorandum for: Matt Behrmann  
Caroline Cimonis  
Ben Borden  
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Alex Yellin  
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Thru: Frank Cirillo

Subj: Update on 5 Oct, 0845, Visit by Lockheed, Ft Worth

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Roger Houck

RE: LOCKHEED MTG

ENCLOSED IS A SECOND FAX  
RECEIVED MONDAY AT 1400; FOCUS  
ON THIS ONE IS CAPACITY/OVERCAPACITY —

Roger Houck



FACSIMILE REQUEST

DATE: 4 Oct 93 NO. OF PAGES: 7 FAX CENTER MSG NO.: \_\_\_\_\_

ATTN: Boger Houck

COMPANY: \_\_\_\_\_

CITY AND STATE: \_\_\_\_\_

FAX NO.: 703-696-0550 TELEPHONE NO.: 202-653-0823

FROM: B R Carrell

DEPT. NO.: 16E-0 MAIL ZONE: 2696 BLDG.: 200

FAX NO.: 817-777-2115 TELEPHONE NO.: 817-763-2188

MESSAGE: \_\_\_\_\_

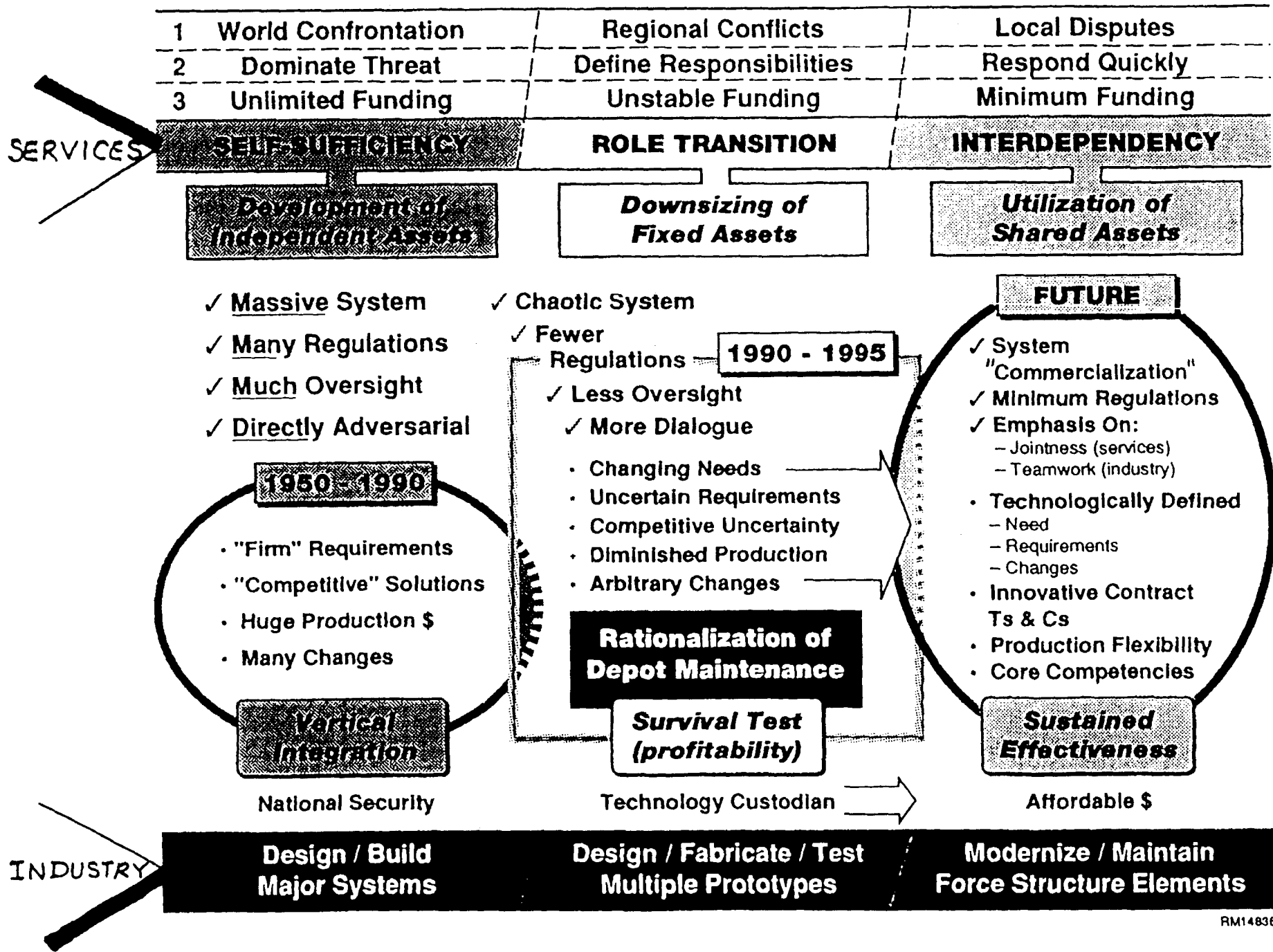
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Dept. Head / Dept. No.

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\_\_\_\_\_  
Legal / Dept. No.

# Context for Public & Private Roles in Industrial Base Downsizing



OCT.04 '93 11:23 LFWC-817-763-1021

# Distribution of Depots' Budgets by Service

<u>% of Depot Budget</u>	<u>Service</u>
47%	Navy
34%	USAF
17%	Army
<u>2%</u>	Marines
100%	

# ***Weapon Systems Budgets Serviced in Depots (By Types)***

<u>Weapon System</u>	<u>% of Depot Budgets</u>
450 Ships	33%
20,200 Aircraft	45%
36,000 Combat Vehicles	5%
660,000 Vehicles	13%
Missiles	<u><u>4%</u></u>
	100%



# Depot Facilities

## Huge/Diverse Commitment of National Resources

<u>Owner</u>	<u>"Depot" Facilities</u>	<u>Depot Equivalents</u>
Army	6	+ Commercial Industrial Base
Navy Shipyards/Other	9	- Primes
Navy Aviation	6	- Major Subs
Air Force ALCs	5	- Vendors
Air Force Specialized	2	+ Space Industrial Complexes (Cape Canaveral AFS, Vandenberg)
Marine Corps Logistics	2	
SUBTOTAL	30	+ NASA Industrial Complexes Providing Depot Type Services to <u>Military</u> Space/ Missiles/Satellites
+ Naval Ordnance Depots	9	+ Distribution/Warehousing (DLA/GSA)
+ Army Weapons/Munitions Maintenance Depots	16	+ Foreign Government Depots/Firms Servicing DoD Equipment
	<hr style="width: 50%; margin: 0 auto;"/> <b>55*</b>	+ Services Intermediate Level Shops Performing Depot Level Repairs
		+ Non-Depot Governmental Labs



\* In addition, Depots have geographically separated detachments and operating locations.

1

HOW HAS THE TERM "DEPOT OVERCAPACITY" BEEN DEFINED?

50% Potential Overcapacity Cited in January 93 JCS Report

● Since Depot "Requirements" are based on ability of each Depot as well as the Depot system to support a sustained wartime or emergency surge of up to 160% of the Peacetime Work Load, then exactly what is the BASE on which the 50% overcapacity is based?

--50% over the Peacetime Workload (If this is true, then USAF Depots would not meet the 160% Wartime Surge Objective)

--50% over the "160% of Peacetime Work Load" (If this is true, then the true minimum overcapacity is 240% -- based on 160% plus 50% over the 160%)

● The assumptions on which the wartime requirements are based still reflect DOD OPLANS -- many of which still have cold war assumptions. (If this is true, then the overcapacity is even higher)

● Overcapacity calculations only recognize the capacity of each Depot to maintain the specific product mix currently assigned to each individual Depot -- regardless of whether that Depot has the capacity to repair other systems.

OCT.04 '93 11:28 LFWC-817-763-1021

2

HOW HAS THE TERM "DEPOT OVERCAPACITY" BEEN DEFINED?

50% Potential Overcapacity Cited in January 93 JCS Report

● No actual definition of Core Logistics Capability has yet been developed in response to DOD Directive 4151.18 (or any of the predecessor laws dating back to 1974).

"OPERATIONAL DEFINITION"—

— Does not reflect the additional overcapacity that would result from economies of scale resulting from consolidation of Depots capabilities within each Service Depot System.

— Does not reflect the additional overcapacity that would result from economies of scale resulting from inter-service consolidation of Depots capabilities.

— Excludes additional overcapacity that essentially results from the performance of Depot maintenance defined activities by non-Depot military units (eg. Intermediate Level Maintenance Shops)

OCT.04 '93 11:29 LPMC-817-763-1021

### 3 HOW HAS THE TERM "DEPOT OVERCAPACITY" BEEN DEFINED?

50% Potential Overcapacity Cited in January 93 JCS Report

● In determining the Core Logistics skill & resource base that is solely justified as being essential to meet contingency requirements, the Army and Air Force computations exclude contributions provided by Commercial Defense Contractors.

● Overcapacity statistics are not in any way a measure of physical Depot plant capacity at each Depot--but rather are actually computed as a measure of current employment, organizational structure, product mix, and skill mix (Administrative, Maintenance, Management, etc.)

● The impact of recent structural changes (e.g. transferring Distributions functions from the "Depot" to DLA, etc.) may not be reflected in depot overcapacity estimates.

● Depot overcapacity estimates do not include reliability and maintainability (R&M) improved performance of currently acquired Weapon Systems versus the historical R&M performance of 1970-1980 era Weapon Systems (on which Depot Manpower Requirements are based in Manpower Standards).

# Document Separator

# BASE REALIGNMENT & CLOSURE COMM.

- MATT BEHRMANN  
EXECUTIVE DIRECTOR OF THE <sup>BRAC</sup> COMMISSION
- FRANK CIRILLO  
HEAD OF THE AIR FORCE BOARD AT BRAC
- BEN BORDEN  
HEAD OF RESEARCH & ANALYSIS AT BRAC
- MADE  
ARRANGEMENTS ● ROGER HOUCK  
CHIEF OF AIR FORCE ANALYSIS  
AIR FORCE BOARD OF BRAC COMMISSION

→ TUESDAY, OCTOBER 5 1993  
BASE REALIGNMENT & CLOSURE COMMISSION  
COMMISSION HEADQUARTERS  
SUITE #1425  
1700 NORTH MOORE STREET  
ROSSLYN, VIRGINIA

RIGHT ABOVE  
ROSSLYN METRO  
STATION

8:30 - 8:45 (MEETING IS FREE TO CONTINUE  
UNTIL 10:45AM --- AT WHICH  
TIME BRAC PARTICIPANTS MUST  
BREAK OFF FOR A MEETING  
WITH LOGISTICS MGMT INSTITUTE)

FAX #(703) 696 0550

PHONE (202) 653 0823  
(703) 696 0504

9/30/1993

HOUSE AND SENATE defense bills give military depots the edge in winning maintenance and modernization work.

#### Depots have advantage over industry in defense bills

Very quickly-and probably stealthily-the House Appropriations Committee has given military depots an edge in their competition with defense contractors for maintenance and modernization work.

A slight language change in the \$240 billion fiscal 1994 defense money bill, approved by voice vote with no debate last Wednesday, gave a senior acquisition executive in the relevant Defense Dept. agency the authority to certify that bids include comparable estimates of all direct and indirect costs.

◆ In the original defense subcommittee bill, the Defense Contract Audit Agency was given the certification power in competitions between DOD depot maintenance activities and private firms. Subcommittee Chairman Rep. John Murtha (D-Pa.) offered the amendment to the full committee bill, congressional sources said.

The change may seem insignificant, but it gives a greater role to service acquisition executives who, for the most part, are partial to their depot organizations. In contrast, senior DOD officials have focused on preserving the defense industrial base and view maintenance and mod work now being done by the depots as a tool toward that end.

Asked Tuesday by The DAILY if he thought the amendment tilted the balance in favor of the military depots, Murtha at first indicated that he didn't think so, but later said, "You may be right." He added, however, that he disagrees with the characterization of DCAA as "the honest broker" in this situation.

The House Armed Services Committee also offered recommendations that appear to help the depots. In its report, HASC prohibits the consolidation of the management of depot-level maintenance under a single defense-wide authority and directed that this function continue to be carried out by each service.

The HASC report also prohibits the secretary of defense from implementing a policy that provides for a new weapon system to be planned and programmed primarily for long-term, depot-level maintenance by "non-Governmental personnel."

The House committee also wrote language establishing a DOD Depot Task Force to examine the functions and activities of depots, to pinpoint depots that are suitable for performance by contractor personnel, and to evaluate how rates and prices are determined.

A panel headed by former Hughes Aircraft CEO Malcolm Currie already has undertaken a review of the private vs. public competition, DOD Comptroller-designate John Hamre told the Senate Armed Services Committee last Thursday.

The SASC FY '94 report prohibits shifting the performance of a depot-level maintenance workload of \$3 million or more to a private contractor unless competitive procedures are used.

Service depots perform \$13 billion a year in maintenance work and \$9 billion annually in upgrades, according to estimates by Hughes Aircraft CEO Mike Armstrong.

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- Engineering Design?
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- Component Repair?
- Item Management?
- Supply and Distribution?

1.3 **To what extent should the Public Defense Depot system and the Private Defense Industry maintain identical and duplicative core capabilities -- business, technical, and function?**

1.4 From a national economic perspective, what overall level of nationalized Depot Industrial Capability is required or desired in the future from both a Defense as well as a national economic perspective?

2. Structuring Depot Maintenance competition and developing a level playing field for both the private and the public sectors remains a major challenge. Cost concerns impacting Industry-Depot competitions include:

2.1 Can all true and complete costs associated with a Depot activity be defined in terms of all that is required to support each program or product? Will all costs of all of the Depots programs sum to equal the total "Depot Cost" (or "Depot Operating Expense)?

2.2 How can the uncertainty in cost comparability -- and the ambiguity -- that currently exists in comparisons between Depots or in comparing Depot versus Industry costs be equalized? How can it be factored into decisions to optimize the Defense Industrial Base?

2.3 Does the current system of certification by the DCAA that each Depot's bid on each competitive project complies with the "Cost Comparability Handbook" of the Defense Depot Maintenance Council result in a level "playing field" between the public and private sectors? How should Depot rates be revised to reflect differences in the structure, processes, accounting systems, and regulatory requirements of both sectors?

2.4 An all-component definition of "What Is A Depot" is of critical importance in competitions, downsizing, or consolidation rationalization of the Defense Industrial Base

3. The continuing discrepancies in the Defense Business Operating Fund (DBOF) are an indication of **problems of cost accountability and auditability** in the Depot System (and DOD Product Support/Supply System) associated with multiple DOD organizations involved in the Defense Maintenance system.

3.1 How are costs allocated/assessed when multiple organizations are involved in receiving, producing, supporting, and delivering the Depot's product?

3.1.1 Depot host (Includes base support, etc.)

3.1.2 Major depot supporting tenants directly involved in the supply/maintenance workload (such as DLA, GSA, etc.)

3.1.3 Secondary tenants or geographically separated DOD entities (such as DCAA, DPRO, Civil Engineering, Real Estate Management, Computer Services, Financial and Cost Systems , etc.)

3.1.4 How are DBOF transfers documented and reconciled?

3.2 Is there an auditable process followed in determining cost impacts or cost-sharing contributions made by other tenants geographically located at the depot (e.g. Operational flying units, other defense agencies, etc.)?

3.3 Depot Costs must be segmented into major functions to properly identify costs associated with Depot Core competed and non-competed functions on a basis which permits comparisons with Industry in undertaking major tasks:

3.3.1 Depot maintenance (end items and components)

3.3.2 Major Mods

3.3.3 Engineering and Design Activities

3.3.4 Depot Manufacturing Activities

3.3.5 Product Support

3.3.6 Others

3.4 What changes in cost accounting visibility or cost information collection should be identified now by the Defense Services in order to provide objectivity in support of Defense Industrial Base decisions in FY 94-97?

4. The JCS Depot Maintenance Consolidation Study (page ES-2) stated:

"Closure of a significant number of depots will be necessary if we are to reduce excess capacity. We believe the only effective way to close depots is through the BRACC process".

Because substantial overcapacity exists throughout the Depot system (estimated by the January 1993 JCS Depot Maintenance Study to be as much as 50%), what methodology will the BRACC use to determine the priority in which Depot functions can be combined and Depots eliminated or downsized?

- 4.1 What additional information [on Costs, Industrial Capabilities, alternative public/private work splits, etc.] will be needed by BRACC in the future in their considerations of these Defense Industrial Base issues affecting optimization of the Depot system?
- 4.2 How can Industry assist in providing essential comparable data?
- 4.3 How many of the 37 major Army, Navy, and Air Force Depot activities located in the United States have specialized (core) critical capabilities which support unique military weapon system requirements -- and which capabilities cannot be provided by other Depots)?

5. In BRACC comparisons between Government Depots and Industry contractors, to what extent do you plan to reconcile the cost comparability of data (cost information) supplied from fundamentally different accounting systems? Some of the particularly difficult issues include:

5.1 Types of "overhead" which are readily identified in Industry (Government Contractor) costs but which are not acknowledged or identified on an equivalent basis by Depot organizations in "cost of work" calculations:

- 5.1.1 Employee fringe benefits and retirement
- 5.1.2 Personnel management
- 5.1.3 Depot "Self insurance" (e.g. fire loss, product liability)
- 5.1.4 Environmental Costs (current and future)
- 5.1.5 Depreciation of equipment
- 5.1.6 Others

5.2 Means of reconciliation of budgetary and expense information from separate (but co-located) agencies?

6. With the variety of tasks accomplished by both Industry and the different Depots (including current inter-service support), what measures of merit (e.g. Quality, Productivity, Cost-Effectiveness, etc.) should be used in comparing the "value" of private and public output:

6.1 Rank candidates and alternative Defense Industrial Base scenarios for evaluation of the future desired public-private mix of capabilities needed to perform depot maintenance and defense supply activities?

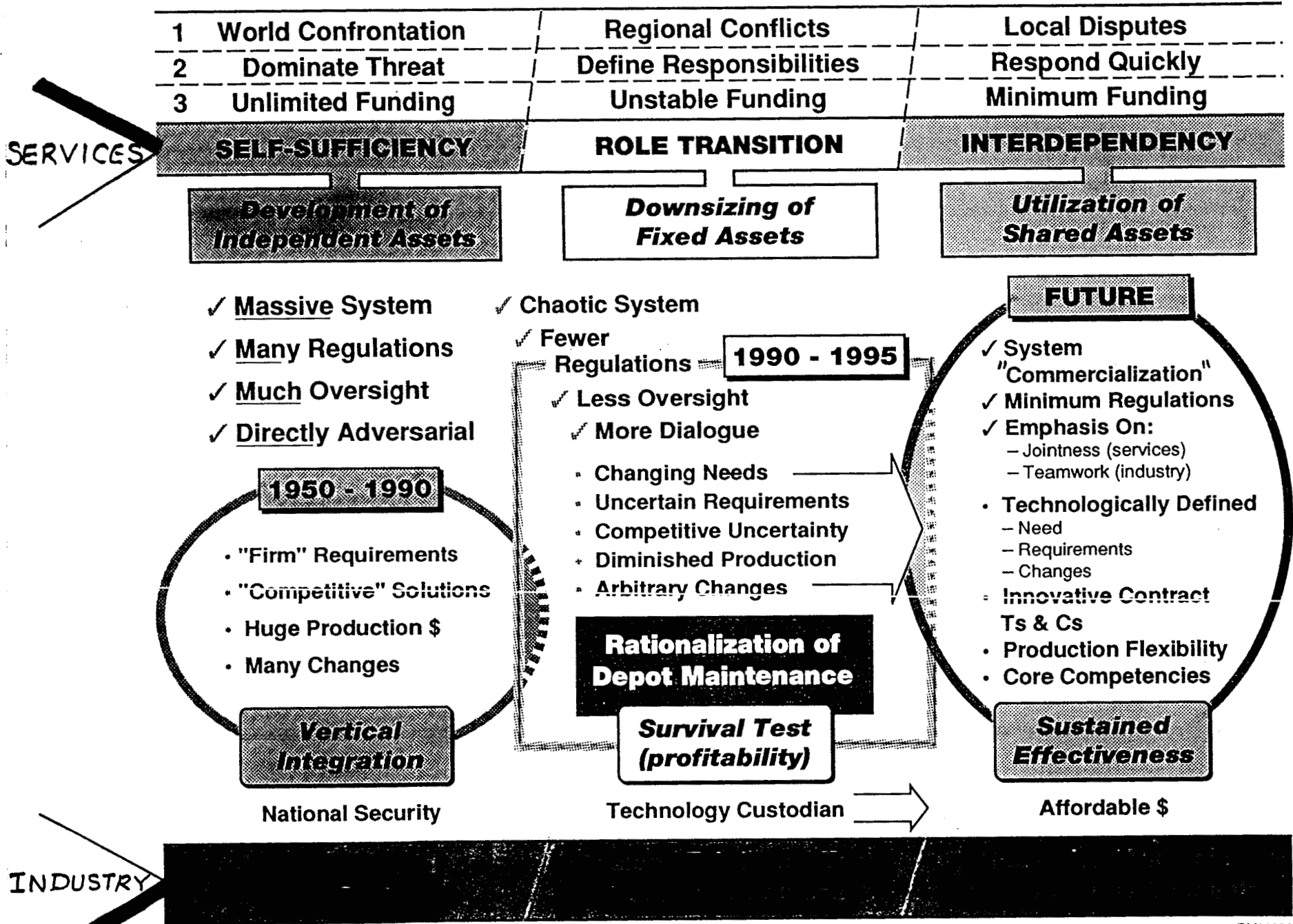
6.2 Provide a common cost accounting baseline to insure competitiveness can be calculated for work performed by the total (Public and Private) Defense Industrial Base?

7. How will the potential benefits of competition to undertake various depot workloads be considered?

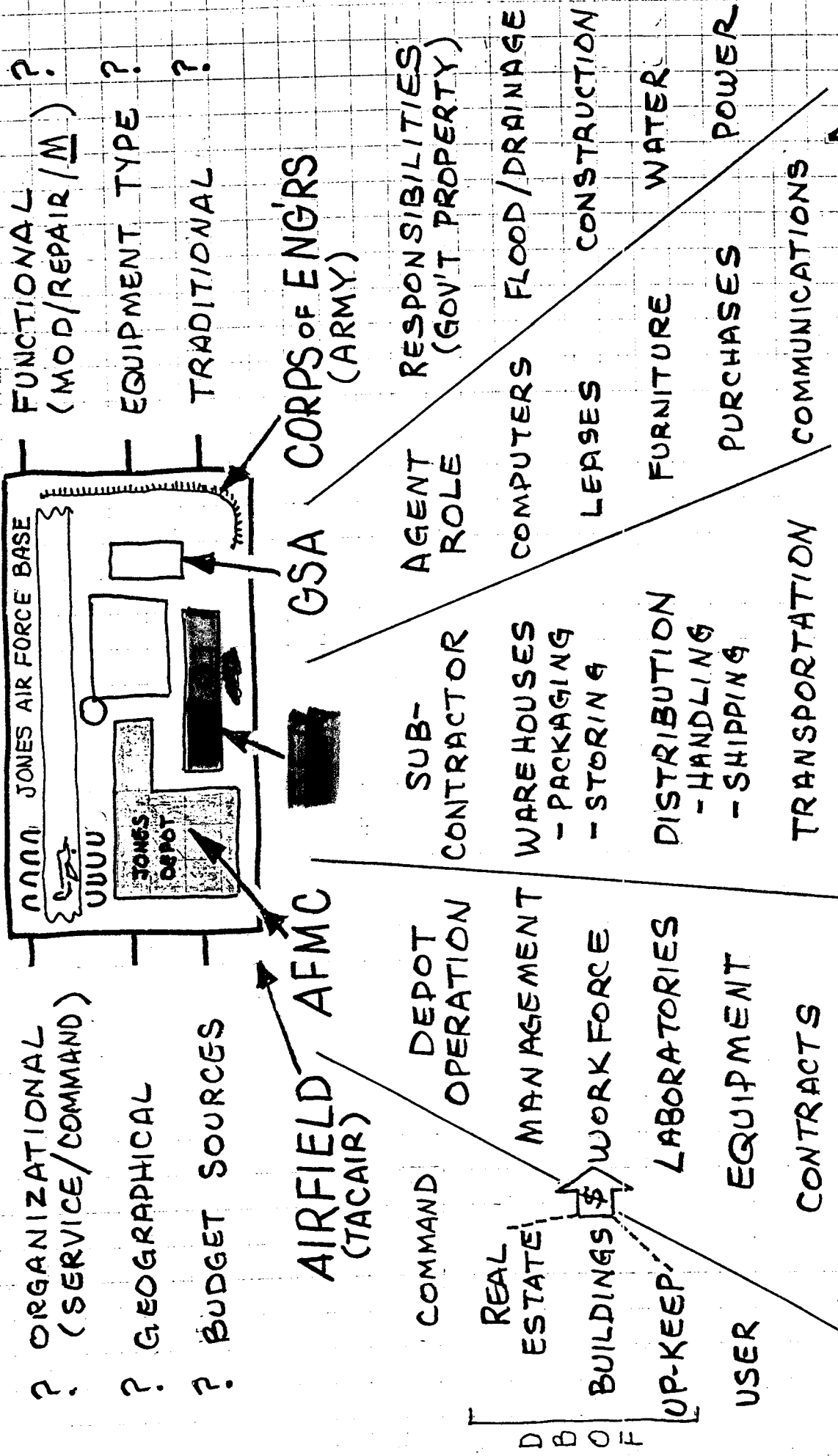
- 7.1 Can the overall cost to DOD be minimized if duplicative Depot activities maintained by each Service in multiple depot locations be consolidated through inter-service support? Can other alternatives be regularly considered ?
- 7.2 Can inter-service questions be addressed on a Service-by-Service basis and what level of decision-making should be involved?
- 7.3 Will "competition" between Depots and Private Contractors be "ground ruled" as a factor in BRACC assessments. To what extent will work activities requiring Depot "Core" capabilities also be competed ?
- 7.4 Will private core capabilities (as well as public) be considered in the downsizing rationalization of the Defense Industrial Base?
- 7.5 To what extent can BRACC consider the various alternative cost saving approaches that have been proposed for centralizing indirect support activities (alternatives such as combining support "functions" in a single agency depot system)?

8. There are legislative restrictions that require specific considerations of the amount of work that can be competed/contracted out to industry (e.g. The FY 93 Authorization prohibits the military services from contracting out more than 40 percent of the depot-level "maintenance work" by non-federal employees.) How will considerations of these mandated legislative restrictions be weighted in the BRACC analyses?

# Context for Public & Private Roles in Industrial Base Downsizing



# WHAT IS A DEPOT?



- ? ORGANIZATIONAL (SERVICE/COMMAND)
- ? GEOGRAPHICAL
- ? BUDGET SOURCES

HOW ARE EXPENSES ALLOCATED, ACCOUNTED FOR, AND AUDITED?

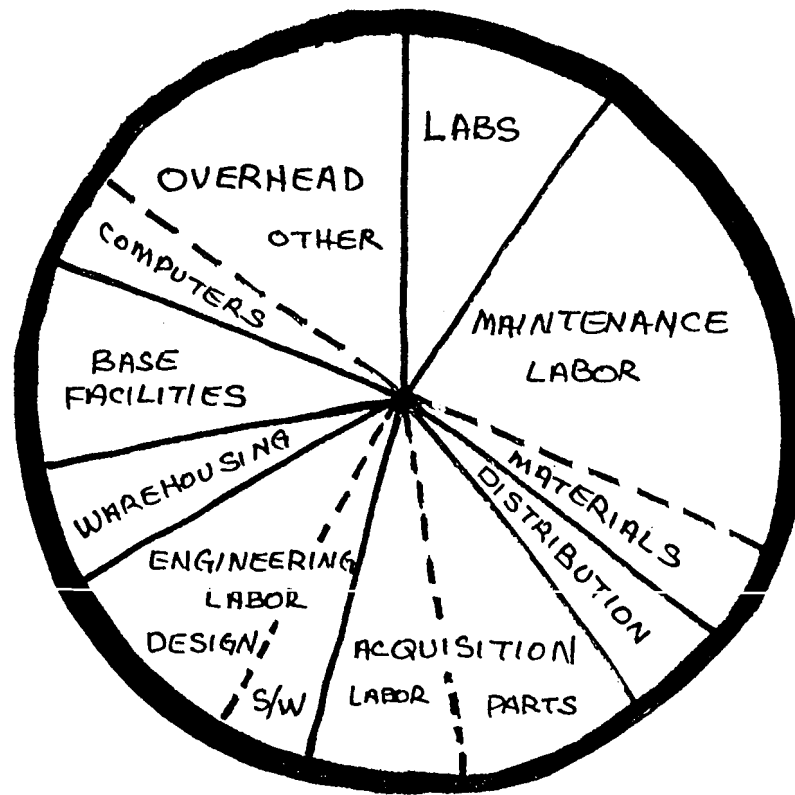
FIVE AGENCIES WITH SEPARATE ACCOUNTABILITIES & FUNDING



# WHAT IS A DEPOT?

## WHAT ARE THE PROJECTS

- ✓ CUSTOMER
- ✓ SCOPE
- ✓ URGENCY
- ✓ PRIORITY
- ✓ SECURITY



## WHAT ARE THE ESSENTIALS

- SKILLS/SPECIALISTS
- PROCESSES/EQUIPMENT
- ORGANIZ'N/INTERFACES
- FACILITIES/LABS
- COST/BUDGETS

## WHAT SEGMENT OF DEPOT BUSINESS CAN INDUSTRY DO

- AIRCRAFT MODIFICATIONS
- DEPOT LEVEL MAINTENANCE

> BETTER, FASTER, CHEAPER?

## Aircraft Modifications:

- Aircraft modifications encompasses research and engineering, kit fabrication and assembly, and installation (and testing?) of modifications to post-delivery aircraft which may be in or out of production.
- Modifications may be to structures, electronics, weapons, propulsion, and/or other systems.
- Modifications are intended to correct deficiencies and/or improve the operational capabilities and/or reliability and maintainability of existing aircraft. The modification changes, as a minimum, the fit or function of the item.
- Modifications occasionally overlap with new aircraft production when a modification is incorporated in both pre- and post-delivery aircraft.

## Depot Level Maintenance:

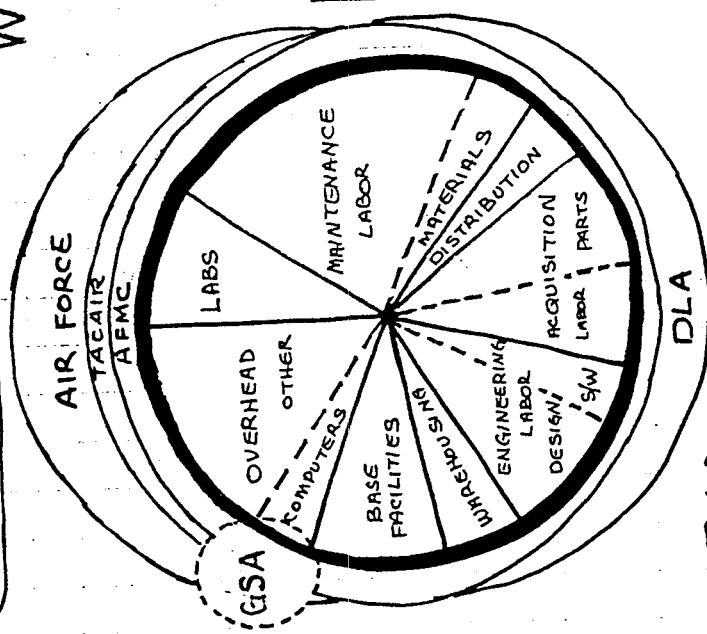
- Depot level maintenance encompasses the more complex maintenance and repair of aircraft at a depot-level maintenance facility or at an operating base by a field team.
- Complex maintenance and repair is the major overhaul or a complete rebuild of aircraft parts, assemblies or subassemblies and end items. It can include the emergency manufacture of nonavailable parts, modifications installations, testing, and reclamation.
- Depot level maintenance differs from modifications in that depot level maintenance maintains or restores an aircraft to its original configuration whereas modification results in a new aircraft configuration.
- Depot level maintenance may overlap with modifications in that when an aircraft is down for modification, depot level maintenance may be performed concurrently.

# DEPOT BIDS

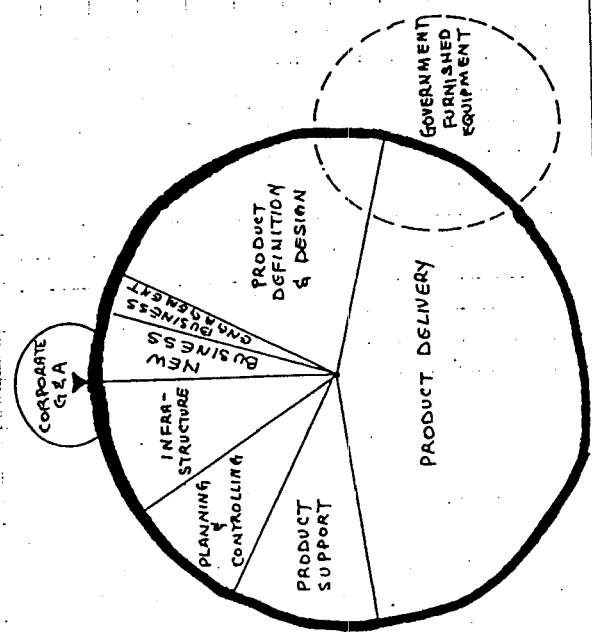
WHAT COST ELEMENTS

PUBLIC

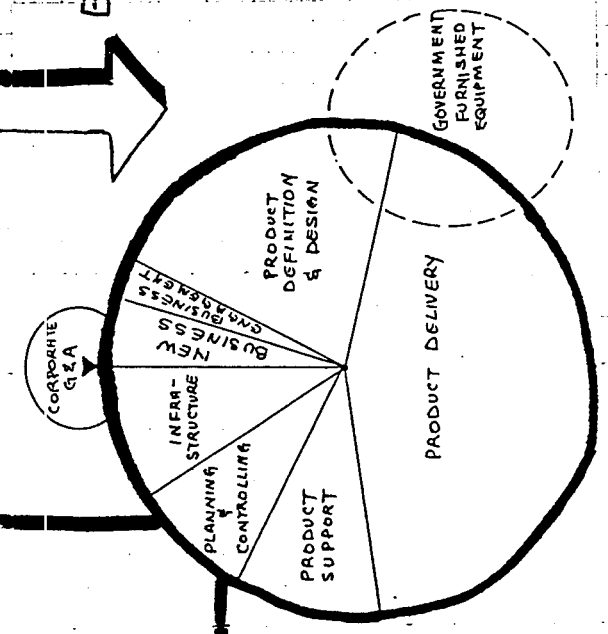
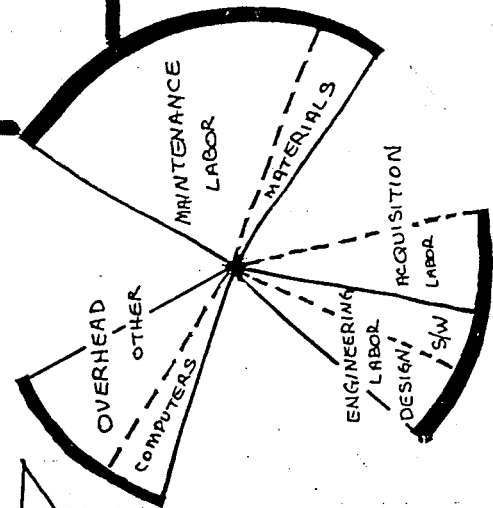
PRIVATE



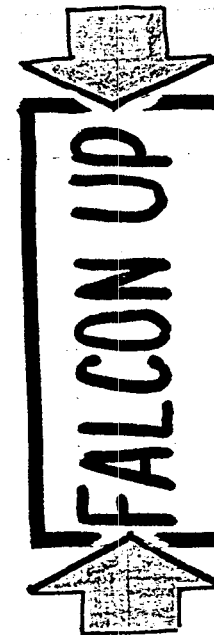
BID COST ELEMENTS



BID COST ELEMENTS



BID COST ELEMENTS



# ***Distribution of Depots' Budgets by Service***

<u>% of Depot Budget</u>	<u>Service</u>
47%	Navy
34%	USAF
17%	Army
<u>2%</u>	Marines
100%	

## ***Weapon Systems Budgets Serviced in Depots (By Types)***

<u>Weapon System</u>	<u>% of Depot Budgets</u>
450 Ships	33%
20,200 Aircraft	45%
36,000 Combat Vehicles	5%
660,000 Vehicles	13%
Missiles	<u>4%</u>
	100%

# *Depot Facilities*

## Huge/Diverse Commitment of National Resources

<u>Owner</u>	<u>"Depot" Facilities</u>	<u>Depot Equivalents</u>
Army	6	+ Commercial Industrial Base
Navy Shipyards/Other	9	- Primes
Navy Aviation	6	- Major Subs
Air Force ALCs	5	- Vendors
Air Force Specialized	2	+ Space Industrial Complexes
Marine Corps Logistics	2	(Cape Canaveral AFS, Vandenberg)
		+ NASA Industrial Complexes Providing
SUBTOTAL	30	Depot Type Services to <u>Military</u> Space/ Missiles/Satellites
+ Naval Ordnance Depots	9	+ Distribution/Warehousing (DLA/GSA)
+ Army Weapons/Munitions	16	+ Foreign Government Depots/Firms
Maintenance Depots	55 <sup>⊛</sup>	Servicing DoD Equipment
		+ Services Intermediate Level Shops
		Performing Depot Level Repairs
		+ Non-Depot Governmental Labs



⊛ In addition, Depots have geographically separated detachments and operating locations.

# 1 HOW HAS THE TERM "DEPOT OVERCAPACITY" BEEN DEFINED?

50% Potential Overcapacity Cited in January 93 JCS Report

● Since Depot "Requirements" are based on ability of each Depot as well as the Depot system to support a sustained wartime or emergency surge of up to 160% of the Peacetime Work Load, then exactly what is the BASE on which the 50% overcapacity is based?

--50% over the Peacetime Workload (If this is true, then USAF Depots would not meet the 160% Wartime Surge Objective)

--50% over the "160% of Peacetime Work Load" (If this is true, then the true minimum overcapacity is 240% -- based on 160% plus 50% over the 160%)

● The assumptions on which the wartime requirements are based still reflect DOD OPLANS -- many of which still have cold war assumptions. (If this is true, then the overcapacity is even higher)

● Overcapacity calculations only recognize the capacity of each Depot to maintain the specific product mix currently assigned to each individual Depot -- regardless of whether that Depot has the capacity to repair other systems.

2

HOW HAS THE TERM "DEPOT OVERCAPACITY" BEEN DEFINED?

50% Potential Overcapacity Cited in January 93 JCS Report

● No actual definition of Core Logistics Capability has yet been developed in response to DOD Directive 4151.18 (or any of the predecessor laws dating back to 1974).

"OPERATIONAL DEFINITION"—

— Does not reflect the additional overcapacity that would result from economies of scale resulting from consolidation of Depots capabilities within each Service Depot System.

— Does not reflect the additional overcapacity that would result from economies of scale resulting from inter-service consolidation of Depots capabilities.

— Excludes additional overcapacity that essentially results from the performance of Depot maintenance defined activities by non-Depot military units (eg. Intermediate Level Maintenance Shops)



3

HOW HAS THE TERM "DEPOT OVERCAPACITY" BEEN DEFINED?

50% Potential Overcapacity Cited in January 93 JCS Report

- In determining the Core Logistics skill & resource base that is solely justified as being essential to meet contingency requirements, the Army and Air Force computations exclude contributions provided by Commercial Defense Contractors.
- Overcapacity statistics are not in any way a measure of physical Depot plant capacity at each Depot--but rather are actually computed as a measure of current employment, organizational structure, product mix, and skill mix (Administrative, Maintenance, Management, etc.)
- The impact of recent structural changes (e.g. transferring Distributions functions from the "Depot" to DLA, etc.) may not be reflected in depot overcapacity estimates.
- Depot overcapacity estimates do not include reliability and maintainability (R&M) improved performance of currently acquired Weapon Systems versus the historical R&M performance of 1970-1980 era Weapon Systems (on which Depot Manpower Requirements are based in Manpower Standards).

# Document Separator

INTERSERVICING

ROUTING AND TRANSMITTAL SLIP Date  
13 Sept 94

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. Ed Brown		
2.		
3.		
4.		
5.		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

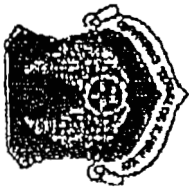
REMARKS Attached are the items we spotted about in our recent visit.

One is the Interservicing Brief given by Gen. Yates to the DDMC (3 Aug 94). It includes the GCE consolidation.

The other is the Coopers & Lybrand study on competition. It does not include Tobyhanna which is yet to be published.

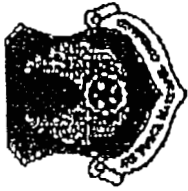
DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

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Rob. L. ... Tobyhanna Army	Phone No. (202) 944-6320



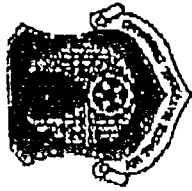
## ISSUES

- INCREASED AIR FORCE AND NAVY INTERSERVICING
  - 4 MAY 94 DEPSECDEF MEMO
- CONSOLIDATION OF AVIONICS AND GROUND CE WORKLOADS BETWEEN AIR FORCE AND ARMY



# AF AND NAVY IMPLEMENTATION PLAN

<u>TASK</u>	<u>COMPLETION</u>
• DETERMINE COMMODITIES	20 MAY 94
• IDENTIFY PROTOTYPE WORKLOADS FOR INTEGRATION OF MANAGEMENT	15 JUL 94
• APPROVAL PROTOTYPE WORKLOADS	30 JUL 94
• RECOMMENDATIONS TO JCSG-DM FOR BRAC 95 PROCESS	15 AUG 94
• IMPLEMENTATION OF INTEGRATION	01 OCT 94



## AF AND ARMY CONSOLIDATION

- OBJECTIVE - MAXIMIZE CONSOLIDATION WHERE IT MAKES GOOD BUSINESS SENSE
- INITIAL DISCUSSIONS
  - 1.2M HOURS OF AF GROUND C-E 103
  - EXCEPT COMSEC/SECURITY/CRYPTO
  - 217K HOURS OF ARMY (CECOM) AVIONICS 0.5
  - EXCEPT FIRE CONTROL SYSTEMS
- CURRENTLY STAFFING IS ON-GOING
- AF NEGOTIATING FOR ADDITIONAL ARMY (ATCOM) AVIONICS WORKLOAD - 2M HOURS



## AF AND ARMY IMPLEMENTATION PLAN

### TASK

- DISCUSS CONSOLIDATION
- CANDIDATE EVALUATION PROCESS
- DEVELOP RECOMMENDATION  
DOCUMENT
- RECOMMENDATIONS TO JCSG-DM  
FOR BRAC 95
- IMPLEMENTATION

### COMPLETION

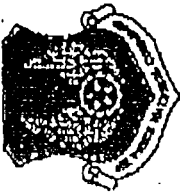
04 MAY 94

14 JUL 94

11 AUG 94

15 AUG 94

POST BRAC



## **SUMMARY**

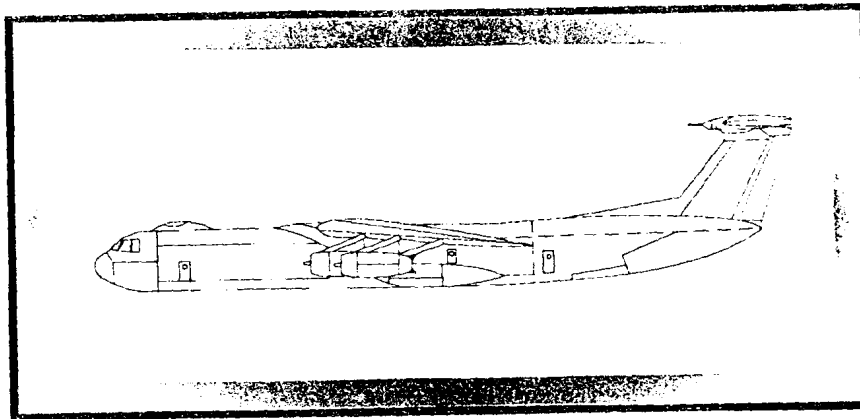
- **JOINT MANAGEMENT TO BEGIN UPON APPROVAL**
- **FURTHER CONSOLIDATIONS WILL BE ACCOMPLISHED UNDER BRAC 95 PROCESS**



C141  
CENTER WING BOX (CWB)

F/A 1B  
MODIFICATION CORROSION  
AND PAINT PROGRAM (MCAFP)

# Public versus Private Competition



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Preliminary  
Case Studies

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July 1994

Coopers  
& Lybrand

**PRELIMINARY CASE STUDIES OF  
PUBLIC VERSUS PRIVATE COMPETITION**

**FOR THE**

**C141 CENTER WING BOX (CWB)  
AND  
F/A-18 MODIFICATION, CORROSION  
AND PAINT PROGRAM (MCAPP)**

**THE STUDIES WERE PERFORMED BY COOPERS & LYBRAND PERSONNEL UNDER CONTRACT WITH THE DEPARTMENT OF DEFENSE. THE STUDY RESULTS REFLECT THE VIEWS OF THE REVIEW TEAMS. THE CASE STUDIES WILL BE INCORPORATED INTO A BROADER REPORT ON PUBLIC VERSUS PRIVATE COMPETITION.**

**JULY 1994**

**EXECUTIVE SUMMARY**  
**C-141 CENTER WING BOX (CWB) COMPETITION**  
**CASE STUDY**

Coopers & Lybrand has reviewed the C141 Center Wing Box (CWB) competition and subsequent contract performance. Three private firms and the Warner Robins Air Logistics Center (WR-ALC) competed in a public versus private competition for the C141 CWB requirement. WR-ALC was selected and awarded contract FO9603-93-C-0043 on December 12, 1992, for a price of \$62,189,319, including option years. The procuring activity was also WR-ALC with the Commander WR-ALC as source selection authority. In preparation for the competition, WR-ALC created separate "buyer" and "seller" teams, with appropriate restrictions placed on each. On the basis of numerous interviews and the examination of data, the reviewers are persuaded the integrity of the competition and source selection process was maintained despite the appearance of potential conflicts of interest.

The C141 CWB solicitation required the submission of firm fixed prices for the base year plus three option years. The private competitors submitted firm fixed price offers that, if any one of the firms had received the award, the government would be legally obligated to pay only the contract price for performance. The offer of WR-ALC, while represented as a firm fixed price, was analogous to a cost reimbursement offer. The government will be required to pay the full cost of performance, through one appropriation or another. Given this disparity which strongly influences business risk between public depots and private companies, we believe incentives were created for WR-ALC to underestimate costs. Our interviews with both "buyer" and "seller" personnel and review of the planning data for the competition, provide a perspective that the WR-ALC seller felt great pressure to win, proposing direct labor hours and rates that were not supported by past experience.

In the C141 CWB competition, as in other public vs private competitions, questions arose whether the desired "level playing field" was achieved. Our research supports the notion that a government procuring activity has no responsibility to eliminate or even mitigate existing advantages one competitor may have over another such as experience, location or organizational structure. As the C141 depot for over 20 years, the WR-ALC seller had inherent advantages over potential competitors for the CWB requirement that arose from its depot experience. The WR-ALC buyer had no ability to redress these inherent advantages. However, procurement regulations do require that government procuring activities take appropriate actions to preclude unfair advantages in competitive situations. In its multiple roles, as requiring activity, depot and procuring activity, we have concluded that WR-ALC had unfair competitive advantages in the C141 CWB competition for the following reasons:

- a. As the assigned depot for the C141, aircraft were scheduled for induction into WR-ALC for other projects including Program Depot Maintenance (PDM) and a Paint project. These projects shared common tasks with the CWB including incoming inspections, aircraft buildup and functional check flights. The WR-ALC buyer, through a clause in the solicitation, allowed the seller to charge the costs for common tasks to the other projects. This violates the Federal Acquisition Regulation and Cost Accounting Standards by eliminating the normal allocation of costs based on causal/beneficial relationships. The benefit of this opportunity to share common costs amounts to between \$7.1 and \$13.0 million, depending upon the mix of aircraft inducted for CWB replacements. It surely is unfair in a competition to direct the only competitor who could essentially benefit from commonality to charge other projects, especially since the government and individual customers would benefit to the same extent from the commonality if these costs were allocated or charged based on a causal/beneficial relationship to each of the projects, including the CWB. Where a private firm is able to achieve similar economies of scale among contracts, the firms are required to allocate the costs among the contracts. The WR-ALC seller was also provided a price increase of \$241,000, we believe inappropriately, when the mix of the first 5 aircraft changed from that which the WR-ALC seller anticipated in its offer, though no schedule mix was provided as a condition for the pricing in the solicitation.
- b. While the competition was in process, WR-ALC performed a prototype and 3 trial CWB installations on tooling and equipment bought for the contract requirement and installed at WR-ALC. While the prototype CWB installation can be rationalized as a verification of tooling, data and replacement kits, the trial installations during the competition provided extensive training. This opportunity was not afforded other competitors and allowed specific processes and procedures to be developed, beyond the data provided to all competitors.
- c. The Federal Acquisition Regulation and Cost Accounting Standards require private contractors to establish and maintain systems that enable the company, if awarded a contract, to comply with applicable regulations. DCAA audit reports prior to contract award addressed serious management deficiencies in estimating, accounting and internal controls at WR-ALC. In our opinion, if similar deficiencies were addressed at a private firm, the ability of the firm to manage and account for costs and fulfill its contract responsibilities would have been challenged. To the extent that system deficiencies impact proper charging of costs and similar criteria are not applied to public and private offerors, a clear competitive advantage is provided the public offeror, where all costs will be recovered.
- d. In order to reduce direct labor costs, WR-ALC proposed a direct labor workforce in which approximately 54% of the employees are classified as

temporary or non-permanent employees. This substantially reduces labor costs, specifically fringe benefits. The practice raises significant issues regarding the maintenance of depot skills and capabilities. In the opinion of the reviewers, the acceptance of an offer from a private firm proposing to establish a workforce comprised of 54% temporary workers would be questioned in the source selection and might not be acceptable for critical aircraft repairs. In this case, the source selection documentation did not address the issue.

In the face of competition, WR-ALC developed a price offer that was not supported by data or experience. The initial offer was substantially lower (approximately 40%) than the \$62.2 million best and final offer (BAFO), which became the contract price. The increase between the two WR-ALC offers occurred when omissions and errors in the initial proposal were uncovered in the audits and addressed in discussions. Significant increases or decreases in prices between initial offers and BAFO's normally lead to major source selection questions regarding the offeror's understanding of the requirement. In this case, it should have raised issues with regard to WR-ALC's ability to project and account for costs. The labor hours, direct and indirect rates proposed were significantly lower than experience supports and that which is being charged C141 customers for non competitive projects. The clear objective of the WR-ALC seller team was "to win".

With 28 of the scheduled 113 aircraft inducted for the CWB, a loss is being incurred, mischarging of costs is taking place and reports do not accurately reflect the program cost status. These points are exemplified by the following:

- a. From the applicable DMIF revenue and cost accounts through April 1994, costs incurred are \$11,882,949 and revenues are \$9,601,722. The cost accounts do not include \$224,000 represented as costs accumulated manually after contract award and prior to the first aircraft induction in April 1993. When added, this computes to a program loss of \$2,505,227, through April 1994. The formal depot maintenance cost report for the same period, which only includes aircraft that have gone to final sales, reports a loss of \$855,000 on costs of \$2,499,000 and revenues of \$1,644,000.
- b. The C141 PDM and CWB programs have a total of 99,782 hours charged to a training account from April 1993 through May 1994. Of this total, 84,976 hours or 85.2% were charged by CWB personnel. Interviews and a review of data confirms that substantial portions of those charges involve employee "on the job" training, with direct labor hours worked on the C141 CWB charged to the training account. This practice understates direct labor and indirect costs (overhead and G&A) where costs are based on direct labor hours. It results in cost mischarging. Our estimate is that the practice has understated costs to date by approximately \$3.0 million on the CWB.

- c. Indirect costs are not being allocated properly, which understates the C141 CWB costs. A review of 21 support organizations found 15 charging the C141 PDM Resources Control Code (RCC) but not the CWB. Based on a preliminary review, at least 9 of the 15 support organizations should have substantial effort allocated to the CWB, which is directly benefitting from the support, including engineering, human resources/administration and the production/financial branch. This misallocation understates production overhead on the CWB.
- d. The depreciation expense included in the BAFO was \$704,355 annually. Our review questioned the methods of allocating depreciation expenses and other practices, including the application of very conservative useful life guidelines. In any case, depreciation expenses allocated to the CWB for the first 7 months of FY 94 were \$132,756, substantially below that which was proposed and significantly less than appropriate.

The contract award to WR-ALC resulting from the C141 CWB competition contains fixed prices for the basic requirement. In contrast, the Defense Management Industrial Fund (DMIF), which supports the C141 CWB work, operates under the principle of full cost recovery. This conflict between pre-established prices and full cost recovery provided the impetus to review the billing process. Based on our review of a sample of completed and in-process aircraft, an arms length billing relationship between the WR-ALC depot and its customers could not be established. Where the buyer is paying with appropriated O&M funding, the funds were transferred to DMIF in the form of advance payments prior to performance. Where the industrial funds are also the source of the buyers' funds, periodic billings or transfers were made with no consistent pattern and without relation to physical progress. We were unable to rationalize unit contract prices plus the price of government furnished material with the billings. This is inconsistent with the structured, arms length process required of private commercial firms. The general pattern of performance, acceptance and payment was not established. It could not be determined what DMIF has or will receive for CWB work, including payments for those aircraft which are completed.

In estimating its costs, the WR-ALC offer was based on professional judgements, without reliance on existing standards or actual performance data. The WR-ALC accounting systems do not provide true product costing. In our opinion, the basic systems necessary to account for and manage costs in a reasonably comparable way with industry are not in place. Few internal controls exist. While the competition for the C141 CWB may have served well as a surrogate to achieve other management objectives, in our opinion it was unfair, costly and unnecessary. The offerors collectively incurred approximately \$1 million in Bid and Proposal (B&P) expenses, most of which will be borne by the government. The administration of the contract outside of the normal depot process is estimated at \$1.5 million. The competition itself is estimated to have cost \$1.8 million. WR-ALC enjoyed substantial inherent and constructed advantages in the C141 CWB competition. As a public entity it is not held to the basic estimating and accounting criteria required of private defense contractors. Therefore, subjective and objective comparisons between the public and private offers received on the

C141 CWB were practically impossible, whether based on price or best value. Although the disparity in proposed prices between WR-ALC and the lowest private firm is very significant, where public and private offerors are operating under different rules, the results of the competition do not provide any relative measure of productivity or efficiency. Rather, the sizable differences reflect aggressive pricing of a public depot, without the regulatory requirements, economic risks or penalties that a private firm would have to consider.

We believe that as the C141 depot, WR-ALC was singularly in a position to achieve economies of scale by combining several C141 projects to reduce aircraft downtime and costs. Our review leads us to the conclusion that WR-ALC is the most economic source for the C141 CWB, given its overwhelming advantages as the aircraft depot. However, WR-ALC does not have the systems, experience, training or internal controls that allow it to estimate costs and manage cost performance to specific objectives similar to that required of a private firm. The competition did not result in WR-ALC significantly improving systems or processes to reduce or even measure the costs of performance. It is clear the true costs of performance will substantially exceed the contract price and in our opinion will only be determined by an incurred cost audit subsequent to performance. Nevertheless, it is also the reviewers opinion that overall C141 CWB costs would have been reduced if the project had been assigned or allocated to WR-ALC without incurring the costs of an unfair competition.

## INTRODUCTION

In November 1991, Warner Robins Air Logistics Center (WR-ALC) recommended to the Air Force Logistics Command (AFLC) that it be authorized to conduct a public vs private competition for replacement of the C141 Center Wing Box (CWB). The decision to replace a significant number of C141 CWB's had been made in the late 1980's. This decision resulted in the award of contracts F09603-87-G-0741-0049 and F09603-89-C-2585 to Lockheed Aeronautical Systems in September 1989 to design a new Center Wing Box and tooling for the replacement, a data package, long lead forgings for main frames and 121 center wing box kits. The contracts were valued at approximately \$149.5 million. The contracts also required Lockheed to perform a prototype installation to validate the design, tools, data and kits and also to provide technical support to WR-ALC in performing a prototype installation. The CWB kits, comprised of approximately 12,000 components, were delivered late 1991 through December 1993.

WR-ALC had been the assigned depot for the C141 aircraft for over 20 years. When authorization was received in late 1991 to compete the CWB installation, a substantial number of C141 aircraft were flowing through the depot annually for program depot maintenance (PDM), a paint project, a speedline project and other maintenance. The depot, based on its actions prior to the competition decision, anticipated that the CWB work would be assigned to WR-ALC. Three aircraft had been inducted to perform prototype and trial CWB installations in August 1991 (aircraft 66-0139), September 1991 (aircraft 64-0631) and November 1991 (aircraft 65-0269). Two mating/demating fixtures and other tooling were installed at WR-ALC. WR-ALC was prepared to perform the requirement when the decision was made to compete.

There are two basic funds used at WR-ALC; the Depot Maintenance Industrial Fund (DMIF) and the Weapon System Fund (O&M). DMIF is a revolving fund. Customers receive maintenance services from the depot. The customer pays the bill, replenishing the DMIF's cash. O&M is an appropriated fund which finances those functions considered outside the depot, although O&M funded personnel also work within the product directorates. O&M costs are supposed to be allocated to depot projects on the basis of a causal/beneficial relationship. We determined that proper allocations are not taking place.

The C141 CWB case study involved an assessment of the policies, procedures and practices used by WR-ALC as both "buyer" and "seller" measured subjectively against what would be expected of a government buyer competing a requirement in industry and a commercial seller in responding to the requirement. We reviewed records and data provided by the WR-ALC "buyer" and "seller". We evaluated the regulatory requirements, accounting principles and practices involved with numerous issues. Since the source selection data is marked "Source Selection Sensitive," several reviewers signed non-disclosure statements. This report attempts to discuss the issues without revealing specific source selection sensitive or proprietary



information. Access to Defense Contract Audit Agency (DCAA) reports was provided. The Air Force Audit Agency (AFAA) would not provide access to its draft audit on the C141 CWB.

### PLANNING FOR THE COMPETITION

In preparation for the competition, WR-ALC separated itself into a "buyer" team that would represent the procuring activity and source selection authority and a "seller" team, which would respond to the solicitation, organize itself for the competition and if awarded the contract, perform as the winning contractor. The Commander, WR-ALC, was the Source Selection Authority (SSA) and essentially the leader of the buyer team. The head of the seller team was The Deputy, C141 Program. Based on a review of data and numerous interviews, the administrative separation of the buyer and seller appeared to be successful. It does not appear that information was exchanged between team members even though the separation forced people, who were accustomed to working together, to not share information. Subsequent to the C141 CWB competition, an Air Force Material Command (AFMC) policy was issued which would have precluded the Commander, WR-ALC from serving as the Source Selection Authority. The revised policy would eliminate the appearance of a conflict of interest in future competitions, which exists when a depot acts as a buyer and seller, with the Source Selection Authority as part of the buyer team.

As the "buyer" team organized the solicitation and source selection, the "seller" team continued with what it had been doing prior to the decision to compete. The seller team proceeded to complete the CWB prototype and two trial installations. A fourth aircraft was inducted in January 1992, (aircraft 65-0276), for another trial installation. The prototype and three trial installations were completed between December 1991 and October 1992, after the decision to compete and during the conduct of the source selection. The data for the prototype and trial installations are shown in Figure 1.

Figure 1

AIRCRAFT NUMBER	DIRECT LABOR HOURS	DIRECT LABOR COST	MATERIAL COST	PROD. OVERHEAD	G&A	TOTAL COST
64-0631 (FEB 92)	33,289	\$629,993	\$915,057	\$700,358	\$264,860	\$2,510,268
66-0139 (FEB 92)	15,995	\$293,511	\$808,251	\$450,271	\$72,180	\$1,624,213
65-0269 (MAY-AUG 92)	22,789	\$416,567	\$770,225	\$594,172	\$61,567	\$1,842,531
65-0276 (SEP-NOV 92)	16,475	\$306,153	\$867,413	\$484,562	\$39,548	\$1,697,676
TOTALS	88,548	\$1,646,224	\$3,360,946	\$2,229,363	\$438,155	\$7,674,688
AVERAGE	22,137	\$411,556	\$840,237	\$557,341	\$109,539	\$1,918,672

Source: Warner Robins ALC Document, C141 Center Wing Box Prototypes

In addition to performing on the trial installations, the WR-ALC seller also looked for ways to scrub its estimates based on professional judgements. While this is a desirable reaction to competition, the buyer must ensure "cost realism" where the depot will in fact recover its full costs.

A solicitation was issued on March 26, 1992, for the installation of 106 CWB's. Material, in the form of the kits being produced by Lockheed, was to be government furnished material (GFM) to the successful offeror. Three kits had been procured encompassing the CWB, the 958 frame and wing station 77, which would be required for each CWB installation.

The seller team at WR-ALC was comprised of knowledgeable production and financial personnel who, based on discussions and interviews, felt great pressure to win the competition for the depot. Despite extensive personal experience with the C141 program and the CWB prototype/trial installation experience, they started with a "clean sheet of paper". The standards established for the C141 were not used, since they were believed to be overstated. The data on the prototype and trial installations also was not used because it reflected training and other inefficiencies. Essentially, labor was estimated based on professional judgement. Since the C141 had approximately eight different Resource Control Centers (RCC's), it was desirable to establish a single, separate RCC for the CWB. This was accepted by DCAA. The seller estimated overhead and general and administrative (G&A) expenses for the new RCC, again based on professional judgement. While the review of past experience, the development of new improved processes and a questioning of methodologies are also desirable reactions to competition, such actions on the part of the seller place an additive burden on the buyer to ensure the results are reasonable or realistic, since the public depot will recover all costs.

In contrast, the private offerors had far less opportunity for creativity. They were submitting firm fixed prices for the basic requirement. Two private firms developed their offers using the data package and limited historical experience on related aircraft projects. The companies approved indirect rates were used. The third private competitor, Lockheed Aeronautical Systems, used prototype hours excluding non-recurring hours, balanced with a separate bottoms-up estimate using new production techniques. It also established a separate production base for the project.

### THE SOURCE SELECTION

The solicitation for 106 CWB installations closed on May 11, 1992. Offers were received from three private firms: Lockheed, CTAS and AERO in addition to WR-ALC. The "buyer" evaluated offers and conducted discussions with the offerors during June and July 1992, issuing clarification and deficiency requests. In August 1992, the solicitation was amended to increase the projected quantity from 106 to 113. Revised proposals were received in September 1992, followed by additional discussions with the offerors. At this time, DCAA also reviewed the WR-ALC offer and provided the WR-ALC buyer with its report and comments. On October 31, 1992, a request for best and final offers (BAFO) was issued. WR-ALC's response to the BAFO was to substantially increase its price, reacting to the deficiencies and weaknesses addressed in its initial offer. DCAA again reviewed the WR-ALC offer and provided a qualified certification on December 16, 1992. Contract FO9603-93-C-0043 was awarded to WR-ALC on December 17, 1992.

In developing its offer for the CWB, the WR-ALC seller had other C141 work scheduled into the depot, specifically for the program depot maintenance (PDM) and paint projects. Based on a detailed schedule, 57 aircraft scheduled into the depot for other projects, would also have the CWB replaced. Certain work requirements were common between the projects including: aircraft defueling, incoming inspection, aircraft stripping, aircraft buildup, aircraft fueling and flight testing.

The hours and costs for the common tasks were not included in the CWB offer but rather would be borne by the other projects, which were allocated to the depot non-competitively. Clause M901 in the solicitation allowed the seller to charge the costs to the other projects. This direction was inappropriate under competitive circumstances, violating The Federal Acquisition Regulation (FAR) and Cost Accounting Standards (CAS) which require that costs be allocated based on a causal/beneficial relationship. Since WR-ALC was the only competitor with the opportunity to achieve economies of scale with other projects, it was surely not fair to direct that CWB costs be charged to other non-competitive work, thus understating the costs of the CWB and providing the WR-ALC seller a substantial competitive advantage. The value of this competitive advantage is between \$7.1 and \$13.0 million, depending upon the mix of aircraft.

The aircraft schedule reflected in Figure 2 was only available to WR-ALC:

Figure 2

<b>C141 Aircraft Schedule</b>				
<b>Fiscal Year</b>				
	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
<b>PDM project</b>	5	11	12	9
<b>Paint project</b>	0	10	10	0
<b>CWB only project</b>	0	15	14	27
<b>TOTAL</b>	5	36	36	36
Source: C141 Program Directorate, Planning Data				

Subsequent to award, the FY 1993 aircraft changed from 5 PDM to 3 PDM and 2 CWB only. Modification P0002 was issued, creating different line item prices for each category, i.e. PDM and increasing the FY 1993 price to WR-ALC by \$241,000 based on the change in the mix. This schedule was not part of the solicitation and the responsibility was on the offeror's to assume pricing risks associated with their proposals. The modification, though not terribly important from a pricing standpoint, is indicative of the difficulty in objectively separating the buyer and seller components of the WR-ALC or any depot team. It was not appropriate for the buyer to assume the risk of the seller's offer. In this case, since the government will bear the full costs, the issue is only important from the perspective of achieving fairness. However, if a private firm had won and requested that pricing be changed, the action would normally not have been taken. We were advised that the buyer's intent is to make price adjustments for changes in aircraft mix throughout the contract.

In estimating direct labor hours, which was the major factor differentiating its pricing from competitors, WR-ALC established new standards for the CWB based on professional judgement. Existing standards for the C141 were not used. Data from the prototype and trial installations were also dismissed. The hours reflected professional estimates. None of the C141 CWB standards were engineered. In a public vs private competition with the depot's offer analogous to a cost type offer, this process should not be acceptable. The government will assume the full cost of performance. Every incentive is created to estimate optimistically.

Under similar circumstances where the government will be responsible for all costs, a private firm is restrained from "buying-in" by being compelled to use historical or quantitative data, where possible. Figure 3 provides the direct labor hours estimated by the WR-ALC seller in its BAFO. The differences between the prototype trial installation (Figure 1) and the BAFO are clearly sizable.

Figure 3

CENTER WING REPLACEMENT STAND ALONE (DROP-IN AIRCRAFT)				
TASK	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	134	134	134	134
PRESSURIZATION	21	21	21	21
STRIP	410	409	408	407
DEMATE	930	916	852	827
CWB R&I	5,823	5,976	5,665	5,526
MATE	2,675	2,633	2,504	2,455
BUILDUP	1,802	1,794	1,787	1,781
FUEL	16	16	16	16
FCF	334	334	334	334
TOTAL	12,145	12,233	11,721	11,501
CENTER WING REPLACED IN CONJUNCTION WITH PDM				
TASKS	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	0	0	0	0
PRESSURIZATION	21	21	21	21
STRIP	0	0	0	0
DEMATE	930	916	852	827
CWB R&I	5823	5976	5665	5526
MATE	2675	2633	2504	2455
BUILDUP	0	0	0	0
FUEL	0	0	0	0
FCF	0	0	0	0
TOTAL	9,449	9,546	9,042	8,829
CENTER WING REPLACED IN CONJUNCTION WITH PAINT				
TASKS	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	0	0	0	0
PRESSURIZATION	21	21	21	21
STRIP	344	343	342	341
DEMATE	930	916	852	827
CWB R&I	5823	5976	5665	5526
MATE	2675	2633	2504	2455
BUILDUP	1633	1625	1618	1612
FUEL	0	0	0	0
FCF	0	0	0	0
TOTAL	11,426	11,514	11,002	10,782

Source: WR-ALC Seller Handout

Labor rates were estimated based on a plan to employ a substantial number of "temporary" workers. The use of the term "temporary" may be a misnomer, in that many of these workers are employed for 3 years or more. The approach reduces labor costs in that the fringe benefits, which amount to approximately 20.54% of an employees pay, are partially eliminated. Temporary workers on the C141 CWB comprise 54% of the workforce. Although this practice allows the depot to reduce labor costs and react to other hiring restrictions, it raises other serious issues with regard to the maintenance of skills and capabilities.

Production overhead was projected based on a separate Resource Control Center for the CWB with the base being direct labor hours. Production overhead rates for each of the contract years are provided in Figure 4, with a contrast provided for the non-competitive C141 PDM:

Figure 4

CWB Production Overhead Projections (per Direct Labor Hour)				
	FY 1993	FY 1994	FY 1995	FY 1996
C141 CWB	\$24.82	\$25.32	\$26.15	\$26.63
C141 PDM	\$21.44	\$34.32	\$37.59	-----

Source: WR-AL Production Directorate

Our review raises significant questions in allocating production overhead cost. Where O&M funded people who support the C141 CWB contract are not being allocated to the program, the production overhead is being understated. We could not discern differences that would justify the disparate projections, other than the nature of the program, in that: CWB was competitive, PDM was non-competitive and the allocation tables, which are intended to apportion indirect labor, are not current.

The G&A pool encompasses all the production directorates and is allocated based on direct labor hours. To the extent that direct labor hours are understated, overhead and G&A are understated also. Our review indicates the G&A pool does not include all expenses as defined in Cost Accounting Standards (CAS) 410. A strong argument can be made that WR-ALC should use a cost input base versus direct labor hours in allocating G&A expenses. The G&A base and rates used in the WR-ALC offer are provided in Figure 5:

Figure 5

CWB G&A Base and Rates				
	FY 1993	FY 1994	FY 1995	FY 1996
Hours	6,943,000	6,795,000	6,664,000	6,564,000
Rates	2.74 per hr.	2.89 per hr.	2.80 per hr.	2.70 per hr.

Source: WR-ALC Seller Data

With regard to each of these major element of costs, the WR-ALC seller took a "new look" at what it was doing and priced aggressively. The review of data led us to conclude that changes to substantive processes or procedures generally did not precipitate lower CWB estimates. Rather, the reductions reflected professional judgements and administrative changes, some of which are believed to be motivating or causing the mischarging of costs

during performance. It is significant indeed when the production overhead rate, for example, can differ by \$10.00 an hour between the PDM and CWB projects, with the higher rate reflecting historical data and the lower rate reflecting judgement in the face of competition. Our review indicates the actual rate is likely to be somewhere between the competitive and sole source rates. Whatever it turns out to be, the government will pay. While the sales price, which is a composite of direct labor, material and indirect costs and represents what customers pay per hour was being substantially reduced for the CWB in the face of competition, sales prices for the C141 PDM were increasing from \$63.93 in FY 1992 to \$81.22 in FY 1994, an increase of 27%. It certainly can be argued that lower prices on the competitive CWB and higher prices on the non-competitive PDM provides WR-ALC the opportunity in performance to achieve break-even, albeit with the PDM subsidizing the CWB program. The significant price increases on PDM reinforce the notion that competition on the CWB drove lower prices, not lower depot costs resulting from improved processes.

### COMPLIANCE WITH LAW/REGULATION

A review of the source selection documentation and interviews with personnel associated with both the buyer and seller teams, leads to the observation that as a public entity, the standards applied objectively and subjectively to WR-ALC were different than would normally be applied to a private offeror under similar circumstances. These differences are exemplified by the following judgements and administrative actions, some of which are now causing costs to be mischarged:

1. WR-ALC did not have an approved estimating system. It was allowed to estimate the C141 CWB based on professional judgement, disregarding historical data. If WR-ALC could be held to a firm fixed price, the issue would be irrelevant. However, with WR-ALC as a public depot the government will assume its full costs. It should not be allowed to "buy in" any more than should a private firm. The substantial price increase between the initial offer and BAFO provided a strong indication that the WR-ALC estimating process was deficient.
2. Actions taken by WR-ALC to reduce costs, including the use of a high percentage of temporary workers, would normally cause a source selection authority to inquire and question the practice. The record does not indicate the issue was ever addressed in the source selection. Normally, this would be a significant risk if associated with a private firm under similar circumstances.
3. At the time of the competition a review of the WR-ALC proposal and the methods used to develop the data supports the observation that WR-ALC was not in compliance with the following FAR and CAS requirements:
  - a. Timekeeping - The system by which supervisors record the hours for employees is generally not acceptable. As a result of audit criticisms, the system was changed whereby employees initial their time sheets every week. However, the system is not documented adequately and employees are not trained in its use. The employees continue to perceive this as an "attendance" system, reflecting how many hours they worked. There is little understanding that time must be charged to tasks on which they are working and that by their initialing the time sheets, they are validating the record. For example, in a floor check an employee did not recognize that 12 hours in the preceding two weeks were charged to training. In the past, planners completed employee time sheets. Currently, first line supervisors prepare the time sheets with employees reviewing and initialing entries. Proper labor charging is basic to the accurate recording of costs. While changes at WR-ALC have made the timekeeping system

more acceptable, implementing procedures and employee understanding remains inadequate, approximately 14 months after contract award.

- b. Internal Controls - The processes and procedures describing how transactions or exceptions are to be processed are poorly documented. Various transactions were found to be handled differently by several people at different times. There appeared no routine internal process to validate that appropriate actions were being taken. The absence of internal controls with a private contractor would be considered to increase performance risks. Production managers do not have visibility of what manual entries are made to systems which provide performance data.
- c. CAS Deficiencies The WR-ALC accounting system was established to meet the government's needs as a public depot. Though it is believed to essentially comply with the DOD Accounting Manual, which in some respects imitates the CAS, we find WR-ALC in non-compliance with the following CAS standards:
- (1) CAS 403 - Requires allocation of home office expenses to segments of a business. We did not find any cost from AFMC or other headquarters allocated to the C141-CWB in the proposal or in performance.
  - (2) CAS 402 - Requires consistency in allocating costs incurred for the same purpose. Direct labor costs are being reclassified as production overhead where direct labor hours are incurred but no earned hours are reported.
  - (3) CAS 407 - Requires standard costs and related variances to be accounted for at the level of the production unit. Since standard labor costs are not entered into the books of account, variances are not accumulated in the accounting records nor are they allocated to the resource control centers.
  - (4) CAS 410 - Requires a cost input base to be used to allocate G&A expenses to final cost objectives. WR-ALC is using a direct labor base.
  - (5) CAS 418 - Requires proper allocation of direct and indirect costs. The production overhead pool does not include all allocable expenses for the C141 CWB. Direct labor costs are being charged to training, an overhead account.
  - (6) CAS 420 - Requires B&P expenses to be accumulated and allocated to final cost objectives on the same allocation basis used for G&A. This did not occur.

The total impact of a CAS non-compliance or the continuing non-compliance cannot be quantified. Private contractors must have systems and processes that achieve compliance, with non-compliances subject to questions regarding a contractor's "responsibility" prior to award and equitable adjustments to price when non-compliances are discovered after award. This emphasizes the point that private offerors have been required to comply with regulatory requirements. Public entities have not had the same requirements imposed. These differences should not be dismissed as unimportant in public versus private competition. Though changes have been made at WR-ALC, which would support the observation that the depot is currently

closer to CAS compliance than it was at the time of the solicitation, non-compliances continue to exist that would be unacceptable for a private firm.

### COST COMPARABILITY

Adjustments to the WR-ALC offer were made in accordance with the cost comparability handbook. In the pre-award environment, the record indicates that significant efforts were made to identify and address appropriate adjustments. While it can be argued that these adjustments cause public depots to be evaluated as though they were private companies, based on our review we conclude that the comparability concept fails in that the public depot does not meet basic regulatory requirements involving estimating, timekeeping, accounting, and allocation of costs. Comparability adjustments cannot be made for these basic deficiencies. It was also apparent that in the C141 CWB competition, the comparability adjustments had no impact on the award decision. The adjustments were also not being implemented in all cases after award with appropriate charges to indirect cost accounts.

### CONTRACT PERFORMANCE

As of May 31, 1994, 28 aircraft have been inducted for CWB replacement. The estimated program requirement is for 113 CWB aircraft. Of the 28 aircraft inducted, 3 have gone to final sales, 7 are completed and have been returned to the customers with the accounts open for trailing costs, 2 have the CWB completed but are in storage awaiting wing panels and the remaining 16 are in process. From the G072A report, costs incurred through April 1994 are \$11,882,949 and revenues are \$9,601,722. An additional \$224,000 has been recorded manually, which is a WR-ALC seller estimate of costs incurred between contract award and the first aircraft induction. This data was provided by CWB program personnel in Attachment 1. This computes to a loss of \$2,505,227 based on the G072A reports, with no consideration to any cost mischarging which is taking place. This data is inconsistent with that being reported formally to AFMC, in accordance with current directives, which includes only those aircraft that have gone to final sales. The formal DMC cost report (Figure 6) for the period through April 1994 reports revenues as \$1,644,000 and costs as \$2,499,000 for a loss of \$855,000. This fails to capture current information. Given the absence of documented procedures and internal controls, in reviewing performance data from month to month, it must be realized that the data does not reflect actual costs but allocated costs. In the opinion of the reviewers, WR-ALC is a sole source depot who's experience and systems are focused on schedule and quality. Production personnel are trying to manage costs without the necessary training or tools. The culture, discipline or procedures are not in place to properly manage the system costs. Many of the routine financial reports are adjusted manually. The production users generally did not know who made the adjustments and why. The program people impressed the reviewers as very capable, dedicated and conscientious - but with few tools to pro-actively manage and little understanding of how the pieces of a very complex accounting system come together. The result is that costs are not being properly charged. The more significant mischarging is as follows:

- a. Training - Figure (7) represents training hours by month and cumulative from April 1993, the month the first CWB aircraft was inducted under the contract. A total of 90,805 regular time training hours and 8,978 overtime training hours were charged to the C141 program. Of these totals, 76,714 regular time hours (84%) and 8,265 overtime hours (92%) were charged by the C141 CWB.



# DMC Cost Report

Figure 6

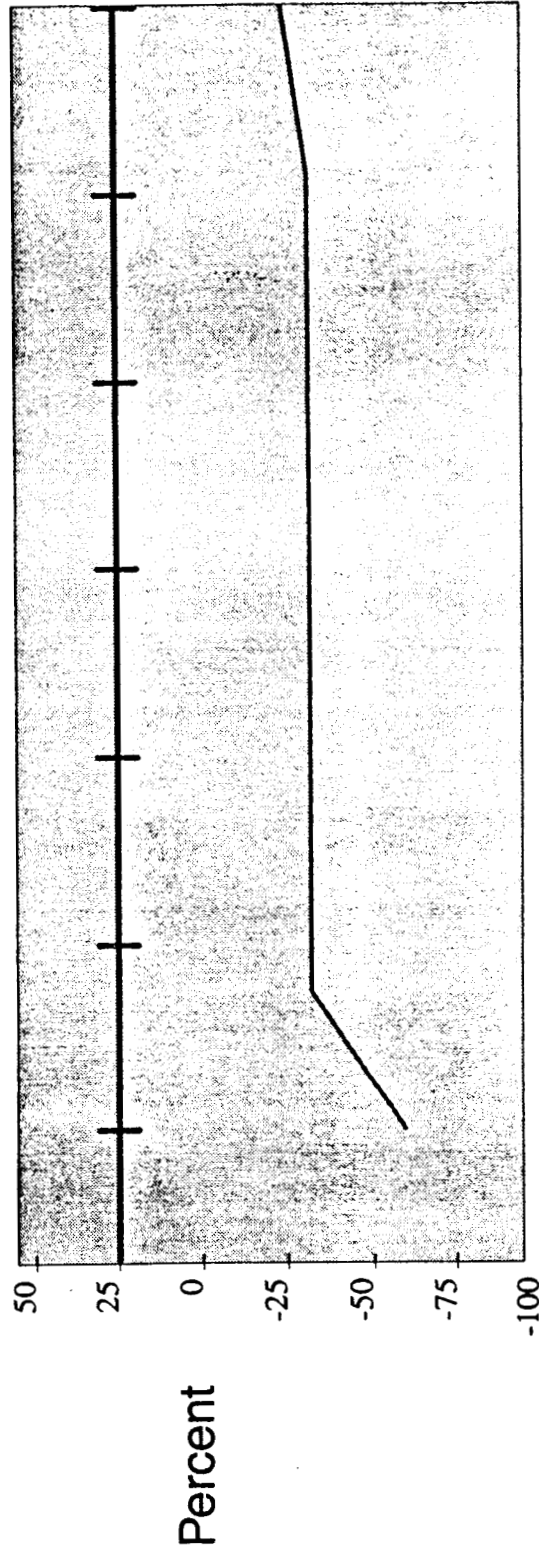
ALC: WR-ALC

Report as of Date: 31 May 94

Product Directorate: C-141 Management Directorate WAD Number F09603-93-C-0043

Workload Title: C-141 Center Wing Box Replacement Period of Performance FY93/FY94

Unit Shop Flow Days: 15B/160



	A93	0	N	D	J94	F	M	A
NWV	0	615	1215	1664	2184	2631	4387	5904
CUM Sales	0	617	1217	1217	1217	1217	1217	1644
CUM Cost	224	1170	1913	1913	1913	1913	1913	2499
Profit/Loss	-224	-553	-696	-696	-696	-696	-696	-856
Cost VAR%		-89	-57	-57	-57	-57	-57	-52

Figure 7

TRAINING - HOURS						
	C141 (LJP)			C141 CWB (LJPE)		
	TOTALS	REG.	OT	TOTALS	REG.	OT
April 93	1310	1155	155	210	210	—
May	1592	1474	118	1104	1049	55
June	2367	2272	95	1502	1493	9
July	2997	2936	61	2503	2497	6
August	3783	3729	54	3030	3016	14
September	4796	4749	47	4224	4197	27
Subtotals FY 1993	16845	16315	530	12573	12462	111
October 1993	7403	6846	557	6697	6200	497
November	12395	11666	729	11807	11164	643
December	15751	14154	1597	15074	13554	1520
January	16480	13355	3125	15817	12731	3086
February	10961	9455	1506	9652	8174	1478
March	8338	7844	494	6489	5999	490
April	4971	4670	301	4059	3758	301
May	6639	6500	139	2811	2672	139
Subtotals FY 1994	82938	74490	8448	72406	64252	8154
TOTALS	99783	90805	8978	84979	76714	8265

Source: WR-ALC Production Directorate, Cost Data

Our review of records, confirmed by interviews, support the observation that substantial amounts of this training reflects hours worked on CWB production and charged as "on the job" training. Supervisors made these determinations without employees always recognizing that time was being charged to training vice CWB production. Although it was noted earlier that 54% of the CWB employees are considered temporary employees, a one-time check on June 10, 1994 determined that temporary employees also comprised 56% of PDM Branch "A" employees, 55% of PDM Branch "C" employees and 37% of PDM Branch "D" employees. Therefore, the imbalance in training charged by CWB employees cannot be rationalized by the comparative inexperience of the staffing. Rather, we believe that direct labor has been mischarged to training to understate direct labor hours. Overhead and G&A are also understated on the CWB, which are based on direct labor hours. If it were assumed that the C141 CWB should not have more hours charged to training than other C141 projects, 8,299 hours would be mischarged in FY

1993 and 61,871 hours mischarged in FY 1994 to date. Using the applicable direct labor, overhead and G&A rates for each year, the approximate mischarging (excluding training dollars) would be:

FY 1993	8,299 x \$17.28 (DL) + 8,299 x 24.82 (OH) + 8,299 x \$2.74 (G&A) =	\$372,127
FY 1994	61,871 x \$18.04 (DL) + 61,871 x 25.32 (OH) + 61,871 x \$2.89(G&A)=	\$2,861,534
		<u>\$3,233,661</u>

Clearly, an action charging direct labor to training would be cost mischarging under a contract with a private firm, subjecting the company to potentially severe financial penalties.

- b. Indirect costs are not being allocated properly. 21 support organizations were reviewed in the C141 management directorate. 15 were charging the C141 PDM-RCC but not the CWB-RCC. Our review indicates that 9 of these 15 organizations are providing direct benefit to the CWB including codes LJCR Human Resources/Administration, Code LJLE engineering branch and LJCF production/financial branch. The misallocation of indirect costs understates production overhead expenses on the C141 CWB (Figure 8).
- c. The depreciation expense included in the BAFO was \$704,355 annually. Depreciation expenses allocated to the C141 CWB for the first 7 months of FY 1994 were \$132,756, far less than proposed and considered appropriate. The entire process of determining and allocating depreciation expense appears to be flawed, greatly understating that which should be allocated to the contract. A private firm is required to follow GAAP and IRS guidelines.

With the limited management tools available, the CWB program personnel have addressed their responsibilities conscientiously. Five contract data requirements list (CDRL) reports were reviewed, with all reports being compliant with the requirement and made on time. The over and above requirements being negotiated on a case by case basis appear reasonable, with negotiated hours in line with other production processes. Program personnel are aggressively addressing issues, although authority appears to be diffused with numerous people outside the program making decisions that impact costs and schedule.

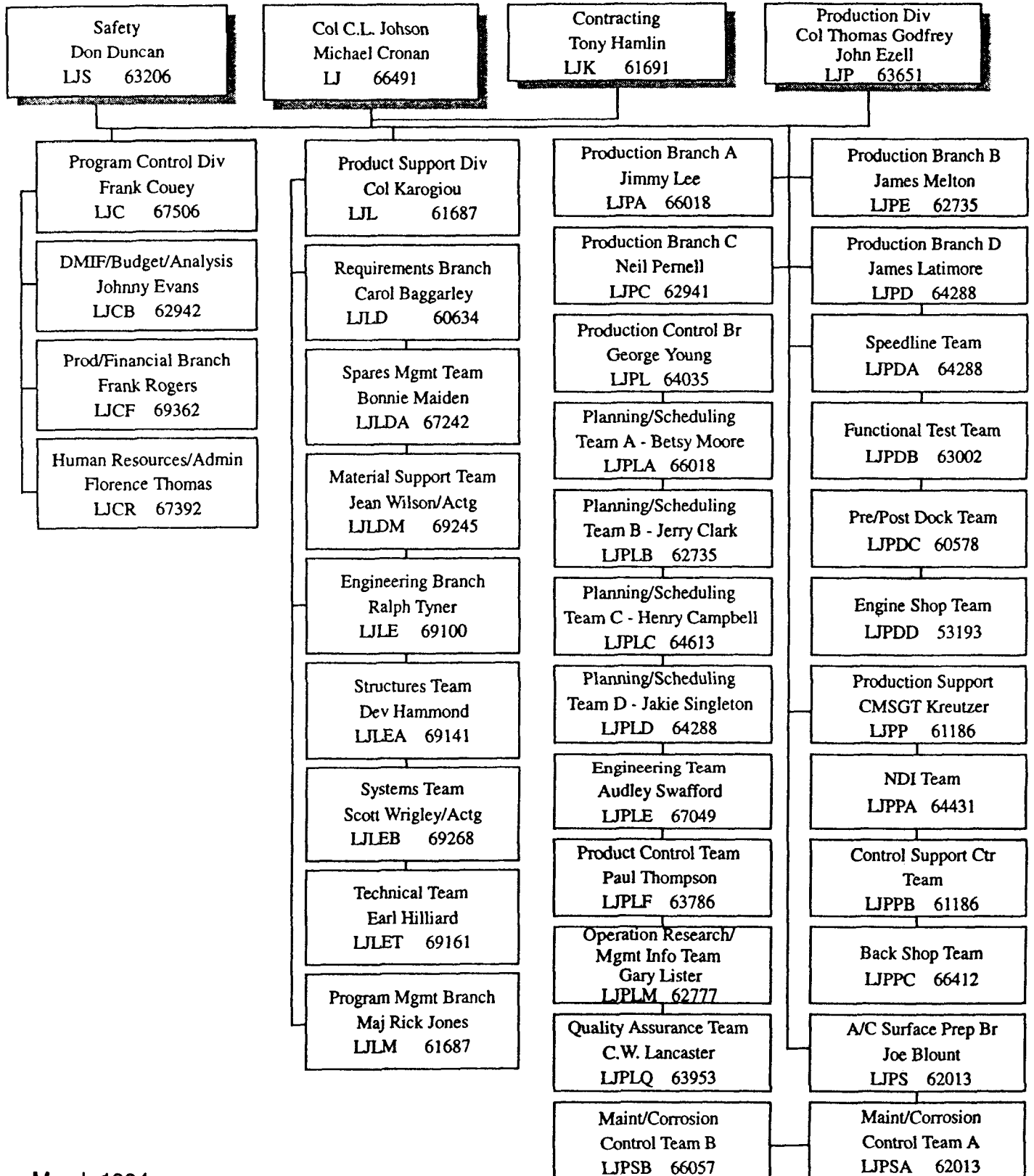
### ACCOUNTING SYSTEMS

The Depot maintenance operations involved a network of 32 separate data systems as depicted by (Figure 9). While the network and system relationships are documented, the systems are very complex. The interfaces, exception processing requirements, procedures and potential program management use of the systems products do not appear to be well understood.

The system provides limited support to those responsible for managing program cost, schedule and performance. Based on interviews, program and production personnel have little knowledge of what files their inputs update or how exceptions are processed. Manual inputs are made without the users understanding how or why. Production directorate managers lack

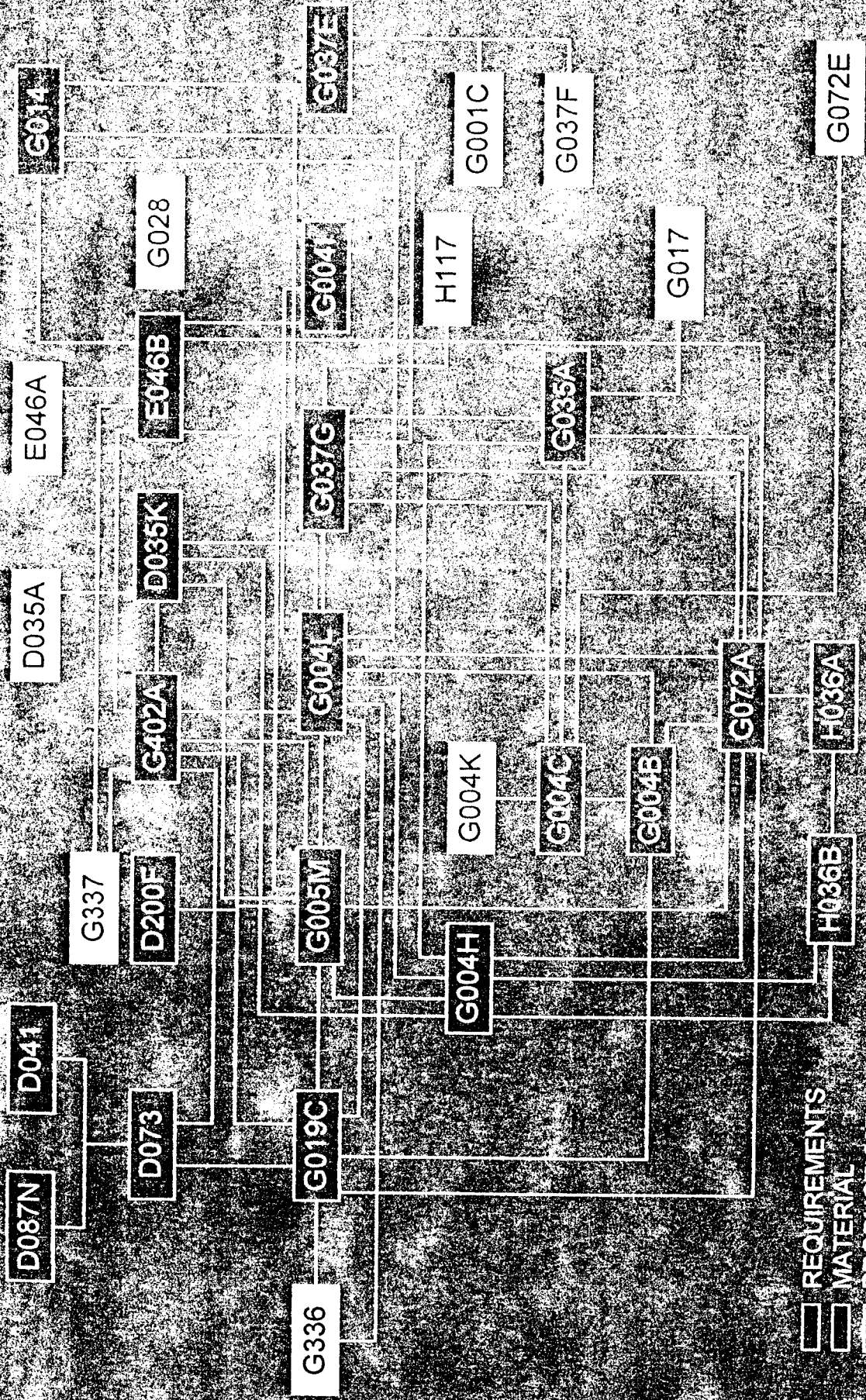
Figure 8

# C-41 Management Directorate



March 1994

**FIGURE 9 DEPOT MAINTENANCE DATA SYSTEMS NETWORK**



- REQUIREMENTS
- ▒ MATERIAL
- ▓ PRODUCTION
- COST
- OTHER

Source: Depot Maintenance Automated Data Systems Publication, Walk Through Maintenance, Warner Robins Air Logistics Center

visibility on how costs in general and specifically those on G035A are accumulated or allocated to the Resource Control Center. The systems do not accumulate actual direct labor hours or costs. The system does not have documented, effective controls. We do not believe the operations managers or supervisors have accurate cost data and thus are very limited in their abilities to identify and address performance problems.

### BILLINGS

DOD policy requires industrial funds to establish sales prices that permit recovery of all expected costs. It also requires these sales prices to be established prior to the start of each fiscal year. Because sales prices are often based on assumptions that are made 3 years before the year in question, the relationship of these sales prices to the C141 CWB contract prices is considered important in evaluating the accountability of public depot performance. This relationship should be documented in the billing process.

We took a sample of 4 aircraft to track CWB program funding and billings. The results of our reviews are that no correlation could be established between contract prices and periodic revenue recognition, program funding and final billings. Clearly, an arms length buyer/seller or depot/customer relationship does not exist in the funding and billing processes. Each sample case was handled differently. Aircraft 670002, which has gone to final sales, had intra - DMIF billings periodically with a final debit adjustment to bring the billing in line with the contract price. The Government Furnished Material (GFM) with a FY 1994 DMIF price of \$1,142,518, was billed at \$49.00. This was recognized as a problem and meetings were held just prior to the review to address the problem. Aircraft #638076 had (1) billing dated April 30, 1994, for \$548,498. Material had been billed at \$1,142,518. For aircraft 660147 revenues are reported on G035A at \$342,187. There were no billings to date on this aircraft. The fourth aircraft 660158 had costs reported on G035A through April 1994 as \$13,404. The billing was \$96,912, as of April 30, 1994. Explanations of these cases were not provided.

With a private firm, if progress payments are authorized as they normally would be, monthly billings are submitted to the administrative contracting officer (ACO) who approves the invoice for payment. Where an overrun is being projected, as is the case on the C141 CWB, the ACO would normally apply a loss ratio to bring progress payments into line with physical progress. The billing process on the C141 CWB is not documented and each of the 4 aircraft sampled were processed differently, without adequate explanation. If the funds transferred to DMIF reflect the budget vice the contract price, clearly the price established by competition would be irrelevant. We could not determine exactly how the funding and billing process was being handled given the lack of documentation and the inability to have the specific examples explained. Where the process does not implement a documented arms length business relationship as intended by the competition, it deviates substantially from that required of private firms.

## THE COSTS OF COMPETITION

The competition for the C141 CWB was conducted over approximately 9 months. Each of the 4 offerors maintained dedicated teams to develop proposals and respond to contracting officer inquiries. These costs are charged to Bid and Proposal (B&P) and were estimated by the offerors at approximately \$1 million. The WR-ALC buyer provided data estimating the competition cost at \$1.8 million. With the award of the CWB, a contract administration office was established. Its job is to negotiate the hours for over and above tasks, verify material deficiencies and perform other contract administration duties. The costs of this office and continued buyer support are estimated at \$1.5 million over the life of the contract. Using the most conservative of these estimates \$4.3 million was incurred to conduct the C141 CWB public vs private competition and to administer performance. This does not include estimates for any audits performed by DCAA or the Air Force Audit Agency, which may have otherwise not been performed.

## CONCLUSIONS

The C141 CWB competition was not fair in that one competitor WR-ALC had overwhelming advantages, as follows:

- The ability to combine CWB efforts with other C141 projects, while charging common costs to the other projects.
- The opportunity to perform a prototype and three trial installations.
- The ability to ignore risk associated with proposing labor standards and costs that placed no reliance on existing standards or historical data.
- The ability to perform analogous to a cost type contract. While it is recognized that Air Force policy is to hold depots accountable for performing to the contract price, the systems do not track actual cost. The system documentation and internal controls are inadequate to validate cost allocations. The managers do not have the tools to manage costs.
- The ability to use existing accounting and reporting systems, which do not comply with statutory and regulatory requirements required of private firms.
- The ability to disregard business risks.

The potential benefits of competition in determining the most efficient producer in the marketplace at points in time are clear. In the C141 CWB competition, private companies proposed firm fixed prices with systems established to comply with statutory and regulatory requirements. In contrast, WR-ALC's winning offer has in substance been converted to a cost

type contract and its systems do not and cannot comply with the same statutory and regulatory requirements. The offers were not comparable. While the cost comparability handbook required the WR-ALC buyer to address some marketplace costs that a depot would not propose, it cannot address the basic problems associated with business risk, accounting and estimating systems and the proper charging of costs. Comparability adjustments also cannot address the fact that WR-ALC, as a public depot, has not previously been required to comply with Generally Accepted Accounting Principles (GAAP), Cost Accounting Standards (CAS), the Federal Acquisition Regulation (FAR), or compete in the marketplace.

Based on the data we reviewed and interviews, we believe adequate information was available up-front before the competition decision to conclude that WR-ALC, as the C141 Depot, could combine the CWB with other projects to provide substantial benefits to squadron customers both in saving aircraft downtime and costs. Similar potential did not exist in industry. The competition was an expensive surrogate to achieve real or imagined benefits that perhaps could have been addressed by training, improved systems, modern project management tools and increased management orientation to the cost of performance. Any claims that substantial savings have been achieved as a result of the competition are questionable.



Attachment 1			
C-141 CENTER WING REVENUES AND COSTS BY MONTH			
AS OF	TOTAL COST	REVENUE	PROFIT (LOSS)
05-31-93	\$238,329	\$168,038	(\$70,291)
Y-T-D	238,329	168,038	(70,291)
06-30-93	291,186	156,609	(133,577)
Y-T-D	529,515	324,647	(203,868)
07-31-93	425,847	298,584	(128,263)
Y-T-D	955,362	623,231	(332,131)
08-31-93	602,332	423,832	(178,500)
Y-T-D	1,557,694	1,047,063	(510,631)
09-30-93	959,735	504,823	(454,912)
Y-T-D	2,517,429	1,551,886	(965,546)
10-31-93	898,068	604,100	(293,965)
Y-T-D	3,415,498	2,155,986	(1,259,511)
11-30-93	989,731	959,190	(30,541)
Y-T-D	4,405,229	3,115,176	(1,290,053)
12-31-93	1,083,015	863,406	(226,729)
Y-T-D	5,488,244	3,978,582	(1,516,782)
01-31-94	1,443,253	1,283,720	(152,413)
Y-T-D	6,931,497	5,262,302	(1,669,195)
02-28-94	1,363,434	1,445,291	81,857
Y-T-D	8,294,931	6,707,593	(1,587,338)
3-31-94	1,773,232	1,764,718	(8,514)
Y-T-D	10,068,163	8,472,311	(1,595,852)
04-30-94	1,814,786	1,129,411	(685,375)
Y-T-D	11,882,949	9,601,722	(2,281,227)
MEMO FOR THE RECORD: These above numbers do not include the \$224,000 cost accumulated prior to the input of the first aircraft on 29 April 1993. Those totals with all costs included would be:			
Y-T-D	12,106,949	9,601,722	(2,505,227)

AS OF	CONTROL #	SERIAL NUMBER	TOTAL COST	REVENUE	PROFIT LOSS
04-30-94	00085H333	650254	855,837	549,889	(305,948)
	00709B333	650254	30,522	28,719	(1,803)
	000715B333	650254	59,489	38,403	(21,086)
CWB	1ST AIRCRAFT TOTAL		945,848	617,011	(328,837)
	00085H341	650260	684,476	527,391	(157,085)
	00714B341	650260	2,148	20,629	18,481
	00715B341	650260	56,645	51,681	(4,964)
CWB	2ND AIRCRAFT TOTAL		743,269	599,701	(143,568)
	00085H347	670002	586,607	427,500	(159,107)
	00715B347	670002	28,201	22,147	(6,054)
PDM/CWB	3RD AIRCRAFT TOTAL		614,806	449,647	(165,161)
	00085H001	660195	664,970	441,880	(223,090)
	00709B001	660195	27,824	27,021	(803)
	00715B001	660195	75,520	62,944	(12,576)
PDM/CWB	4TH AIRCRAFT TOTAL		768,314	531,845	(236,369)
	00085H002	670014	664,591	427,427	(237,164)
	00715B002	670014	22,582	19,863	(2,719)
PDM/CWB	5TH AIRCRAFT TOTAL		687,173	487,290	(239,883)
	00085H003	660157	529,875	461,649	(68,226)
	00709B003	660157	29,157	27,870	(1,287)
	00715B003	660157	17,384	10,448	(6,936)
PDM/CWB	6TH AIRCRAFT TOTAL		576,416	499,967	(76,449)
	00085H004	640614	700,832	536,866	(163,966)
	00709B004	640614	67,402	56,633	(10,769)

	00714B004	640614	11,893	9,180	(2,713)
	00715B004	640614	31,426	31,389	(37)
CWB/PAINT	7TH AIRCRAFT TOTAL		811,553	634,068	(177,485)
	00085H005	638076	743,762	548,498	(195,264)
	00709B005	638076	16,672	28,485	11,813
	00714B005	638076	5,664	10,269	4,605
	00715B005	638076	40,834	32,135	(8,699)
CWB	8TH AIRCRAFT TOTAL		806,932	619,387	(187,545)
	00085H006	650231	615,945	445,873	(170,072)
	00715B006	650231	5,957	6,818	861
PDM/CWB	9TH AIRCRAFT TOTAL		621,902	452,691	(169,211)
	00085H007	650267	599,069	562,784	(36,285)
	00714B007	650267	6,804	9,085	2,281
	00715B007	650267	16,706	12,661	(4,045)
CWB/PAINT	10TH AIRCRAFT TOTAL		622,579	584,530	(38,049)
	00085H008	640651	496,158	456,515	(39,643)
	00709B008	640651	26,655	26,606	(49)
	00715B008	640651	13,977	15,315	1,338
PDM/CWB	11TH AIRCRAFT TOTAL		536,790	498,436	(38,354)
	00085H009	660136	585,078	539,095	(45,983)
	00711B009	660136	19,850	21,471	1,621
	00714B009	660136	8,199	9,103	904
	00715B009	660136	17,436	15,544	(1,892)
CWB	12TH AIRCRAFT TOTAL		630,563	585,213	(45,350)
	00085H010	670010	577,626	540,459	(37,167)
	00709B010	670010	28,803	26,615	(2,188)

	00715B010	670010	26,791	23,091	(3,700)
CWB	13TH AIRCRAFT TOTAL		633,228	590,165	(43,055)
	00085H011	667957	471,659	467,985	(3,674)
	00711B011	667957	21,856	20,972	(884)
	00713B011	667957	5,473	13,250	7,777
	00714B011	667957	8,650	8,772	122
	00715B011	667957	11,144	12,639	1,495
CWB	14TH AIRCRAFT TOTAL		518,782	523,618	4,836
	00085H012	659413	440,242	419,229	(21,013)
	00709B012	659413	29,153	27,581	(1,572)
	00714B012	659413	8,675	9,058	383
	00715B012	659413	21,244	8,828	(12,416)
CWB	15TH AIRCRAFT TOTAL		499,314	464,696	(34,618)
	00085H013	640615	422,819	338,920	(83,899)
	00709B013	640615	35,718	26,647	(9,071)
	00715B013	640615	16,406	13,252	(3,154)
PDM/CWB	16TH AIRCRAFT TOTAL		474,943	378,819	(96,124)
	00085H014	660147	337,230	325,919	(11,311)
	00714B014	660147	8,890	9,670	780
	00715B014	660147	5,696	6,596	902
CWB	17TH AIRCRAFT TOTAL		351,816	342,187	(9,629)
	00085H015	650266	226,899	178,386	(48,513)
	00709B015	650266	60,411	44,406	(16,005)
	00714B015	650266	5,309	6,703	1,394
	00715B015	650266	1,750	1,347	(403)

CWB	18TH AIRCRAFT TOTAL		294,369	230,842	(63,527)
	00085H016	670004	281,241	228,433	(52,808)
	00709B016	670004	17,402	13,809	(3,593)
PDM/CWB	19TH AIRCRAFT TOTAL		298,643	242,242	(56,401)
	00085H017	650218	162,741	122,031	(40,710)
	00709B017	650218	6,055	4,788	(1,267)
	00714B017	650218	8,467	8,894	427
	00715B017	650218	0	49	49
CWB	20TH AIRCRAFT TOTAL		177,263	135,762	(41,501)
	00085H018	660185	166,911	94,688	(72,223)
	00715B018	660185	133	177	44
PDM/CWB	21ST AIRCRAFT TOTOAL		167,044	94,865	(72,179)
	00085H019	660134	1,198	1,665	467
CWB	22ND AIRCRAFT TOTAL		1,198	1,665	467
	00085H020	650271	71,218	55,440	(15,778)
	00714B020	650271	10,239	10,020	(219)
CWB	23RD AIRCRAFT TOTAL		81,457	65,460	(15,997)
	00085H021	660148	4,613	2,946	(1,667)
	00714B021	660148	648	541	(107)
CWB	24TH AIRCRAFT TOTAL		5,261	3,487	(1,774)
	00085H022	660158	762	509	(253)
	00714B022	660158	12,722	7,619	(5,103)
CWB	25TH AIRCRAFT TOTAL		13,484	8,128	(5,356)

YTD TOTALS	11,882,949	9,601,722	(2,281,227)
MONTHLY TOTALS	1,814,786	1,129,411	(685,375)

## EXECUTIVE SUMMARY

### F/A-18 MODIFICATION CORROSION AND PAINT PROGRAM (MCAPP) COMPETITION CASE STUDY

Two private firms, the Navy Aviation Depot, North Island (NADEP NI) and Ogden Air Logistics Center (OALC) competed in a public versus private competition for the F/A-18 modification, corrosion and paint program (MCAPP). A formal source selection process was used involving a Source Selection Evaluation Board (SSEB) and a Source Selection Advisory Council (SSAC). The tactical aircraft Program Executive Officer (PEO-T), Naval Air Systems Command, Washington, DC, was the source selection authority (SSA). OALC was awarded the contract at an estimated value of \$60.8 million.

The current debate over whether public versus private competition can be conducted on a "level playing field" obscures the distinction between unavoidable differences and unfair advantage. Our research indicates that public versus private depot differences in experience, resources, and workload cannot be eliminated and the procuring activity has no responsibility to reduce the advantages one competitor may have over the other. Procurement regulations, as well as the principle of maximizing potential benefits from competition, requires eliminating unfair advantages. We believe OALC had unfair advantage over its private competitors in the areas of cost estimating, inequitable application of accounting standards, inaccurate job costing, adequacy of internal controls and audit scrutiny. Although our review focused on OALC as the winner of the F/A-18 MCAPP competition, a review of data leads us to conclude similar unfair advantages would exist if NADEP NI, the other public offeror, had won.

### PROPOSAL COSTS

In a public versus private competition such as the F/A-18 MCAPP, offers from private companies are firm fixed price with the understanding the offeror will receive only the contract price for performance. Though a contract to a public depot would include a firm fixed price, the award is analogous to a cost type contract. All costs incurred will be borne by the government, in one appropriation or another. From the buyer's perspective the price is fixed; from the standpoint of the seller, in this case OALC, costs in excess of the contract price will be paid by other customers of OALC or through other appropriations. This would be true if either of the public depots were awarded the contract. This disparity in risk of economic loss, together with the strong pressure to win in order to maintain depot workload, creates a great incentive for public depots to underestimate and misallocate costs.

The tendency to underestimate costs was evident in the public depot proposals. DCAA

reported that OALC understated its original proposed costs by 36%. Similarly, DCAA cited NADEP NI for underestimating its costs by 37%. Though its best and final offer is more closely aligned to DCAA's recommendations and fully complies with the Cost Comparability Handbook, OALC's final offer still represents a significant understatement of costs since the BAFO did not include estimates of higher than normal start up costs for the maintenance of an aircraft on which OALC had no experience. Several significant support functions were also omitted from the estimates. While the Cost Comparability Handbook can ensure that categories of costs are addressed, it cannot impose "cost realism" on public depots, where the weight of incentives encourages them to obtain the work, not to price it properly.

### **ACCOUNTING STANDARDS**

GAO and DCAA audit reports prior to contract award addressed serious deficiencies in accounting and internal controls at OALC. Subsequent audit follow-up, with pressure to correct the problems, was not made. If a private firm were cited for similar deficiencies with no evidence of improvement, it is questionable whether the contract would have ever been awarded or if awarded, whether all costs could be recovered. This unequal requirement to implement audit recommendations, to the extent they impact the ability of an organization to estimate and track contract costs, provides a clear competitive advantage to OALC, as a public depot.

In addition, although the Cost Accounting Standards (CAS) are incorporated into the DoD Accounting Manual with which the depots must comply, there are significant variations in the way certain standards are applied, resulting in lower costs charged to contracts by public depots. For example, CAS 404 and 409, dealing with depreciation, and CAS 406, covering accounting periods, are treated differently in the DoD Accounting Manual. Also, CAS Disclosure Statements describing contractor accounting practices that must be consistently followed are not required of depots. We conclude that the significant differences in application of standards and requirements for disclosure practices, results in an unfair advantage to depots in public versus private competition.

### **CONTRACT COSTING**

Our research at OALC revealed considerable inaccurate contract costing and reporting practices. Examples include:

- a) Direct Labor. F/A-18 direct labor costs are not being accurately recorded. In our examination of an indirect Resource Control Code (RCC), we found significant numbers of direct employees working on the F/A-18 with their time charged to an indirect account, resulting in hours and costs being allocated to other programs, understating F/A-18 costs.
- b) Production Overhead. We found instances of significant misallocations of production overhead. For example, we examined four high cost indirect RCC's that do not assign costs to the F/A-18 project and found that three of them

perform work for the F/A-18. Such examples of common costs not charged to the F/A-18 represent misallocations which distort project costs. Since private firms must assign such costs to the contract, such distortions represent an unfair advantage to OALC in both mischarging current work as well as pricing future F/A-18 work.

- c) General and Administrative. OALC's use of a direct labor hour base to distribute its G&A expenses is at variance with the Cost Accounting Standards Board's stated preference and DCAA's common position with industry requiring use of a total cost input base. In addition, we found several examples of erroneous allocations (i.e., depreciation and plant services) that resulted in less than accurate G&A costing on the F/A-18 contract.

### INTERNAL CONTROLS

We have observed many instances of internal control deficiencies at OALC that ultimately impact the true cost of contract performance, such as:

- a) Poor controls over labor cost recording. We found numerous examples of employees not certifying the accuracy of their time charges and a lack of supervisor's verification of labor utilization reports.
- b) Poor control over the Production Overhead Administrative Table. The table represents the mapping of what indirect expense RCC's are charged to what programs. The decision making process is managed informally at very low levels in the organization. Very little attention is given to proper charging as reflected by the lack of management approval or monitoring of program support changes to the administrative table.
- c) Negligible Project Cost Control. Our interviews and the review of data confirm that schedules and quality have and continue to be paramount concerns at OALC, while cost control has been a low priority. Interviews with senior officials, F/A-18 production managers and examination of project control data, indicate this "cultural bias" is still prevalent. We found little evidence of the focused cost management normally practiced by industry.

### AUDIT SCRUTINY

The depots are not subjected to the audit oversight that industry experiences. Normal industry oversight from internal audit, outside financial audit and government audit is virtually absent from depots. DCAA, by direction of the DoD Comptroller, is limited to reviewing forward pricing activities. Interviews with the Air Force Audit Agency indicates there are no plans to audit F/A-18 program incurred costs. We believe the absence of close audit scrutiny provides little incentive for tight control over depot accounting and project management practices



and consequently, allows opportunities to distort proposals and project costing.

Identification of weaknesses by independent auditors can provide the motivation to improve. The absence of audit scrutiny at OALC provides little incentive to improve internal controls. Consequently, the depots have an unfair advantage over industry in as much as their internal control practices are not held to as high a standard as those of private firms. The pressure to improve internal controls together with the fear of inviting greater audit scrutiny provide industry strong incentives to improve estimating, costing, program management and budgeting. These incentives are largely missing from OALC, providing the depot a major unfair advantage over industry competitors. Inaccurate costing will allow depots to continue to underestimate competitive proposals. The undercharging of competitive awards results in higher costs assigned to non-competitive programs. This often results in depots forecasting higher costs for the non-competitive programs and higher budget requirements. The depots are then able to recover losses on the competitive awards, which they underpriced. Such opportunities are rarely experienced in industry. We conclude that this process provides depots an unfair advantage in their pricing and costing activities.

### Conclusion

We believe because of their maintenance experience, the ability to spread common costs over numerous programs, and close support relationships with customers, depots enjoy considerable legitimate advantages over private industry when competing for maintenance contracts. However, on the F/A/-18 contract, OALC did not enjoy the above advantages. The OALC also does not have the systems, experience, training, internal controls, and audit capability to effectively estimate, track and manage specific contract costs, that would be required of a private firm. Until these deficiencies are corrected, a depot such as OALC has considerable unfair advantages over industry where these deficiencies would normally not be accepted. Until a systematic review and comprehensive corrective action plan is developed and implemented, the OALC will continue to improperly allocate costs.

The OALC offer on the F/A-18 was optimistic. Our review indicated that costs are being overrun at this early stage of contract performance. It is our opinion that the F/A-18 costs will significantly exceed the contract price. The difficulty in quantifying the overrun is the lack of predictability in the accumulation of costs and the absence of internal controls, which could identify problems of mischarging or misallocation to management. In our opinion, the true costs of the contract will only be determined by an incurred cost audit after a substantial part of the contract is completed. Under these circumstances, competition with private firms, which are properly held to much more demanding standards, is clearly unfair.

In addition, based on our review, public versus public competition is also unfair and can provide misleading results. Where two or more public offerors have different estimating and accounting systems, varying abilities to comply with regulatory standards, few internal controls, little influence over future workload and cultures that focus on schedule and quality, competition between these entities is unlikely to discern the most efficient or productive. Therefore, we

believe that assignment of workload to depots should be based on criteria other than or in addition to public versus public competition.

If future public versus public or public versus private competition is held, substantial efforts must be made to require public depots to estimate and account for costs to the same standards to which industry is required in order to achieve fairness and a degree of confidence that performance to the contract price can be managed and monitored.

## INTRODUCTION

In July 1992, the Ogden Air Logistics Center (OALC) submitted a firm fixed price proposal to the Naval Air Systems Command (NAVAIR) in response to request for proposal RFP N00019-92-R-0001. The proposal for \$55.3 million was for the Modification, Corrosion and Paint Program (MCAPP) for the Navy's "Hornet" F/A-18 aircraft including \$1.4 million in cost comparability adjustments. The DCAA reviewed this proposal and found it to be understated by \$19.9 million including \$2.6 million in understated cost comparability adjustments.

On June 7, 1993, the OALC presented its BAFO proposal in the amount of \$63.7 million (including \$3.1 million in cost comparability adjustments) to NAVAIR. DCAA also reviewed this proposal and concluded it was acceptable for evaluation. They recommended a price increase of \$3.6 million of which \$.7 million was for increased cost comparability adjustments. DCAA's lower recommended price on the BAFO versus the original proposal is based primarily on their lower recommended production overhead rate (6.7% versus 8.7%) and G&A rate (7.3% versus 10.6%) at the later point in time. The lower indirect rates reflected in the OALC BAFO was based upon (i) higher direct cost estimates and (ii) lower estimated overhead costs. DCAA concurred with these changed estimates.

### F/A-18 MCAPP PROPOSAL

Study of the BAFO proposal and the related audit report indicates the major issues that contributed to the original \$20 Million understatement of estimated costs had been addressed in OALC's final proposal. For example, DCAA increased manufacturing support hours and resultant costs by \$2.8 Million. In its proposal OALC used an overly optimistic 6.25 to 1 ratio of direct to indirect employees. OALC, at the aircraft directorate level (LA), was currently experiencing a 4.39 to 1 ratio. DCAA adjusted the current ratio to reflect (i) planned movement of employees from indirect to direct during FY 1993, and (ii) direct charging of engineering support on this contract (this is normally an indirect cost). These adjustments resulted in an audit recommended ratio of 5.25 to 1.

In computing its manufacturing support hours, OALC, in error, removed field team (offsite work) hours from the direct labor base to which its 6.25 to 1 ratio is applied. Field team effort was included in direct labor used to compute the direct/indirect ratio, and even though direct effort may be offsite for a time, the OALC indirect effort remains at a fixed level. If OALC had properly included field team hours, even at a 6.25 to 1 ratio, it would have included an additional 73,165 hours in its proposal.

The OALC's yield factors and estimates of fringe benefits were also considered inaccurate, resulting in an excessively high computation of non-direct time applied to direct

labor. OALC proposed to reduce sick leave usage by approximately 50 percent through the implementation of a new sick leave awareness policy. Given the economic climate and past history of sick leave usage, DCAA did not believe the results would be as dramatic as proposed. Additionally, OALC proposed a 96 percent efficiency factor. The efficiency factors experienced by OALC's aircraft directorate over the last 3 years had never exceeded 90 percent. The FY 1992, efficiency factor was approximately 88 percent. Based on past performance, it was not expected that performance would exceed 90 percent.

Adjustments to the production overhead and G&A base were also recommended. OALC calculated these bases on standard hours when the correct base should have been actual hours. This adjustment significantly increased the overhead and G&A allocated to F/A-18 work. Likewise the production overhead and G&A pool composition were found to be missing a number of accounts that DCAA believed were applicable to the F/A-18 maintenance effort. Finally, certain accounts (i.e. Utilities) had been moved from G&A to production overhead with a net effect of decreasing overall F/A-18 costs. DCAA increased the fringe benefit pool to account for certain elements of costs OALC neglected to include in its forecast. The health benefits forecast was also escalated to recognize expected cost increases.

Our review of the current cost comparability handbook, dated August 10, 1993, indicates that no provision is being made for post-retirement health benefits for both The Federal Employee Retirement Systems (FERS) and Civil Service Retirement System (CSRS) employees of OALC. Lack of recognition of the unfunded liability of such post-retirement health benefits is incompatible with the provisions of FASB-106 which requires private contractors to calculate, amortize, and accrue such significant costs (similar to pension expenses).

Overall, OALC was very optimistic in its F/A-18 proposal and omitted or understated significant costs. The DCAA audit partially addressed these issues. What DCAA could not address was the optimistic performance projections where historical costs did not exist. The fact that all costs in a public depot will be borne by the government contributes to the depot's optimism.

### COST ACCOUNTING SYSTEM

- a. We studied, in some depth, the accounting for costs under the F/A-18 Contract. There are over 30 sub-systems which contribute data to OALC's cost accounting system (the Depot Maintenance Data Systems Network). The sub-systems can be grouped into 5 broad functions: Requirements, Material, Production, Costs and Other. Overlaid on the cost accounting system are three basic funds: the Depot Maintenance Industrial Fund (DMIF), Operation and Maintenance (O&M) Appropriation fund, and the Cost of Operation Division Fund.

We were informed that GRUMMAN Data Systems is working on the design and implementation of a new accounting/ information system for all ALCs with Ogden as the Depot Maintenance Management Information system (DMMIS) pilot

site.

- b. OALC's cost accounting system is a job order cost system. On the F/A-18 MCAPP a separate job order number is set up for each aircraft tail number.

Costs are accumulated in the Depot Maintenance Automated Data System and summarized on a monthly and year-to-date basis in the Depot Maintenance Production Cost System (G072A) and the Budget General Ledger (BGL). The BGL is a partial implementation of the new DMMIS.

Our inquiry also disclosed that cumulative costs through March 31, 1994 on the F/A-18 Program per the BGL and the G072A systems did not reconcile. At the time of our observation, responsible cost accounting personnel were unaware of the difference since they had not attempted a reconciliation of the two reports. In addition, neither of these reports are summarizing all costs incurred in support of the F/A-18. During our review we attempted but were not successful in locating a periodic management report which contained, by cost element, total F/A-18 MCAPP cost accumulated to date. We were informed that no such report is generated. As a result, we conclude that OALC program management does not have sufficient cost visibility in the form of recurring program cost reports to adequately monitor total program costs.

- c. In our review of accounting system adequacy, we studied **Prior Audit Disclosures**. GAO, in its report of February 26, 1991, did not give an opinion on the OALC accounting system as a whole. However, they disclosed internal control deficiencies in material cost areas and also concluded "the method of applying direct labor costs and production overhead is not in accordance with DoD regulations and will not provide the type of cost data needed to price work accurately and monitor weapon system costs."

In its pre-award accounting systems survey audit report of October 13, 1992, DCAA concluded the current accounting system is inadequate in some respects as a basis for pricing future depot maintenance competition. Similar to GAO's conclusions, they also stated the allocation of labor costs from the resource control center (RCC) level may be inequitable resulting in misallocation of direct labor between job order numbers. The auditors were of the opinion that OALC's procedures for accumulating and allocating production overhead and G&A expenses require improvement because (i) not all costs benefiting final cost objectives are included in the cost pools, and (ii) the method of allocating indirect expenses could result in costs not being allocated on a causal beneficial relationship. The DCAA report also addressed internal control deficiencies in recording employee timecharges.

It should be noted that by direction of the DoD Comptroller, the DCAA

involvement with public activity depot maintenance competition is limited to preaward reviews. Post award audits, if needed, are to be performed by the military services internal audit organization.

In discussions with the resident chief of the Air Force Audit Agency (AFAA), we were told that their office had not done any work to evaluate the management of the F/A-18 maintenance program. More importantly, audits of those systems producing contract costs have not been undertaken. When the AFAA reviews or uses OALC financial statements, a disclaimer is made as to the adequacy of internal controls or the reliability of data generated by the systems. The one exception to this was a recently performed audit of the Maintenance Material Cost system (G004H). The report concluded internal controls were not adequate.

d. During our review of **Labor Timekeeping Internal Controls**, we visited a number of RCCs and discussed time recording procedures with foreman, supervisors, and data entry clerks. We also examined task/work requests, production count cards, memorandum records of where employees spent their time, exceptioned labor records and system generated G037G daily "actual labor utilization reports". These inquiries disclosed a number of labor timekeeping internal control deficiencies summarized as follows:

- Not all employees are initialing/certifying that their daily labor charges are accurately recorded. Some employees are never informed where their time is being charged.
- Some supervisors are not reviewing prior day G037G labor utilization reports to assure that the time for all employees assigned to them on the prior day was accounted for appropriately. From reviewing the 37G prior day report for one RCC, we noted two hours overtime entered for one employee working in the RCC. However, the 37G report indicated that the employee was on long term loan to another RCC. Therefore, his labor plus overtime was erroneously charged to a RCC that he was not working in. This had been going on for more than two weeks. Supervisors in both affected RCCs were unaware of it because they had not reviewed the daily 37G reports.
- All labor exceptioning is not being done on a daily basis as required. In one RCC, F/A-18 labor exception entries were being held up "until production count earned (standard) hours are in the system". This is not acceptable as entries of actual labor hours should not be influenced by the standards.

Our follow-up review in June reflected that OALC F/A-18 program management is also concerned with the reliability of its labor exceptioning procedure. In this

regard, we noted that all direct employees, whose time is defaulted into CLINs 1-5 production (direct RCC MABPCC) on the F/A-18 contract, were reclassified at the beginning of May 1994 to indirect employees (duty code 23) and assigned to indirect RCC MABSXX "Production Integration". In discussing our concern about the reclassification with OALC operations management, we were informed, "... the reclassification was made because labor costs on CLIN 1-5 were too high as all appropriate exceptioning from the direct (default) RCC was not being accomplished". The intent of the reclassification is that no direct labor can be charged to the F/A-18 unless it is exceptioned to it. This is a serious internal control weakness.

In pursuing this issue with OALC, we informed program management personnel that the reclassified employees were commingled with 17 other normal indirect employees. We were informed there is no cause for concern as all time for the formerly direct employees would be exceptioned out of the indirect RCC to the direct programs they work on. We were assured that all duty hour time for these former direct employees would be zero hours in the indirect RCC at month end. However, our check of the May G037G month end RCC labor report proved that this was not the case. The time of approximately 10 of the formerly direct employees was left in the production overhead indirect RCC. Since the cost for this indirect RCC is being allocated to all production programs, the F-16 and C-130 programs are now bearing cost previously identified as direct cost to the F/A-18. We conclude the ability to reassign direct employees to an indirect RCC so easily represents a serious internal control weakness providing the opportunity for significant mischarging.

- e. Another concern is the efficacy of **Labor Standard Hours**. As previously stated, the ratio of total standard hours for completed tasks under a job order to total monthly RCC actual hours is used to assign actual labor hours and cost to job orders. We were informed that visibility as to the reliability of standard hours is available from the Program Depot Maintenance Scheduling System (PDMSS). The PDMSS is separate and apart from the ALC integrated cost accounting system. We were also informed the PDMSS reports would provide actual labor hours directly identified to each job order number. Therefore, we conducted inquiries and reviewed actual labor hour information input to PDMSS. Actual labor hours are entered on form 173 (production count cards) by employees as they complete each task. Standard labor hours are preprinted on each 173 card and are also entered in the PDMSS from the 37E Workload Planning System. An entry clerk, using the 173 production count cards, enters date completed and actual hours in PDMSS. We noted the following internal control problems in actual hour information entered in PDMSS:

- There were no actual hour entries on many cards. Inquiry of the data

entry clerk as to what he does in these circumstances indicated uncertainty as to what to enter. Therefore, he enters the standard hours as actual.

- It is apparent from examination of the form 173 cards that some employees enter hours rounded to the nearest hour, whereas standard hours are maintained to the nearest tenth of an hour.
- Card after card disclosed hours entered exactly at standard. Since the cards display the standard hours, it is apparent that employees are influenced by the standards.
- Our inquiries also disclosed there are no written instructions to employees as to how to account for or record actual hours on the production count cards.

In view of these observations, we question the reliability of actual labor hour information in the PDMSS system. We believe the reliability of PDMSS information would be enhanced if standard labor hour information was removed from the 173 cards and if employees were given written instructions on how to complete these cards.

- f. We reviewed **indirect expenses** at OALC to determine if accounting and estimating practices are consistent and if there are beneficial and causal relationships between the expenses and the final cost objectives to which they are allocated. Our comments on production overhead and general and administrative expense follow:

- **Production Overhead:** Ogden Air Logistics Center (OALC) has an accounting practice which if the CAS standards in DoD 7220.9 were enforced would lead to a CAS-418 noncompliance citation. At issue is the OALC practice of tailoring production overhead pool costs to the specific benefits received by each production direct Resource Control Center (RCC). These tailored allocation methods change frequently and arbitrarily. At a private contractor, each such adjustment of the costing methodology could be considered an accounting change requiring a disclosure statement revision and the preparation of a cost impact estimate.

We conducted inquiries to determine what procedural review and other managerial/internal controls are in effect to assure that the "Administration Table", the system used to assign and allocate indirect RCC costs to programs, is maintained appropriately on a continuous and current basis. This inquiry indicated (i) the function is assigned to representatives from



each directorate as well as to an administrative employee who chairs meetings and acts as a coordinator, resulting in no central financial managerial control or involvement (ii) there are no written descriptions of functions, activities, skills, programs supported, etc., available for the individual indirect RCCs and (iii) there is no evidence of periodic monitoring or reviews to assure that the production overhead administration table is appropriately maintained on a current and continuous basis.

With this background, we reviewed about one-third of the forty aircraft directorate production overhead RCCs to determine whether a causal/beneficial relationship exists between the indirect expenses in the RCCs and the final cost objectives (including the F/A-18 program) to which they are allocated. We identified three high cost production overhead RCCs which are providing support to the F/A-18 program but whose costs are not being allocated to the F/A-18. These indirect cost RCCs are MABETZ (Aircraft Structures Planning), MABPSX (Services Team), and MABRSX (Sheet Metal). The costs of two of these indirect RCCs (MABETZ and MABRSX) also were not included in OALCs initial or BAFO pricing proposals for the F/A-18. Thus, proposed costs as well as costs recorded on the F/A-18 MCAPP program are understated.

- **General and Administrative Expense:** The primary components of OALC's general and administration (G&A) expense, and their related cumulative dollar amounts for FY 1994 through May 1994 are as follows:

Financial Management and Training Division	\$25.6 m
Plant Services	9.3
DMIF/Hill AF Base Support	<u>5.9</u>
Total G&A	<u>\$40.8 m</u>

OALC uses a direct labor hour base to distribute G&A expenses. Total Cost Input is the preferred method for such allocations. If compliance with the standards in DoD 7220.9 were enforced, OALC would be considered in potential non-compliance until it demonstrated that the labor hour surrogate base is compliant with the DoD 7220.9, CAS 410 standard.

The plant services and base support G&A expense components of G&A were reviewed and are commented on below:

- **Plant Services Expense:** In the case of plant services expense, OALC recognizes that total direct labor hours is not an equitable measure for assigning this element of G&A expense to benefiting directorates. Plant services are assigned to directorates using fixed percentages of activity. A comparison of the fixed allocation percentages with actual service percentages and approximate direct actual labor hour percentages is as follows:

<u>Directorates</u>	<u>Fixed Activity Allocation Percentage</u>	<u>FY 1993 Actual Service Percentage</u>	<u>Approximate Direct Labor Base Percentage</u>
Aircraft	28%	21%	43%
Missiles	43	31	15
Commodities	13	28	21
Technology & Industry (T and I) Support	<u>16</u>	<u>20</u>	<u>21</u>
	<u>100%</u>	<u>100%</u>	<u>100%</u>

A concern we have with the fixed percentage intermediate cost pool allocation process is that the fixed percentages are not converted to actual percentages at year-end and have not been revised for several years. The Plant Management (plant services) Division maintains a data base of actual service activity (labor hours) provided to each directorate. This actual service percentage information should be used to periodically update the fixed allocation percentages. However, as shown by the above comparative percentages, OALC's failure to use actual plant service percentages results in significant distortion in G&A expense allocated to the directorates and programs. For example, the Aircraft Directorate received 28 percent of the plant services costs in FY 1993 whereas it should have received only 21 percent.

- **DMIF/Base Support Expense:** We reviewed the procedures used to record and distribute Hill Air Force Base support operations to DMIF activities. These base operations include such activities as data processing, environmental management, procurement, safety support, payroll, accounting, etc. The costs of these operations determined to be applicable to DMIF activities are assigned to G&A and allocated to contract effort based on direct labor hours. Base support costs are subject

to the DoD 7220.9 standard dealing with CAS 403.

We reviewed selected base support operations to determine how cost allocable to DMIF activities were determined. We found that for the most part DMIF allocable costs were developed through what OALC personnel refer to as a negotiation process. This involves a process whereby OALC and base support operations personnel conduct negotiations to arrive at amounts that represent DMIF's "fair share" of the costs of the services being provided.

For the most part, the amounts determined cannot be verified or audited. The costs are not identified and recorded to individual directorates. The amounts considered to be DMIF's fair share are essentially based on the OALC representative and the base support manager's estimate as to the services and goods provided for DMIF. There are, however, some base support operations that are determined and allocated to DMIF using a measurable allocation base. The best example of this is fire protection which is allocated using square footage which results in DMIF being allocated its fair share of costs based on occupied square footage. The latter, however, is the exception rather than the rule. As part of our review we related the practices in place at OALC for accounting for these costs with those that would be in place in private industry to account for similar costs. The findings and observations resulting from our review are discussed below.

Equipment and building depreciation applicable to base support operations are not included in costs allocated to DMIF. We determined that a below the line "cost comparability" adjustment was made for depreciation on the depot's proposal for assets not under DMIF control; however, OALC was unable to provide details on the specific assets included in computing this depreciation adjustment prior to our departure. Therefore, we were unable to ascertain if all the assets included within base support were considered in this comparability adjustment. Private industry would include such depreciation in overhead and would allocate it to contracts.

The base support activities fall under the management control of several outside government entities. Thus OALC has only partial control over how the costs of these operations should be identified to DMIF. There is a degree of decentralization within private industry but not to the extent present in the government. This is best illustrated by the current situation with The Defense Finance and Accounting Service (DFAS) which is the government entity responsible for providing accounting services for OALC. In examining the base support cost of this operation we found that no costs had been allocated to DMIF activities since FY 1992. Thus

DFAS accounting support to DMIF, which we estimate to total over \$ 1 million annually, is not collected and charged to DMIF contract activities. These costs were included in OALC's proposal resulting in a CAS 401 violation if this occurred in private industry.

The negotiation process in use at OALC to determine base support costs applicable to DMIF activities is not a process one would find in operation within private industry. The equivalent costs within industry would either be departmental costs within the entity or, if a service center performing centralized services for more than one entity, the operating costs would be allocated to customers on a beneficial or causal relationship. Thus similar costs within industry would not be subjectively determined, but instead, would be based on costs incurred within a department or costs allocated on some type of a verifiable measurable base prescribed by a CASB standard. Some costs allocated to DMIF are predicated on such a base. The vast majority, however, are determined on the basis of the negotiation process.

CAS 403, as amended by DoD, is applicable to accounting for base support costs. If the CAS standards in DoD 7220.9 were enforced, OALC would be in noncompliance with this standard. We believe several of the base support operations are centralized service functions subject to the CAS 403 provisions contained in DoD 7220.9. Centralized service functions represent those organizations performing services for several segments, which but for the existence of the organization, would be performed by or acquired by some or all the segments individually. Data processing, procurement, personnel, and possibly others, within base support fit this definition and should be allocated to DMIF as prescribed by the standard. The standard requires that these types of expenses be allocated on the basis of the beneficial or causal relationship between the supporting and receiving activities. OALC, therefore, is non-compliant with this standard and the DoD cost accounting manual. This noncompliance, however, must be viewed in light of the fact that full compliance is difficult since OALC must secure an agreement from the supplying base support entity to allocate such costs on some measurable base that is representative of the activity being allocated. For example, we were advised that the data processing operation falls under the Defense Information Systems Agency (DISA) which is in the process of developing an accounting system that provides fee for service billings. The system, however, has not yet been fully implemented and costs are still being allocated to DMIF based on a negotiated estimate of support. OALC, in contrast to private industry, cannot unilaterally assure its compliance with CAS 403.

Based on our observations, we have concluded that not all production overhead costs attributable to the F/A-18 were included in the BAFO or are being costed to the contract. We have also concluded that G&A expenses are not costed to the contract in compliance with DoD 7220.9 or CAS 403. As a result, OALC is not being required to perform to standards imposed on industry.

- g. DOD 7220.9 permits more flexibility in the use of appropriate accounting periods than does Cost Accounting Standard 406. For example, in the preamble to CAS 406, the concept of monthly allocations of overhead and G&A is considered and rejected as not being appropriate for contract cost accounting. However, in the DOD 7720.9 version of CAS 406 (according to OALC's interpretation), monthly accounting periods are permitted.

Our concerns with this procedure are illustrated in the following display of cumulative F/A-18 recorded cost, by cost element, through April 30, 1994 as compared with cost through the prior month.

	Cumulative Through	
	<u>3/31/94</u>	<u>4/30/94</u>
Direct Labor Hours	<u>20,964</u>	<u>23,970</u>
Direct Labor Cost	\$ 489,254	\$ 558,661
Production Overhead	518,069	1,117,694
G&A	<u>169,144</u>	<u>230,524</u>
Total F/A-18 Cost (excluding CLIN14)	<u>\$1,176,467</u>	<u>\$1,906,879</u>

The closing of overhead using monthly accounting periods resulted in distorted relationships between direct labor and indirect expenses and inaccurate assignment of indirect expenses to the program. The cumulative labor and overhead cost relationships shown above are abnormal (labor cost increased by only 14 percent over the prior month while overhead more than doubled) due to a labor cost reclassification entry. Further comments on our review of this reclassification entry are provided in paragraph I (Adjusting Journal Entries).

- h. In OALC's proposal, depreciation expense for DMIF depreciable assets, was included in estimated production overhead and general and administrative expense. Depreciation on assets, not controlled by DMIF, was included in OALC's proposal as a Cost Comparability Handbook adjustment. Depreciation expense for DMIF assets is included in program cost in the production overhead and G&A expenses allocated to the F/A-18 program based on direct production labor hours. We compared OALC's depreciation practices for DMIF assets with those within industry. Our comments and observations regarding these comparisons are summarized below:

We found, at the direction of Air Force Material Command (AFMC) in late 1991, OALC effected a significant change in assigning useful lives to fixed assets installed after 1 October 1991. As a consequence, all asset useful lives were reduced to three categories, 20, 10, and 5 years. Previous useful life guidelines varied by federal stock code and ranged from a low of 4 years to a high of 30 years. These pre 1 October 1991 assets are still being depreciated based on those useful lives.

DCAA noted that no gain or loss on the dispositions of assets is recognized in accordance with generally accepted accounting principles (GAAP). OALC, being a government entity, is not subject to GAAP, but the DCAA comment is a valid observation regarding the differences between depots and industry. Gains and losses, in essence, have the affect of correcting prior depreciation. As a consequence, any over or under statements of depreciation are not adjusted at depots as is done within industry. DCAA also noted in one of its audit reports that they had observed problems relative to OALC's reclassifying assets, excessing certain assets and not assigning proper values to some acquired assets.

OALC uses only straight line depreciation. Industry components often use accelerated depreciation methods which result in a faster write-off of depreciation. CAS 409 permits use of either straight line or accelerated depreciation methods.

OALC is not subject to CAS 404. If it were, its depreciation practices would be in noncompliance with that standard. CAS 404 requires that assets exceeding \$1,500 must be capitalized and depreciated. The AFMC and Depot policy is to capitalize only those assets over \$25,000 for assets acquired since 1 January 1994. Prior to this the capitalization policy was \$15,000. The use of a higher capitalization value, permits OALC to expense and write off more assets in one year than a comparable private industry competitor would be permitted under CAS 404.

If OALC was subject to CAS 409, the practice of having a 10 year useful life for all equipment (except EDP and general purpose vehicles) would be in

noncompliance with the standard. CAS 409 requires that the asset life used for depreciation must reasonably approximate the actual period of usefulness. We do not believe that the different types of equipment in use in OALC would all have a useful life of just 10 years. This is supported by the fact that assets acquired prior to 1 October 1991 were assigned lives anywhere from 4 to 30 years. These assets lives, in our opinion, are probably more representative of the useful lives than the 10 years currently being assigned. The use of such a short useful life permits OALC to write off depreciation on equipment at a higher rate than would be permitted by industry.

The Depot, also at the direction of AFMC, computes a residual value of \$1 for all equipment items. Private industry, to comply with CAS 409, must determine residual values for each asset and the residual values must be deducted from the capitalized value of the asset in computing depreciation. This practice enables OALC to write off more depreciation than its private industry competitor who must comply with CAS 409 and compute realistic residual values.

- i. We examined in detail the **adjusting journal entry** involving the reclassification of about 6,600 hours of direct labor to indirect effort. The preponderance of these hours was reclassified to indirect training while a small portion was charged to other production downtime effort. The adjustment was necessary because OALC personnel did not anticipate or properly plan for the substantial production labor downtime subsequently experienced on the initial F/A-18 aircraft. We estimate that the adjustment reduced F/A-18 program costs by about \$185,000. Even though adjusted labor dollars remained identified to the F/A-18, reclassified from direct to indirect, the reduction in direct labor hours, which is the base used to allocate indirect expenses, resulted in the F/A-18 receiving less production overhead and G&A.

We reviewed documentation in support of the adjustment, interviewed personnel responsible for identifying the misclassified labor, and queried top division and directorate personnel regarding their involvement in the adjustment process. We also compared indirect training time charged to the F/A-18 with that experienced on other aircraft programs. Our examination disclosed the entry was properly documented and that personnel responsible for identifying adjusted hours were planner/schedulers, production supervisors, and engineers knowledgeable of the program and problems experienced in servicing the aircraft. We also found that top management within the division and directorate were aware of and involved with the adjustment from start to finish and had reviewed and approved the entry.

We also discovered that training time identified to the F/A-18 was substantially

higher than that currently being experienced on the more mature F-16 and C-130 programs. For example, F/A-18 training costs for the first four months of 1994 were 28% of direct labor costs contrasted with 6% for the F-16. These high training costs are not considered unusual since the F/A-18 was the first Navy aircraft serviced by the OALC and, the first McDonnell Douglas aircraft it had performed maintenance on since the F-4. Thus, OALC production personnel had to learn a different aircraft and acquaint themselves with Navy procedures and technical data, resulting in higher training rates during the initial start up of the program. These costs were not included in the F/A-18 BAFO. One may question whether OALC appropriately estimated foreseeable start-up costs in proposed production overhead expense for the new program. In our opinion, a private contractor would most likely have made such provisions in its proposal.

### PROGRAM MANAGEMENT

We discussed Program Management with the Commander of the Aircraft Division, the F/A-18 Program manager and their senior staff. Management attention and emphasis are directed to monitoring performance. Detailed analysis of variances between standard and actual hours are prepared by F/A -18 phase (Incoming, Production Line, Flight Test and Paint), by aircraft, by operation number.

Contract quality and schedule oversight have been transferred to The Defense Contract Management Command (DCMC) which was hired by the Navy to perform Administrative Contracting Officer (ACO) functions. We were informed by OALC there are currently about 10 DCMC people on site. Based on the split of F/A -18 workload between the Navy Depot at North Island, San Diego and OALC, about 36 aircraft are expected to be serviced by the OALC this year.

We examined a number of daily and weekly ad-hoc reports used to manage and monitor the F/A -18 Program -- they all related to schedule. The reports detailed each aircraft's status, and its forecasted completion date as it moved through the maintenance process. We were informed cost performance/ monitoring was accomplished indirectly by review of labor hour charges to assure their accuracy.

AFMC has levied a new requirement on the ALCs to prepare a monthly total program cost/schedule performance report with estimates at completion. Variances will be calculated on cumulative costs, schedules, and Estimates at Completion (EAC). Variance analysis is required if costs exceed budgets by  $\geq 10\%$ , Schedule slips by  $\geq 10\%$ , and EAC overruns by  $\geq 5\%$ . Reports are submitted to key customer and ALC personnel. If EAC variance is  $\geq 15\%$ , reports are elevated to the Center Commander and Headquarters, AFMC. If EAC variance reaches 15% or greater, recompetition will be considered. In our opinion, such measures will be unsuccessful in focusing attention on cost performance on the part of ALC program



management. We believe that basic changes involving training, program management tools and internal controls are essential to improve the management of program costs.

The required reports have not yet been prepared by Ogden ALC program management since they are not required until three months of actual deliveries have occurred. The first aircraft delivery under the F/A-18 program was made on May 19, 1994. While WPAFB has levied the requirement for including Estimates at Completion (EACs) on these Depot Maintenance performance tracking reports, no detailed instruction/training on how to prepare these EACs has as yet been provided. We were informed that the Program Management Office has requested such training and instruction. We believe attempting to forecast a total program EAC for other than CLINs 1 through 5 (the basic fixed price Modification, Corrosion, and Paint Program) appears unachievable. CLINs other than 1-5 are for "over and above" work where sufficient forecast information on total program costs is unavailable.

Prudent program management should probably be securing CLIN 1 through 5 costs to date and then forecasting an EAC in the traditional manner utilized by private contractors when preparing Cost Performance Reports. EACs should be prepared on the remainder of the CLINs, by aircraft, as sufficient information becomes available to estimate the costs at completion of the related effort.

### CONCLUSIONS

On the basis of our review, we conclude that estimated and recorded costs on the F/A-18 MCAPP program at OALC are not reliable. In addition, there are also significant differences in regulatory requirements imposed on depots versus private industry. The major problems and differences include the following:

- Unreliable labor cost recording practices and internal control weaknesses.
- Questionable reliability of labor standard hours.
- All allocable production overhead on the F/A-18 was not estimated or being recorded.
- Significant start-up (non-recurring) costs on the F/A-18 were not addressed in the BAFO proposal.
- Inaccurate plant service cost allocations.
- Incomplete base support cost allocations.
- Health care costs of retirees not estimated or recorded (FASB 106).

- Difference in DoD 7720.9M versus the Cost Accounting Standards affect different cost allocations.
- Inadequate managerial cost monitoring and reporting.
- DCAA audit role limited to depot proposal evaluations only.
- Very limited Air Force Audit Agency involvement in depot accounting system oversight.

We conclude these basic issues resulted in an unfair competition between OALC and private industry. In addition, based on our review it is worthy to note that the competing public depots have different estimating and accounting systems, varying abilities to comply with regulatory standards, few internal controls disciplining their individual processes, little control of their future workloads and corporate cultures that focus on schedule and quality, not costs. Given the disparities, it is difficult to conclude that a competition in which fixed prices are projected several years into the future, will be able to discern the most efficient or productive depot. Until the basic processes and systems at the depots are improved, we do not believe public versus public competition provides reliable cost data to decision makers. Therefore, we believe that assignment of workload to depots should be based on criteria other than or in addition to price competition. If either public versus private or public versus public competition are to be conducted as a means of deciding the source for depot maintenance, pre-award estimating and post-award accounting for costs must be improved at the public depots along with the ability to manage compliance.

**COOPERS & LYBRAND  
PUBLIC/PRIVATE COMPETITION  
STUDY**

**PRESENTED BY  
MR. BILL MORRIS**

**THE COOPERS AND LYBRAND ACCOUNTING FIRM WAS TASKED BY OSD TO ASSESS THE PUBLIC/PRIVATE COMPETITION PROCESSES FOR THE FOLLOWING PROGRAMS.**

**\* THE C141 CENTER WING BOX PROGRAM  
(WARNER ROBBINS AIR FORCE BASE [WR AFB] VS THREE PRIVATE FIRMS, WR AFB WON).**

**\* THE F18 AIRCRAFT PROGRAM  
(COMPETITION BETWEEN OGDEN AIR FORCE BASE, NORTH ISLAND NAVAL DEPOT, AND TWO PRIVATE FIRMS, OGDEN WON).**

**FINDINGS: (C141 CENTER WING BOX PROGRAM)**

- INTEGRITY BETWEEN BUYER VS SELLER WAS MAINTAINED HOWEVER, THE COMPETITION WAS NOT FAIR.**
- PRE AWARD PROGRAM COSTS (E.G. DEFUEL AIRCRAFT, PREP FOR MAINT, ETC.) WERE NOT CHARGED TO THE CENTER WING BOX PROGRAM.**
- WARNER ROBBINS GAINED AN UNFAIR ADVANTAGE OVER THE PRIVATE COMPETITION BY CONDUCTING THREE PROTOTYPE REPAIR PROCESSES PRIOR TO SUBMITTING A BID.**
- THE AF FINANCIAL SYSTEM DOES NOT COMPLY WITH THE GENERALLY ACCEPTED COST ACCOUNTING PROCEDURES. WR AFB CHARGED CENTER WING BOX COSTS TO OTHER PROGRAMS.**

**FINDINGS: ( C141 PROGRAM CONT' )**

- THERE WERE NO INTERNAL CONTROLS BEING ENFORCED BY WR AFB.
- THERE WERE NO INDIRECT COST ALLOCATION TABLES USED.
- WR AFB USED 52% TEMPORARY HIRES TO EXECUTE THE CENTER WING BOX PROGRAM. THE EXCESSIVE USE OF TEMPORARY HIRES BEGS A QUESTION AS TO THE QUALITY OF THE WORK BEING PERFORMED.
- 2 MILLION IN COST OVER RUNS WERE CHARGED TO OTHER AF REPAIR PROGRAMS.
- CHARGES FOR INDIRECT LABOR WERE SPREAD OVER OTHER PROGRAMS.
- THE AF USES STANDARD COSTS RATHER THAN ACTUAL COSTS TO PERFORM REPAIRS.

**CONCLUSIONS: (C141 PROGRAM)**

- DESPITE THE FINDINGS, WR AFB WAS THE LOWEST BIDDER.
- COMMERCIAL FIRMS SHOULD NOT HAVE BEEN SUBJECTED TO THIS COMPETITION, THE PLAYING FIELD WAS NOT LEVEL.
- PRIVATE FIRMS WERE REQUIRED TO SUBMIT FIRM FIXED PRICE BIDS AND THE AF WAS ONLY REQUIRED TO SUBMIT A COST ESTIMATE.
- OTHER C141 PROGRAMS ARE POSSIBLY SUBSIDIZING THE CENTER WING BOX PROGRAM.
- ALTHOUGH WR AFB IS CHEAPER, SIGNIFICANT COST OVER RUNS ARE ANTICIPATED.

**FINDINGS: (F18 PROGRAM)**

- COST ACCOUNTING PROBLEMS DISCOVERED WERE SIMILAR TO THOSE DISCOVERED DURING THE C141 CENTER WING BOX PROGRAM.
- BOTH SERVICES (NAVY AND AF) HAVE INADEQUATE COST ACCOUNTING PROCEDURES.
- THE SERVICES HAVE NO INTERNAL CONTROLS.
- COST ACCOUNTING SYSTEMS DO NOT COMPLY WITH THE GENERALLY ACCEPTED COST ACCOUNTING PROCEDURES.
- START UP COSTS WERE GROSSLY UNDERSTATED.
- DIRECT LABOR COSTS WERE IMPROPERLY CHARGED AS INDIRECT LABOR COSTS.
- PRODUCTION OVERHEAD WAS UNDERCHARGED.

**CONCLUSIONS: (F18 PROGRAM)**

- GROSSLY UNDERSTATED COSTS, OGDEN WILL POSSIBLY INCUR \$5 MILLION IN COST OVER RUNS.
- OTHER AF PROGRAMS ARE POSSIBLY SUBSIDIZING THE F18 PROGRAM.
- NORTH ISLAND INTERNAL COST CONTROLS WERE INADEQUATE.
- NO COMPATIBILITY BETWEEN PUBLIC/PUBLIC (OGDEN AND NORTH ISLAND) OFFERS .

## OVERALL CONCLUSIONS

- \* THERE IS A DEFINITE LACK OF INTERNAL CONTROLS IN DEPOTS.
- \* COST ACCOUNTING STANDARDS ALONE WILL NOT SOLVE THE PROBLEM. THE STANDARDS ONLY PROVIDE THE "HOW TO" AND DO NOT GIVE DETAILS ON CONTROLLING THE SYSTEM.
- \* COPPERS AND LYBRAND WILL PROVIDE OSD A RECOMMENDED PROCESS ON HOW COMPETITION SHOULD BE CONDUCTED.
- \* TOBYHANNA AND ANNISTON ARMY DEPOTS WILL BE VISITED IN THE NEAR FUTURE BY COOPERS AND LYBRAND.
  
- \* \* THIS BRIEFING HAS BEEN GIVEN TO GEN SALOMON AND LTG PIGATY.

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# VIEWPOINT

The following commentary on the economics of military maintenance depots was coauthored by former U.S. Rep. Jim Courter (R.-N.J.), who chaired two terms of the U.S. Base Closure and Realignment Commission, and Loren

Thompson, who is executive director of the Washington-based Committee for the Common Defense. The committee is a nonprofit, nonpartisan defense research organization that Courter chairs.

**P**ublic-private competition has received increased attention because Congress has directed public-sector depots to compete with private companies for the right to perform a portion of military maintenance.

In theory, public-private competitions save money and promote efficiency by directing maintenance work to the most cost-effective provider. Because competition drives market economics, it seems to be a logical basis for rationalizing how depots do business. However, there are many things wrong with the concept.

Consider, for example, the problem of cost accounting. A September, 1993, report about maintenance competitions by the General Accounting Office asserted that "weakness in the military services' accounting systems and internal control procedures prevents them from developing reliable estimates of how much it actually costs them to do their work." Gen. Merrill A. McPeak, the retiring Air Force chief of staff, made the same point in the February issue of *Airman* when he wrote: "It would be nice if we knew what actual costs were, but our accounting systems often do not perform this simple and reasonable service." It is hard to see how a real competition can be conducted when public-sector bidders do not know what their costs are.

**EVEN IF THE COST ESTIMATES** for depots were reliable, they still would neglect costs that public-private competitions incur outside the depot system. Many companies are relying on maintenance and modification work to sustain their design and production capability during the present "procurement holiday." If critical design and production capabilities are lost because companies are unable to win public-private competitions, then the government one day may need to spend a great deal of money to reconstitute them. These costs tend to be ignored because they are incurred in the future rather than in the present and in the acquisition community rather than in the maintenance community. But somebody will need to pay them.

Another facet of the cost problem is that public-private competitions impede the ability of the Defense Dept. to reduce fixed infrastructure costs. Current plans call for

using money saved by closing bases to pay for increased procurement, in the late 1990s. To maximize these savings, the department proposes to reduce its organizational maintenance capacity to the minimum assets and skills needed to support readiness and sustainment, which it calls "core" capabilities. But public-private competitions force the military services to retain an additional increment of non-core capability with which to compete, and thus increase fixed costs.

A more fundamental issue concerns the meaning of the word "competition." Conventional market economics teaches that competition is good because it produces the fairest, most efficient distribution of goods and services. This belief is based on the assumption that competition results from the free interplay of forces of supply and demand. When buyers and sellers are free to seek the best value, the market mechanism automatically provides optimum outcomes.

**HOWEVER, MILITARY MAINTENANCE DEPOTS** are not products of market forces. In the absence of nonmarket influences, they would not exist at all. Unlike private companies, they do not need to compete in capital markets, and the loss of business seldom presents an immediate threat to survival. In traditional economic terms, this means depots are distortions of the market that potentially prevent its mechanism from functioning effectively.

The absurdity of such competitions is underscored by the manner in which proponents propose to conduct them. The military services insist that core maintenance capabilities must remain in the public sector, and Congress has arbitrarily decreed that such capabilities shall constitute 60% of maintenance workload, with public-private competitions limited to the remaining 40% of (non-core) work. In effect, public depots would operate as protected monopolies for 60% of the maintenance workload, and then compete with private companies for much of what remains. The companies would have no assured business base and no subsidies for their facilities to match those of the depots.

Public-private competitions are not only unfair, but are unequal. ■

## 'DEPOT COMPETITIONS DO NOT WORK'

# Biggest Base Cuts Coming

## New Chair Faces 'Tough' Round

By Neff Hudson  
Federal Times Staff Writer

The man tapped to lead the base closure commission says earlier shutdown decisions seemed subjective and the Defense Department drawdown might already have cut too deeply.

But former Illinois Sen. Alan Dixon pledged to do his best to make the fourth and possibly final round of closings the fairest and most public process yet.

"It's going to be a tough round," said Dixon, who served in the Senate for 12 years. "The thing has been scrubbed three times.

"What you have left are pretty good players, and we have another round to go."

Dixon's nomination to head the Base Closure and

Realignment Commission was approved Oct. 5 by the Senate Armed Services Committee. The full Senate now must confirm him.

Dixon said his feelings about past closings and the drawdown will not affect the work of the base closure commission.

Setting overall defense policy is not the commission's job, he said.

What the commission does have to do is keep open the right number and type of bases to support the future force, said Dixon.

More than 50,000 Defense Department civilian jobs could be lost in the next round of closings beginning in January.

In the first three rounds, more than 70 major bases in the United States have been shut down and 38 others realigned.

The 1995 round is expected to be the largest of all.

The Air Logistics Center at Kelly AFB, Texas, and Ogden Air Logistics Center at Hill AFB, Utah, are



File Photo

Former Sen. Alan Dixon has promised to make this round of base closures the fairest yet.

among bases rumored to be likely targets in 1995.

Also expected to appear on the list are at least one Navy shipyard, two Army division headquarters, half the military's research and development laboratories and some Army ammunition storage depots and Defense Logistics Agency distribution depots.

One by one, lawmakers told Dixon their concerns about the 1995 round of base closures.

- Sen. Carl Levin, D-Mich., noted his state lost three Air Force bases and 22 percent of its personnel in previous closures.

- Sen. Bob Graham, D-Fla., pointed out that MacDill AFB in Tampa, Fla., which narrowly avoided closure in 1991 and 1993, is home to two joint commands.

- Sen. Robert Smith, R-N.H., criticized the criteria used by the Navy in assessing the relative value of facilities such as the Portsmouth, N.H., Naval Shipyard, which has a long wait for housing but no shortage of nuclear submarine expertise.

According to lawmakers, Dixon is uniquely qualified to ensure the base closing process — though painful — will be equitable and thorough.

As a former chairman of the Armed Services subcommittee on readiness, sustainability and support, Dixon helped write the legislation that created the first commission in 1991.

Dixon also has felt the sting of losing a base in his home state.

His 1992 primary loss to Sen. Carole Moseley-Braun, D-Ill., was due in part to the closure of two major bases in Illinois.

After he returned to private practice as an attorney, Dixon worked as a consultant to organizations fighting to save military facilities in Illinois.

As recently as Sept. 30, he represented three clients involved in post-closure development.

### No Conflict

Although no one suggested that his nomination to head the commission was a conflict of interest, Dixon told all three clients he no longer could represent them.

"I think I know a conflict when I see one," said Dixon, pledging to resign if necessary to protect the commission's integrity if he would personally benefit from its decisions.

Former commission chief James Courter recently decided not to become a paid consultant shepherding bases in the San Antonio, Texas, area through the 1995 round of closures.

Observers suggested the job would have violated the federal ethics code which prohibits commissioners from lobbying the base closure panel on behalf of a third party.



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# Document Separator

The new team must confront a force drawdown, diminishing budgets, micromanagement, and an "extremely antagonistic acquisition environment."

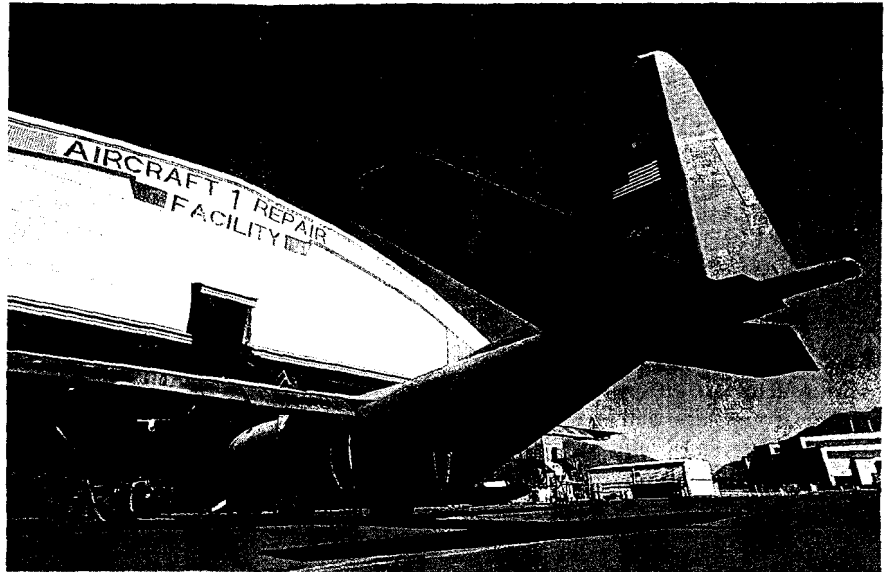
# Materiel Command Faces Uncertainty

By James W. Canan, Senior Editor

**T**HE AIR FORCE is fast becoming a US-based expeditionary force heavily reliant on three new major commands—Air Combat Command and Air Mobility Command for combat operations and Air Force Materiel Command for the weapons and logistics that make them possible.

AFMC's importance to USAF is beyond question. For example, roughly two-thirds of all Air Force personnel in Operation Desert Storm were logisticians. The loggies supported the flying squadrons in fine style. Warplanes and other equipment held up remarkably well under tough conditions. Their high reliability and maintainability were a tribute to the acquisition and logistics worlds, since combined in AFMC.

There was a down side, however, to the disproportionately high number of Air Force logisticians in the Persian Gulf War. USAF obviously had a long way to go in becoming the lean, rapid-reaction force of its best-laid plans. Squadrons deployed to the theater of operations had to take along a lot of logistical baggage, even though an extensive support infrastructure awaited them in Saudi Arabia. They will not find the likes of it anywhere else the next time around.



Photos by Ross Harrison Kory

*Concern for AFMC's five Air Logistics Centers (ALCs) runs high, though they received an eleventh-hour reprieve from the Base Realignment and Closure Commission this year. Above, a C-130 prepares for maintenance at Ogden ALC at Hill AFB, Utah. Opposite, an aircraft small-parts repair mechanic at Ogden guides C-5 landing gear wheels from stripping tanks to prepare them for plastic blasting.*



**Though its importance to the Air Force is beyond question, Materiel Command has vulnerable points. Its laboratories and depots, like San Antonio ALC, Kelly AFB, Tex., where this C-5 is undergoing maintenance, may be slated to close.**

This is why the Air Force is switching to two-level maintenance of engines and avionics on flight lines and in depots, doing away with many base intermediate-level (I-level) avionics and engine shops that greatly lengthen the logistics tails of the flying squadrons.

"Two-level maintenance is the most important task in AFMC today," declared AFMC's commander, Gen. Ronald W. Yates, at a recent gathering of the command's top officers.

AFMC's contributions to the Air Force in this and other endeavors are rock-solid, yet the command faces a number of uncertainties.

AFMC came into being on July 1, 1992, as an amalgam of Air Force Systems Command and Air Force Logistics Command, with headquarters at Wright-Patterson AFB, Ohio. The merger was meant to integrate and streamline the vast, complex Air Force acquisition and logistics arenas more fully than would otherwise have been possible.

So far, so good. In a recent interview, General Yates cited "many dramatic improvements to the acquisition and logistics processes" since AFMC was formed, notably the introduction of Integrated Weapon System Management (IWSM) and two-level maintenance.

#### **Vulnerable in Vital Spots**

AFMC looks vulnerable in vital spots, however. At issue are its labora-

tories, which are seedbeds of acquisition, and depots, the hubs of logistics. Should some depots and laboratories be closed or consolidated? Should defense contractors do more of the work now done in the depots and labs? Such questions nag Congress, the Defense Department, and the Air Force itself.

General Yates claimed that "today's extremely antagonistic acquisition environment" is the root cause of AFMC's difficulties. "It is marked," he said, "by unimaginable micro-management, both from OSD [the Office of the Secretary of Defense] and Capitol Hill." This, he said, is the natural result of "more budget instability than we've ever seen before" at a time of "deep defense drawdown and change in national priorities."

The acquisition environment gives rise to scapegoating, the AFMC commander claimed, as in the Defense Department's punishment of Air Force officers for alleged wrongdoing in the C-17 program. Without referring to that case in particular, General Yates declared, "There is a very unhealthy overlay of accusations in the environment, some of which seem to be free-flowing, and none of which has been proven to have any merit whatsoever."

He acknowledged that "much of this goes with the territory. We spend a lot of the taxpayers' money. They and their elected representatives have every right to oversee and criticize what we do. It's up to us to deal with that."

General Yates said it is "not possible" for AFMC to escape criticism, no matter how well it performs, "but it is possible for the command to do a lot better. We cannot hope to be good enough, but we have to keep trying—to ameliorate the impact of the negative environment. We are doing that. We are paying tremendous attention, and devoting tremendous effort, to continuously improving and to making the command extremely effective.

"There will be less carping—not zero, but less—when we show that we can consistently deliver the goods, that we can do what we say we'll do, and for the money we say we'll do it for."

General Yates sees AFMC's situation as straightforward enough: "If our test facilities, laboratories, product centers, and logistics centers are the best in DoD, they should prosper. If they are not, they will be endangered."

#### **Dodging Bullets**



AFMC's depots—its Air Logistics Centers (ALCs)—dodged a bullet this year. The Base Realignment and Closure (BRAC) Commission initially targeted all five ALCs but decided at the eleventh hour to leave them alone for the time being. The commission noted, recalled General Yates with satisfaction, that the ALCs are "national assets."

They may not fare so well the next time around. The BRAC Commission is scheduled to strike again in 1995. "Our bases, including the logistics centers, will once again be under careful scrutiny" and will have to prove themselves all over again, said General Yates. They will have to show, he said, that they can "compete successfully" with defense industry maintenance facilities and with depots of the other services for the billions of dollars of maintenance projects that the Defense Department annually makes available.

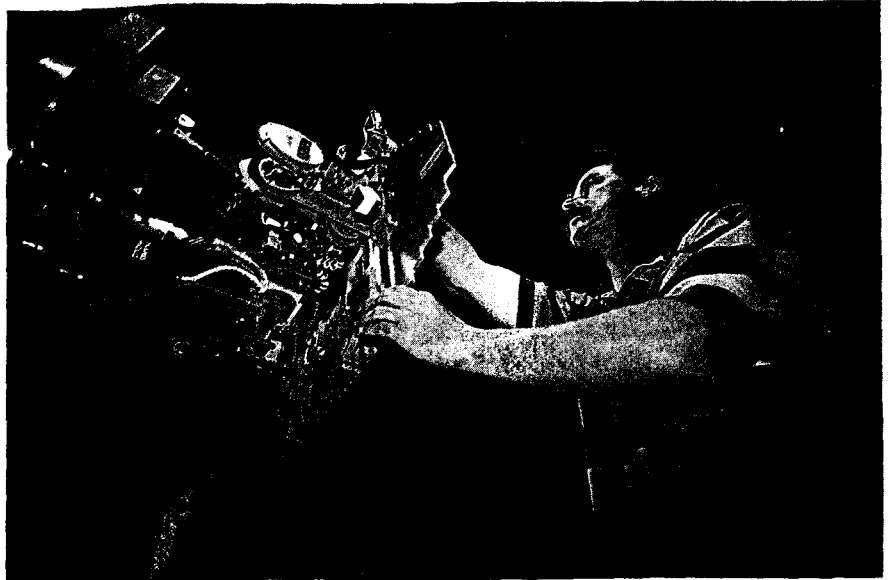
The commander of AFMC believes that the Air Force should permit the defense industry to compete for its annual \$4 billion maintenance projects but should also make sure that the depots get their fair share of the work. Industry wants wide-open competition, even if this results in little or no work for the service depots. This laissez-faire position appears to have high-level Air Force backing, as expressed by Gen. Michael P. C. Carns, Air Force Vice Chief of Staff.

The debate goes on. General Yates has been accused in some circles of proposing to "nationalize" maintenance projects. He said he has made available to industry \$800 million worth of maintenance work that industry "never had the opportunity to compete for before." This is "just the opposite of nationalization," he asserted.

The last thing AFMC's depots should do is compete with one another for maintenance projects, said General Yates. He noted that such internecine competition, once commonplace, is deadly evidence of duplication—"depots wouldn't be in position to bid for the same jobs if they didn't have duplicative facilities." This is also the case with AFMC's test centers, he said.

Concern for the ALCs runs high in AFMC. "The depots do a tremendous job," said Brig. Gen. Ronald T. Kadish, the former F-16 system program director and currently the C-17 program director. "If they go, we'll be worse off than we were before [AFMC was formed]."

Duplication is a danger for AFMC's laboratories, too. Brig. Gen. Richard R. Paul, AFMC's director of science and technology, acknowledged that "the laboratories need to operate more efficiently—not just in each lab itself, but in the labs as a community." He noted, for example, that AFMC does its best to distinguish between—and avoid duplication in—electronics research at Aeronautical Systems Center's Wright Laboratory and Electronic



Photos by Russ Harrison Koly

**ALCs must continue to prove themselves, says AFMC's commander, Gen. Ronald W. Yates. Clyde Myers, a technician at Ogden ALC, examines an F-16C/D radar antenna, preparing it for testing.**

Systems Center's Rome Laboratory. Today, that research is jointly planned and highly complementary, he claimed.

There is considerable sentiment in the upper reaches of the Defense Department for consolidating laboratories within and across the services and for giving private-sector labs a much bigger say in the management of defense research and technology programs.

In the name of efficiency, the services jointly plan many technology projects and team up on some research

that they have in common. They assign such research to the labs—of whichever service—best equipped to carry it out. For example, the Army and the Navy have agreed to do in-house research on fuels and lubricants at a modern Wright Laboratory facility built for just such research. Likewise, the Air Force has transferred some research to Army and Navy labs. DoD's Defense Nuclear Agency, Advanced Research Projects Agency, and Ballistic Missile Defense Organization are now joining in.

The cooperative research enterprise, called Project Reliance, is "clearly the right thing to do, with resources scarce," General Paul declared. He cautioned, though, against carrying it too far, with wholesale consolidation of the service labs under the Defense Department. His "biggest concern," he said, "is preserving the integrity of our [Air Force] labs while working aggressively with the others to improve efficiency throughout. . . . The service labs have a special role, and if they go, the country will lose something very valuable."

AFMC includes four "superlaboratories" in its vast domain, which enfold fourteen air bases. AFMC assets also include five depots, four product centers, three test centers, and several other specialized centers, and it manages ninety-seven percent of all US foreign military sales. AFMC's operations—pegged to the development, production, and worldwide support



**Using a large internal grinder at Ogden ALC, landing gear machinist Dean Tippetts grinds the upper bore of a C-141's main outer cylinder. AFMC operations support all Air Force weapon systems and consume half of USAF's budget.**



*The ten major aircraft programs under Integrated Weapon System Management include the F-16. Above, SSgt. Keith Wolters tests an F-16 head-up display component at Ogden ALC, while co-workers perform F-16 maintenance, below.*

of all Air Force systems—consume half the total Air Force budget.

#### **IWSM Is the Cornerstone**

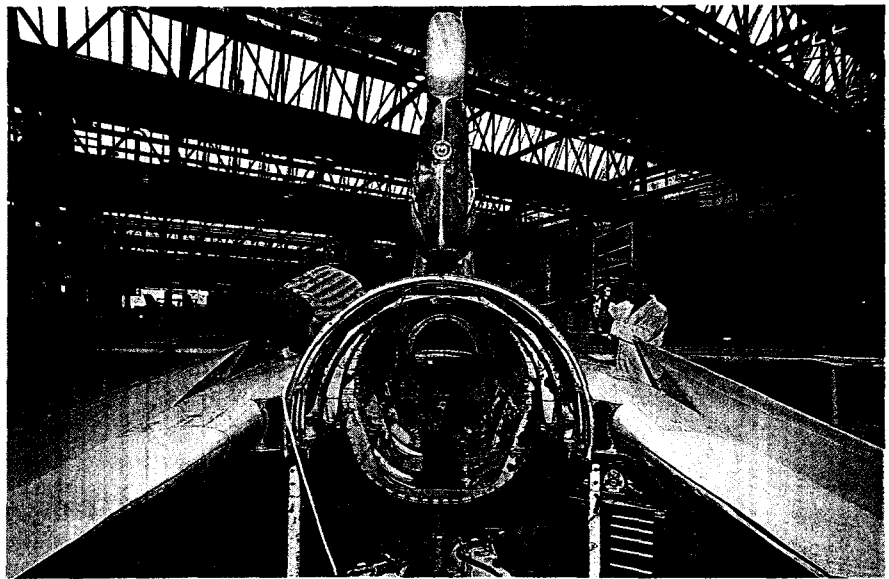
General Yates calls IWSM “the cornerstone” of his command. It covers the life cycle of each weapon, from the technology stage to operational service.

Prior to their merger, Air Force Systems Command and Air Force Logistics Command tried IWSM in a few select programs, with mixed results. Cross-command leadership focus was lacking. Now it is there.

Each IWSM program is run by one boss—the system program director (SPD)—who directs all phases of system development, production, and operational support and all dealings with contractors, user commands, and Program Executive Officers at the Pentagon. PEOs oversee all major Air Force programs on behalf of the Assistant Secretary of the Air Force for Acquisition. The Air Force transferred top-level acquisition authority from AFSC to the newly established PEOs three years ago.

AFSC retained—and AFMC inherited—responsibility for systems development and production, plus control of the science and technology programs constituting USAF’s highly important technology base.

AFMC entered its second year with twenty-one programs under IWSM, including nine major aircraft programs: F-22, F-15, F-111, F-117, F-16,



B-1, B-2, E-3 Airborne Warning and Control System, and E-8 Joint Surveillance and Target Attack Radar System. Of these, the F-16 program is a prime example of how IWSM spans the acquisition-logistics spectrum.

Said General Kadish, “The F-16 program covers every phase of acquisition and logistics. It has one foot in advanced technology and the other foot in the grave.”

General Dynamics and, lately, Lockheed have produced more than 4,000 F-16s for the Air Force and many other customers around the world. F-16 engines have evolved through six configurations since production of the

fighter began in the late 1970s. The Air Force F-16 line is scheduled to shut down in 1995 unless Congress keeps it open, but production will keep going for such nations as Greece, Turkey, Taiwan, and perhaps Israel and Pakistan until at least the turn of the century. Several hundred more F-16s are in store, with extensive upgrading scheduled for those now flown by the air forces of Belgium, Denmark, Norway, and the Netherlands.

F-16C fighters and two-seat F-16D trainers began coming off the Fort Worth, Tex., production line in mid-1984, supplanting F-16A/B models transferred to Air Force Reserve and Air National Guard squadrons. The F-16C/Ds were wired from the beginning for both the LANTIRN (Low-Altitude Navigation and Targeting Infrared for Night) system and the Advanced Medium-Range Air-to-Air

Missile (AMRAAM) system, neither of which was ready for production. In the beginning, the Air Force earmarked a future production block of F-16Cs—Block 40—to receive LANTIRN, which it has. Block 50 F-16s—those now in production—were designated as the first to receive AMRAAM and the new Pratt & Whitney Increased Performance Engine.

Now AFMC and Lockheed are preparing to equip all 229 Block 50 F-16Cs—those in operational service and those yet to be produced—with a Texas Instruments modular mission computer, a central processing unit that integrates fire control, naviga-

tion, and stores management avionics. Ogden ALC at Hill AFB, Utah, "is working up what's involved in the retrofit and how we should go about doing it," General Kadish explained. The computer was developed under the auspices of AFMC's Electronic Systems Center at Hanscom AFB, Mass.

Once all the upgrading is done, "those 229 Block 50 F-16s will be the most capable ever," General Kadish claimed. They will also incorporate—in production or via retrofitting—Global Positioning System satellite-navigation terminals. AFMC's Space and Missile Systems Center at Los Angeles AFB, Calif., runs that program.

"All four [AFMC] product centers and all five Air Logistics Centers are involved in the F-16 program," said General Kadish. "They are cooperating very effectively," to a degree that "would not have been possible" under the old two-command setup.

General Kadish should know. He was the F-15E program manager at Air Force Systems Command's Aeronautical Systems Division (now Aeronautical Systems Center) when the two commands first tried out IWSM for that program in 1991, prior to their consolidation. The F-15E IWSM program director was a loggie brigadier general from AFLC and not, as might have been expected, an acquisition officer from AFSC.

The logisticians have their say in the combined command. Former AFLC

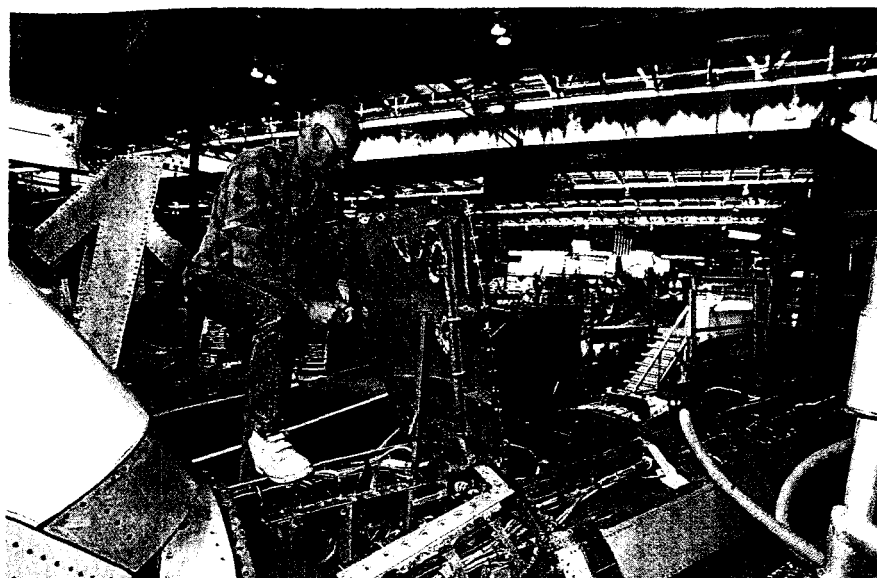


Photo by Ross Harrison Koby

*At Ogden ALC, aircraft electrician Lowell Stevens replaces panel fasteners on an F-4's electronics compartment. Careful maintenance is one reason for the long service life of these aircraft.*

officers run several programs and are heavily represented among product group managers and materiel group managers directly accountable to the SPDs. Product group managers are responsible for all the engine acquisition and support activity in a given aircraft program, for example, while materiel group managers have charge of such things as landing gear, wheels, and struts.

"The command merger made IWSM legitimate," General Kadish said. "As a veteran of the IWSM wars, I can tell you that we could not have established

IWSM easily under two separate commands. We wouldn't be talking to each other nearly as well as we do now."

The jury is still out on IWSM. "We won't know for another year how well it really works," one official said.

### Shaping Up

The making of the new command has been anything but smooth and painless. Many AFSC and AFLC employees in and out of uniform resisted the consolidation of their commands, seeing it as a threat to their jobs. Turf battles still rage here and there, from the clerk level to that of program directors. There seems to be general agreement, though, that things are rounding into shape.

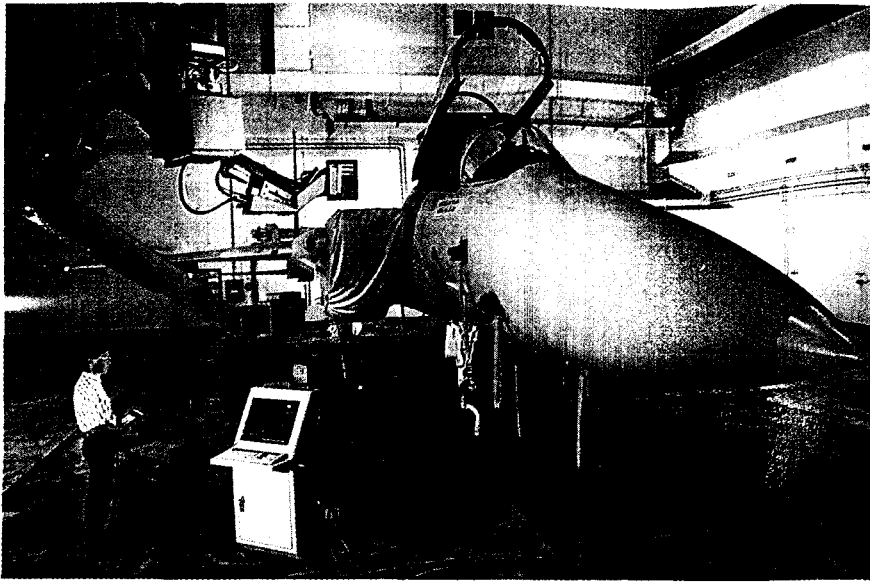
Maj. Gen. Roy D. Bridges, Jr., AFMC's director of Requirements, claimed that "reduction of complexity is a big, early payoff" from the merger of the commands and the introduction of IWSM. The combined command began with "800 programs in little pieces throughout the product centers and logistics centers," set out to integrate them under single managers, and succeeded in cutting the number to ninety-eight by late summer.

All those programs will have come under IWSM by next March, if everything goes as planned. Newer programs are more readily adaptable to IWSM than are old ones, which carry forward considerable momentum from earlier phases and previous organizational alignments.



USAF photo by Ken Hackman

*Chemists at Oklahoma City ALC at Tinker AFB, Okla., research new compounds with which to clean and plate engine parts. This ALC furnishes logistics support for bombers, jet engines, instruments, and electronics.*



**A robotic arm inspects an F-15 (one of the major aircraft programs under IWSM) at Sacramento ALC, McClellan AFB, Calif., scanning the aircraft to detect early signs of cracks and corrosion.**

"We're only about a fourth of the way there on IWSM," General Yates declared. "We're still in the stage of discovering the dramatic improvements that can be made."

The same goes for AFMC's move to two-level maintenance, which the AFMC commander called "more important than ever—overwhelmingly important" to an Air Force intent on exercising global reach and global power. "It will dramatically reduce our deployment footprint, and it will cut costs because there will be less equipment in the pipeline," he asserted.

"Desert Storm was a dramatic lesson to us," the AFMC commander continued. "We didn't have two-level maintenance then, and we had to carry a huge support tail to war. We saw what an enormous burden it was. We concluded that we can't afford to do it this way the next time. Logisticians and their equipment have to be airlifted. They have to be housed. Each one is a potential casualty. We have to cut their numbers way down."

Two-level maintenance dispenses with intermediate-level repair shops and the base maintenance squadrons that operate them. This makes it much easier for combat wings and squadrons to deploy on short notice, travel light, and be self-sufficient—ready to fight—on or soon after arrival. This is why two-level maintenance is seen as a must for Air Combat Command's composite 366th Wing, a quick-reaction "air-intervention" wing, at Mountain Home

AFB, Idaho. The 366th contains many different types of combat and support aircraft with widely varied logistical requirements. Fortunately, all of its varied fighters share common, or nearly common, engines and avionics.

AFMC's two-level maintenance project now focuses on engines and avionics. Base I-level specialty shops, such as those for welding and sheet metal work, will remain in place for the time being. Modern engines and avionics are naturals for two-level maintenance because they are modular, built around line replaceable units (LRUs), or modules, that technicians and mechanics can readily remove and replace.

The former AFLC made the first move toward two-level avionics maintenance in 1991 with its Coronet Deuce program for F-16s at Hill AFB, Utah. That program proved highly successful. AFMC has expanded it to encompass 460 F-16s and sixty A-10s at bases in the United States and in the European and Pacific theaters.

Results thus far promise "tremendous savings for our operating forces," said General Yates. AFMC claims that two-level maintenance has reduced F-16 avionics support equipment by more than seventy percent, from 137 tons to thirty-seven tons at a given base. Turnaround time for F-16 LRUs in the maintenance pipeline has been cut from forty-seven days to nine days on the average.

AFMC set up a second two-level avionics maintenance program at Tinker

AFB, Okla., home of Oklahoma City ALC. In it, about 400 LRUs from B-1 and B-52 bombers, KC-135 tankers, and E-3 AWACS planes are repaired each month. Tinker AFB is also the site of a prototype two-level maintenance program for C-141 and B-52H engines. F-15E and F-16 engines are now being repaired in a two-level maintenance test program at Kelly AFB, Tex., home of San Antonio ALC.

### Strong Resistance

The Air Force's switch to two-level maintenance met with strong resistance in the loggie world. Its service-wide implementation will eliminate thousands of maintenance, supply, and transportation jobs.

Some skeptics claim that operational squadrons will never really have confidence in a maintenance setup that lacks I-level engine and avionics shops to keep their planes in fighting trim.

The evidence thus far is to the contrary, AFMC officials claim. "ACC and AMC commanders are very supportive," said Thomas Miner, AFMC's deputy director of Logistics. "Their mobility load is tremendous, and they see two-level maintenance as a great advantage. They can concentrate on their warfighting mission, and they don't have to worry about a huge logistics tail following them around."

Mr. Miner claimed that the command has come along fast and is "almost there" with two-level avionics maintenance.

SPDs hold sway over two-level maintenance programs as well as IWSM for their particular systems. General Bridges noted that the SPDs are in position to "refocus the design" of systems to make them more reliable and also to "refocus money—when they see that parts [for their systems] are not as reliable as they should be—to support our [two-level] maintenance concept."

AFMC officials note that the built-in reliability and maintainability of today's digital avionics and heat-resistant high-performance engines make it possible to dispense with I-level maintenance. They also stress the importance of test equipment to the success of two-level maintenance. Avionics and engine testers must find and diagnose problems well enough to show flight line mechanics which LRUs and engine modules can be fixed on the spot and which should be sent back to depots. ■



# Document Separator

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**October 3, 1994**

**Subject: Memorandum for the Record**

**Conference Report**  
**Commercial Vs. MilSpecs**  
**Sep 29-30, 1994**  
**Washington, DC**

**Introduction**

This report summarizes a two-day conference (sponsored by Defense Week) held in Washington, DC, to discuss Secretary of Defense Perry's 29 June 1994 memorandum which calls for the removal of many of the 31,000 military-specific standards and specifications that control the acquisition of weapons and material for the military services. Attending the conference were over 300 representatives from the government and private industry. This report was compiled from a multitude of reference materials handed out by conference attendees, briefing slides presented by guest speakers, and other data available from both government and industry. It is for informational purposes only, and represents an effort to synthesize the important points of the conference.

**Executive Summary**

In many respects the conference was split into two camps. Many of those representing the government have serious questions about the wisdom of eliminating milspecs and standards ("culture change" issue?). Many industry representatives, on the other hand, applauded the action, yet at the same time question what will be used when there is no equivalent non-government standard. Both camps were unanimous in the opinion that although the onerous so-called "500-pound gorilla" has been lifted from our backs, we're not certain where to go next. DoD believes it's done its part through issuance of the mandate. Congress believes it's done its part in passing (or about to pass) the required legislation. The services are jumping headfirst into the issue, in some cases with little or no guidance from DoD, to determine how to implement it. The remainder of the folks (Pm's, industry, and others in the "trenches") must determine how to make it work. It won't happen overnight and it won't be easy. There is no one "cure-all" or panacea. It will be a trial and error scenario.

## **Discussion**

### **The Process Action Team**

The DoD Process Action Team which produced the report which ultimately triggered Dr Perry's memorandum had as its objective the following:

- Ensure milspecs/standards don't pose barriers to use of commercial products
- Ensure requirements stated in terms of performance, not detailed design
- Eliminate obsolete specifications and standards
- Promote use of non-government standards and commercial item descriptions
- ensure correct application of specifications and standards

### **A New Environment--The Impetus for Change**

DoD faces a significantly new environment today--different from any that it has faced since DoD was created in 1947. This environment is characterized by:

- radically changed threat situation--not one, but many, potential adversaries;
- declining defense budgets--DoD can't "carry" defense-unique industrial base;
- DoD is no longer driving technology innovation in areas fundamental to warfighting; can no longer dictate terms and conditions to contractors
- DoD must change what it needs to acquire, how it acquires, and terms and conditions under which it acquires
- In past, DoD focused on nuclear systems--today, focus is on conventional
- In past, DoD programs technology driven--today it's "affordability driven"
- In past, focus was on single-service systems--today it's jointness that counts
- In past, DoD focused on military-unique technologies--today, it's dual-use

### **Need for National Industrial Base**

DoD must assure continued military superiority while at same time foster a strong globally competitive national industrial base. This can only be done by developing an acquisition system that:

- is flexible, agile, and pushes decision-making to lowest levels and by using integrated product and process development as a management system;
- allows purchase of commercial and other state-of-the-art products;
- removes disincentives for commercial vendors to sell to the government;
- results in reduced acquisition costs through adoption of business processes that have been proven in the private sectors

The concept of a "national industrial base" is fundamental to DoD's plans. DoD sees a number of actions it must take, and one of the most important is to convert overly prescriptive military specifications and standards into performance specifications, non-government standards, and commercial item descriptions. If, however, performance specifications are not appropriate, non-government standards should be used. Only when performance specifications or non-

government standards are not cost-effective or do not meet the user's needs should performance-based specifications and standards be used.

### **Use of Milspecs not "Abolished"**

A myth continues to persist that the Perry memo "abolished" the use of military specifications and standards. DoD representatives emphasized repeatedly that this is not the case. Milspecs have (and will continue to have) a place in the DoD acquisition business. They will be used, for instance, when DoD leads industry in setting a particular standard. They will still be used when they are absolutely essential to ensure that the military has interoperability or where other means of ensuring interoperability cannot be used.

### **Problems Anticipated**

The Perry memo has been seen by some as "turning the present system upside down." When a system is "turned upside down" there will be problems and DoD anticipates this to be the case. It has identified four types of problems that are likely to occur:

- the use of performance specifications and non-government standards will increase the risk for programs and for industry. We've become comfortable with milspecs--we know they work, and the superiority of our systems demonstrates that. The question on everyone's mind is, "will the use of performance specifications and NGS produce the same superior weapons."
- industry feels a risk. Many companies doing business with DoD are milspec oriented. Milspec reform will require change on their part, while at the same time cause them to compete more widely.
- There will be failures--but DoD's committed for "long haul."
- Must be prepared to invest upfront--communication systems, training, etc.

DoD believes it's proposal will succeed where previous efforts have failed because there has been a measure of "buy-in" from those within the system. This was not the case in previous efforts, all of which were driven from the top down.

### **DoD Implementing Guidance and other Actions**

Dr Perry approved the PAT's recommendations on 29 June 1994. He has directed funding for implementation and designated standards improvement executives for DoD and the departments. Major efforts will begin in 1995, with detailed standards improvement plans due from each of the services by 30 November 1994. A revision to Mil Std 970, "Order of Preference in Selection of Specifications and Standards," is currently in coordination. An interim guide on the development of performance specifications has been sent to print, and

copies will be made available within 30 days. Specific policy issuance and recommended changes will be completed by the end of December 1994.

### **Standards--How Many are There?**

In the U.S. there are over 94,000 standards. A rough breakdown follows:

- **Private sector** (41,500)
  - Scientific and professional-----13,000
  - Trade associations-----14,500
  - Standards developing organizations--14,000
- **Federal government** (52,500) (plus 5,000 adopted in private sector)
  - DoD-----38,000
  - GSA-----6,000
  - 75 other Federal agencies-----8,500

A recent study attempted to identify non-government standards as substitutes for milspecs. It reviewed 3,500 milspecs and narrowed the list to 764 "high-probability" candidates. Of the 764, only 65 were considered as having potential as suitable substitutes. The study also determined that most of the existing non-governmental standards have already been adopted by DoD; and that many non-government standards organizations are reluctant to prepare product standards.

### **Views from the Private Sector**

Within the private sector, there were mixed feelings. Some in industry see the Perry memorandum as a unilateral withdrawal from a 50-year old partnership. They believe that abandoning existing, widely-used milspecs and standards threatens safety and reliability and will add unanticipated costs, particularly high reformatting and "start-up" costs. Additionally, they will be forced to purchase standards which were formerly free. There is little incentive for direct conversion since it is estimated that 30-40 percent of existing milspecs and standards do not reflect current technology and practices.

### **The "Worst" Milspecs**

Ten specific milspecs have been identified as those that have, by far, the most cost impact on doing business with the government. They are:

- |                |  |
|----------------|--|
| • DoD STD 100  | Engineering Drawing Practices          |
| • MIL Q 9858   | Quality Program Requirements           |
| • MIL STD 1520 | Corrective Action & Disposition System |
| • MIL STD 1521 | Technical Reviews and Audits           |
| • MIL STD 2000 | Soldered Assembly Requirements         |
| • MIL STD 454  | Electronic Equipment Specification     |

- MIL STD 480 Configuration Control
- MIL STD 499 Engineering Management
- MIL STD 965 Parts Control
- MIL STD 973 Configuration Management

DoD has challenged industry to help in implementing its recommendations. But, as discussed above, industry has multiple additional problems. To continue the discussion:

- Contractors are encouraged to recommend non-military specs and standards; which ones? ISO 9000 quality standards have been touted, but significant costs would be incurred to implement use.
- Performance and mission requirements of some defense systems exceed those of commercial systems. There are no equivalent commercial specs for these types of systems. Although the Perry memo says milspecs can prevail in these scenarios, industry is at the same time encouraged to develop appropriate NGS.
- USD A&T has set a deadline of 1 July 1996 to deactivate or modify the top 10 offending milspecs and standards. If industry doesn't get onboard quickly, it will be forced to live with whatever DoD comes up with working in a vacuum
- Perry memo says government will handle configuration control of only "functional and performance requirements." Industry will be responsible for maintaining configuration control of products and process documentation. Industry is unclear whether common commercial practices will be adequate to handle this requirement.

### **How Standards are Typically Used in Aerospace Sector**

In a survey of aerospace manufacturers, it was found that the typical manufacturer might use 5,000 standards in production work. Of this total, 45 percent (or 2,250) were company internal standards, 30 percent (or 1,500) were industry standards, and the remaining 25 percent (or 1,250) were military specifications and standards. Of the total standards, over 77 percent focused on definition of products, processes, and interfaces; 21 percent invoked general requirements, and 2 percent were used for reference data. If we take this a step further and look at how standards are applied in the production of a tactical fighter versus a wide-body airliner, we come up with the following comparison:

<b>Standards</b>	<b>Tactical Fighter</b>	<b>WB Airliner</b>
DoD	1,100	419
ANS (A. Nat'l Std)	200	122
SAE (Soc. Auto Engr)	50	86
ASTM (Soc Test/Mat)	10	120
Non-standards	600	956
Miscellaneous	-----	376
Total	1,960	2,079

### **Waivers to the Use of Milspecs--How the Army Will Work the Problem**

One waiver granted per solicitation. Each military specification or standard in a solicitation must be justified. Criteria for approval of waivers include (1) mission impacts making a commercial alternative unacceptable; (2) cost impact making commercial alternative unacceptable; (3) military specification or standard is truly military unique.

### **How Quickly Will Change Occur?**

A legal representative from one of the major OEMs commented that culture change will be one of the biggest hurdles to overcome. He cited the fact that despite the PAT's early completion of its work, DoD is already 30 days behind schedule in meeting its first milestone, which was changes to the DFARs. He added that despite the authority in the Perry memo for changes to be implemented immediately, at least one service has received solicitations which have outdated military specifications contained therein.

### **Re-Cap**

Calls for acquisition reform have been made for decades. It finally has happened. Yet there remains much to be determined, particularly the process for determining which performance specifications, commercial item descriptions, and NGS can be substituted for military specifications. At least one participant at the conference has suggested a special "center" or "clearing house" to help define the problem from both sides of industry and government, and to collaboratively develop action plans. This would include a detailed definition of the magnitude and scope of the problems and those yet to be determined. Ideally, it would lead to a real understanding by all parties of the total scope and magnitude of the technical and non-technical problems associated with acquisition reform which would help industry (and the government) to frame an effective approach.

**Administrative Note**

A listing of conference attendees, as well as the agenda, will be retained by the undersigned.

Roger P. Houck



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**Summary of House Armed Services Committee  
Proposed Legislation H.R. 4301--Impact on Depots**

**- Significant findings**

- **Defense industry consolidations, mergers, downsizing, etc., has jeopardized industry's ability to perform critical weapon system maintenance and repair**  
(COMMENT: *On what basis has this determination been made?*)
- **Defense industry *already* maintains not less than 60% of depot-level repair work.**  
(COMMENT: *This reverses the traditional 65-35 split; determined by adding in the materials, parts, interim support, etc., that industry does*)
- **Capabilities and activities of military depots will not be determined by industry.**  
(COMMENT: *Throwing arrows at the DSB study?*)
- **80% of total DoD civilian reductions will come from depot-level activities.**  
(COMMENT: *This must include reductions at the 3 NADEPs, 2 shipyards, Newark AFB, OH, and Tooele --1993 losses. Even with these closures, every study suggests that DoD will still have excess capacity--i.e., excess facilities, equipment, and people.*)

**- Provisions of proposed legislation:**

- **No more than 40 % of DoD depot funds will be spent in industry.**  
(COMMENT: *Congress is now saying that industry has had at least 50 % or more of the work all along--thus, by restricting no more than 40% that should go to industry, will this result in work returning to depots from industry?*)
- **Calculation of funds in depots/industry computed by including interim contractor support, contract logistics support, workload above unit level, and materials and parts.**  
(COMMENT: *This establishes the new counting rule which provides the "real" split according to Congress, i.e., 50-50, not 65/35.*)
- **DoD must submit annual report (NLT 15 January) detailing progress in maintaining the split prescribed in this legislation**  
(COMMENT: *First report is due NLT 15 Jan 95: DoD won't have much time to comply with the provisions of the bill--what will be impact on 95 recommendations?*)
- **At least 60 % of maintenance on new weapons systems will be done in military depots NLT 5 years after initial delivery of weapon system.**  
(COMMENT: *No more extended interim contractor support for weapons (like B-1 and Rockwell which some say will be with Rockwell for 20 years or more)*)
- **In developing cost comparisons for work done in military depots and in private industry DoD must consider the estimated cost (including environmental restoration costs) that would be incurred if DoD had to close a depot as a result of contract award to industry.**  
(COMMENT: *This is confusing--are they saying that environmental cleanup costs must be included in calculating cost-to-close for a depot base?*)

- ***Military depots may compete for workloads of any Federal agency for which competitive procedures are used.***

*(COMMENT: DSB said competition was counterproductive; GAO disagreed. appears as though HASC sided with GAO)*

- **Other provisions**

- **DoD may lease parts of depot to non-DoD entities for maintenance and repair work**
- **DoD will maintain enough depots and workers to carry out provisions of this bill,**
- ***Pilot Program for Defense Reutilization***
  - DoD will conduct pilot program in FY 95 for depot-industry partnerships
    - Restricted to Army (2 depots) and Navy (3 depots)
    - Purpose: Encourage industry to enter into partnerships with depots
      - demonstrate commercial use of depot activities
      - preserve depot employment/skill base; promote retraining
      - support broad defense industrial base preservation

*(COMMENT: General Klugh is pushing this very hard. He used much of his time with the BRAC Commission on 17-18 May to talk about partnering. Will some in industry see it as simply a gimmick to preserve large depots?)*

< CONFIRMATION REPORT >

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Similarly, there are those in Israel, extremists who are dissatisfied with what has happened. I know Prime Minister Rabin has taken very firm steps to see to it that there is not violence by the Israelis to undercut the stability which this new peace accord will bring.

So it is a happy occasion, but it is also an occasion where we have to be wary for what the future may bring.

I thank the Chair. I yield the floor.

#### EXHIBIT 1

#### VIOLATIONS BY YASSER ARAFAT AND THE PLO OF THE ISRAEL-PLO ACCORD

(From the Zionist Organization of America)

Failure by Arafat and the PLO to prevent terrorism by his own Fatah faction:

In the Israel-PLO agreement that was signed at the White House on September 13, 1993, Arafat pledged to stop using terrorism. But his Fatah faction of the PLO carried out at least 32 terrorist attacks between September 13, 1993 and April 13, 1994, killing 14 people and wounding 22.

Failure by Arafat and the PLO to prevent terrorism by other PLO factions or punish them for their attacks:

In the Israel-PLO agreement, Arafat pledged to "assume responsibility over all PLO elements and personnel in order to assure their compliance" with the agreement, and to "discipline" those PLO factions that continue to engage in terrorism. Other PLO factions (aside from Fatah) carried out at least 22 terrorist attacks between September 13, 1993 and April 13, 1994, killing 11 and wounding 8. Arafat has neither prevented them from carrying out such attacks nor has he "disciplined" them for doing so.

Failure by Arafat and the PLO to condemn terrorism and to call upon the Palestinian Arabs to reject violence:

In the Israel-PLO agreement, Arafat pledged to condemn terrorist attacks against Israelis and pledged to call upon the Palestinian Arabs in the territories to reject violence and terrorism. Between September 13, 1993 and April 13, 1994, there were at least 212 terrorist attacks (killing 94 people and wounding 213), of which Arafat condemned only one, in October 1993, under enormous U.S. pressure. Arafat refused to condemn the Arab terrorist massacre of 8 Israelis in Afula on April 6, 1994 and he issued only a weak statement—not an explicit condemnation—in response to the massacre of 6 Israelis in Hadera on April 13, 1994. On April 23, 1994, an Israeli woman nursing her infant in the town of Neve Dekalim was stabbed seven times by an Arab terrorist; Arafat failed to condemn the attack. Instead of calling for Arabs to reject violence, Arafat has praised the continuing intifada violence, describing it as "heroic."

Failure by Arafat and the PLO to change the PLO covenant:

In the Israel-PLO agreement, Arafat pledged to ask the PLO National Council to delete those clauses in the PLO's National Covenant that call for the destruction of Israel. But he still has not asked the Council to do so, and PLO officials have indicated that he has no plans to ever do so.

Arafat and the PLO continue to use anti-Israel rhetoric:

In the Israel-PLO agreement, Arafat pledged to pursue normal, peaceful relations with Israel. Instead, he has told Arab audiences that the agreement is just one stage in his "Strategy of Stages" for gradually destroying Israel. He has supported the Arab economic boycott of Israel. He has urged African nations to refrain from restoring their diplomatic relations with Israel. He has

urged foreign airlines to boycott the Israeli airport near Jerusalem. Both Arafat and other senior PLO officials have urged the continued use of violence against Israelis.

Mr. SPECTER. Madam President, in the absence of any other Senator seeking recognition, I suggest the absence of a quorum.

The PRESIDING OFFICER. The Senator suggests the absence of a quorum. The clerk will call the roll.

The bill clerk proceeded to call the roll.

Mr. GRAMM. Madam President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER (Mrs. BOXER). Without objection, it is so ordered.

Mr. GRAMM. Madam President, I ask unanimous consent to proceed for 15 minutes, as if in morning business.

The PRESIDING OFFICER. Without objection, it is so ordered.

#### BASE CLOSINGS

Mr. GRAMM. Madam President, for the last couple of weeks, there has been a broad-range discussion in Congress, at the Pentagon, and in the White House about putting off the 1995 round of base closure decisions mandated by the base closure law.

I am as aware as any Member of the Senate how painful this process is. In fact, under 1991 Base Closure Commission decisions, three major bases closed in my State. But I am also painfully aware that in each recent year the Congress has cut defense dramatically. Hundreds of thousands of people are being taken out of the service. We are cutting defense by tens of billions of dollars. We are beginning to affect our ability to modernize our forces.

This year the President proposed that we not provide full cost-of-living increases for our military personnel. We are not maintaining benefits. Last year, the Congress changed the Tax Code so that when a young military person is sent to Europe and we provide an allowance to pay for their move, that is now taxable income.

In short, we have cut defense at a rate unprecedented since the years immediately following World War II. We have diminished benefits for our service personnel. We are now delaying modernization, we are affecting readiness, and we are doing it because, in my humble opinion, we are cutting defense by too large an amount, and we are doing it too quickly.

I have voted against defense authorization bills for the first time in my career in Congress because I am concerned that we are making a bad mistake. But I do not understand how we can stand on the floor of the Senate and cast votes to cut defense and then turn around and say we should delay military base decisions.

If we are going to cut defense dramatically and we are unwilling to go through with our commitment to review the mission of our military bases,

we are going to end up with a large number of military bases that are understaffed and that are operating at much less than their full capacity. This means we are going to eat up the resources we have, we are going to hurt modernization, we are going to hurt readiness, and we are going to reduce our ability to continue to recruit and retain the finest young men and women who have ever worn the uniform of this country.

Madam President, I want to go on record saying I am going to oppose any effort to delay the scheduled round of military base decisions in 1995. I am acutely aware that every base in my State is going to be looked at and every base in every other State is going to be looked at.

But we just voted for a budget that cut defense again. We are going to be faced with an authorization bill that cuts defense again. We are going to be looking at an appropriation bill that cuts defense again. I am not going to vote for those things, but I know the Senate and the House will vote for them, and I know the President will sign them.

We cannot go on cutting defense and then be unwilling to do what we have to do to maintain a quality force. What we have to do, if we make the decision to cut defense, is to close bases that we do not need.

Now, I am aware that there is going to be an election in 1996 following these decisions. But the point is, we are talking about something that is vitally important to America's security. We are talking about something that is crucial. I believe that to halt the only smoothly coordinated part of this whole process, which has been the base closing commission, is a tragic mistake. I am going to do whatever I can to derail this attempt to delay it.

The Base Closing Commission is critically important because, under the old system, we all know what happened. Every Member of Congress had to oppose every base closure in their State or district. And so when the decision was finally made, it was only after every obstacle that could be thrown in its way was thrown in its way. As a last resort, a Congressman would instruct his staff, saying, "I'm am going out and lie in front of the bulldozer. Be sure that the camera gets a good angle on me. And just as I'm about to be crushed to death, run in with tears on your face and drag me from the front of the bulldozer."

But by setting up an orderly base review process, we have made it possible for all of us to vote on the broad recommendations of the commission.

I hate closing bases. My dad was a sergeant in the Army. I believe in a strong defense. I love the people that wear the uniform of the country. I love the communities that have supported defense. There is almost something unfair about penalizing the very communities that helped us win the cold war. But there is no alternative.

In my opinion, to sidetrack this non-political process is a tragic mistake.

Finally, I wanted to come on the floor today and say not everybody agrees with all of these articles that are being written. Not everybody agrees with the people at the White House and the people in the Congress. I disagree. In this case, the law of the land says we are going through with this review and I intend to oppose any effort to derail that process.

Mr. STEVENS. Will the Senator yield for just a moment?

Mr. GRAMM. I am happy to yield.

Mr. STEVENS. I did not know whether my friend from Arizona wanted to speak.

Mr. MCCAIN. Go ahead, please.

Mr. STEVENS. Madam President, I am happy to be here at the time the Senator from Texas mentions this, because I think I am one of those who raised the question of the 1995 round. I did so when the Appropriations Committee was informed that approximately 10 percent of the bases that were ordered to be closed in 1988, 1991 and 1993 have been closed. We now are carrying on the books and are financing the operation of a series of bases that theoretically were closed in those previous three rounds of base closures. The reason they have not been closed is in the process of closure environmental problems were discovered. There were transitional problems with regard to transitioning the bases from one place to another.

But in any event, of the literally couple of hundred bases, I guess, we have ordered to be closed, only 10 percent or less have been closed.

The problem is, if we start into another round of 1995 and we are asked to put up the money for that process, which is in effect putting a lot more bases in the pipeline, we are actually running up more costs today by the bases that were not closed than we could possibly save by trying to close more. I am not in favor of not continuing the process of closing bases. But if we are asked now to finance the closing of bases in 1995, we are going to have to cut troop strength and cut procurement to do that. Because the bases that were ordered to be closed have not been closed, cannot be closed because of problems that were not foreseen at the time those prior bases were ordered to be closed.

I agree with what the Senator has said, this should not be related in any event, in my opinion, to 1996 as far as what we are doing. We are looking at the costs. I do not think the Senator from Texas wants us to reduce the number of divisions down to nine divisions because we have to order and start the process of closing some more bases that will not be closed in their time either because these bases are still in the pipeline. They are not being closed because of horrendous problems, particularly in the environmental field.

I urge the Senator from Texas to look at some of those problems that are delaying these base closures. I am not for delaying any base closures. I am not for reversing any decisions. I just ask why should we add more to the list when we cannot close what we have ordered to be closed already? I think the cost of these, once you start the process of closing—you start immediately and you have problems of relocation of the forces there and disposal of the equipment there wherever you order a base to be closed. Today the cost of keeping up the utilities alone in some of these bases that were ordered to be closed in 1998 is quite excessive.

I think we should not incur the additional expenses of additional base closures when the result of that will be a further decline in the troop strength, a further decline in the steaming hours and flying hours, the operation and maintenance money, that we have to have to maintain our readiness. I urge the Senator to study the problem with regard to the cost of maintaining these bases until we will get the environmental clearance to close them.

Mr. GRAMM. Madam President, let me reclaim my time and respond. First of all, I am willing to look at any facts. I always try to enter these debates with an open mind but I am not entering this debate with an empty mind.

Basically, the bottom line is that our military bases do not match the size of the force that the Congress is willing to pay for. I would readily agree with the distinguished Senator from Alaska that in closing military bases—it is a hard thing to do—we have run into environmental problems. But as we continue to expand the environmental requirements, those problems are not going to be any easier in 1997. If anything, they are probably going to be worse.

If every business in America that had to make tough decisions simply looked at the immediate cost of closing a facility most of them would go bankrupt because they would conclude that in the short run it costs money to close a plant, consolidate, or relocate. But, instead, they try to look at the long-term benefits.

My concern—and I emphasize this—is I believe we are cutting defense too fast. I do not think the world situation justifies what we are doing. But if we delay this process, if we keep outmoded bases open, then we will be forced to spend scarce defense dollars on them. We are building down, and if I have to choose between a military with personnel that are well equipped and well trained, or one with more bases, I want the better equipped and trained military. If delays are a problem, then I am willing to work with the Senator from Alaska to smooth the process.

I am very fearful that if we stop this process we are going to end up with the kind of build-down we had after Vietnam, where benefits, pay, and modernization were sacrificed. All three Members on the floor at the moment

on our side of the aisle have been strong supporters of defense. I am alarmed about the cuts that are being made. But I think in the midst of those cuts the worst thing we can do, when we are reducing the number of people, is not reduce the number of facilities.

We are asking for a disaster, and the longer we wait to do this, the harder and more expensive it will be.

Mr. MCCAIN. Will the Senator yield?

Mr. GRAMM. Why do I not yield and let the Senator from Arizona get the floor. I yield the floor.

The PRESIDING OFFICER. Does the Senator from Arizona seek his own time? There are 8 minutes remaining on the time of the Senator from Texas.

Mr. MCCAIN. I seek my own time, Madam President.

The PRESIDING OFFICER. The Senator from Arizona is recognized.

What amount of time does he seek?

Mr. MCCAIN. I request 5 minutes.

The PRESIDING OFFICER. Without objection, it is so ordered.

The Senator from Arizona is recognized for 5 minutes.

Mr. MCCAIN. I understand the concerns of the Senator from Alaska. One of the unanticipated costs—and it probably should have been an anticipated cost of base closings—has been in the enormous environmental challenges we have faced. There is a base I believe in Indiana which used to be a place where ordnance was tested where no one knows when they will be environmentally clean and closed.

I take exception to the description of the Senator from Alaska as to what a closed base is. Because a base is not closed entirely does not mean that all military activity has not been removed from it and all the military personnel have left. So a large number of the bases that the Senator from Alaska is talking about have been closed as far as the practical aspect of it if not a technical aspect.

Also, the fact is that we have cut defense by 40 percent since 1987—by 40 percent. It will be another 5 percent under the Clinton budget which I have no reason to believe will be changed. In fact I have reason to believe in light of recent actions on the part of the Congress the cuts will be greater rather than smaller.

At the same time we have cut the base structure, the support base structure in this country by only 15 percent. That imbalance cannot last. That imbalance has to be addressed. Unless the Senator from Alaska has different information than I do, I suggest we have to match the base structure with the force itself. Otherwise we are going to pay this bill even more heavily over time.

The environmental problems that exist at bases that are going to be closed are not going to get better. In fact, I think some expert in the studies of the environments at these bases would make a strong case they are going to get worse the longer we leave these toxic things that have been



spilled and unexploded ordnance and things. They become a worse situation rather than better over time.

The one aspect of the base closing commission concept was so the Congress would not have to carry out its responsibilities. As the Senator from Texas said, none of us could ever close a base so we gave the responsibilities to a base closing commission. They carried out their duties.

They are, according to the law, empowered to do it one more time, in 1995. And we all know that their decisions will be draconian in nature. In fact, the initial reports we have are they will be double the previous base closing commission's decisions. I am sure that is a very frightening prospect. But I do not believe we can tell young men and women that they have to leave the military, as we are telling them by the thousands, and at the same time say we are going to keep this base open because it is too expensive.

Today we are telling thousands of young men and women who joined the military for a career: I am sorry, you have to leave the military because we cannot afford to keep you in the military because we have not enough in the defense budget. By the way, we are going to keep all these bases open because we cannot afford to close them.

We are going to pay this bill for closing a base now or later. It is like the commercial which I believe is for mufflers: "Pay me now or pay me later."

Mr. GRAMM. Fram oil filter.

Mr. McCAIN. Is it a filter?

"Pay me now or pay me later." I would rather pay now and go through this painful adjustment and start addressing these terrible environmental problems that we found at these bases, rather than delay it and delay it.

I will make one more comment from being around this organization, this body, for some years. Once we agree to a delay, once we break this chain that we have committed ourselves to by law, I have no confidence that we will then return to a base-closing procedure that will actually work.

I look forward to working with the Senator from Alaska and the Senator from Texas in trying to put a brake on these draconian cuts that we are seeing in defense spending.

On last Monday, the Senator from Ohio [Mr. GLENN], and I went down to Norfolk, VA. We met with Navy and Marine Corps personnel, both air and ship people. They are all very concerned. I would say to my friends: They are deeply concerned. They are worried. Readiness is starting to suffer already.

So I suggest that if we deviate from what we imposed on ourselves by law, that we will suffer significant financial and, perhaps, personal consequences in having to force more and more young men and women out of the military than we are already.

I respect enormously the views and knowledge of my friend from Alaska, but I suggest to him that if we are

going to downsize the military in the post-cold-war era, we have to do it in a fair and equitable manner, with the first priority being to readiness, the second priority being to the welfare of the men and women in the military, and the third priority is the bases themselves.

I yield back the remainder of my time.

Mr. STEVENS addressed the Chair.

The PRESIDING OFFICER (Mr. FEINGOLD). The Senator from Alaska.

Mr. STEVENS. Mr. President, I seek the floor in my own name.

The PRESIDING OFFICER. The Senator is recognized.

Mr. STEVENS. Mr. President, the strange thing is that the three of us, I think, are committed to the same concept of maintaining the strongest possible defense for the United States.

I say to my two friends that the Appropriations Committee has been notified that studies made by the General Accounting Office and by the Congressional Budget Office have indicated that the original estimates of the cost of closing bases was exceedingly low. It was an estimate, and we have now processed 1983, 1991 and 1993 bases to be closed. The difficulty with it is the environmental costs alone are such that it is now estimated that we will not break even in terms of the cost of closing the bases and the savings, until the turn of the century.

The problem that we have is, we anticipated these closed bases would be off the appropriations demand by 1996, and we find that is not the case. If we add to the list—already we are going to have to bring down, unless we get an increase in defense spending—we are going to have to bring down something in order to meet the added costs of closing these bases.

My point is that I believe in readiness so much that I believe we have to recognize if we add to this list of bases to be closed in 1995, if we start funding in 1995, by the turn of the century—it will be way into the turn of the century before we break even.

We all know in defense—the Senator from Arizona just said—despite the President's cut, there are going to be additional cuts demanded by some people in Congress. What is happening is readiness is being affected. We are going to have a hollow Army, hollow Air Force. We will not be able to, once again, man our ships. We will not be able to keep our airplanes flying. And we certainly will not have the people that we say we have in the divisions that are there.

All I am trying to do is alert my friends: Keep an open mind where this money is going to come from. We say, "Well, we'll have to pay the added cost." There is no place to pay the added cost from except the limited amount we have now, and that means something has to be decreased.

What has been decreased so far has been readiness, has been manpower, has been the number of airplanes we

are replacing, has been the number of ships we can maintain. I think the public ought to know that if we continue to say we are closing bases and do not close them, the effect is reduced manpower, reduced equipment, reduced procurement and reduced readiness. We have to keep that in mind.

If you want to decide what bases to close in 1995, go ahead and do it. But if you try to spend money on closing them, you are going to take it from somewhere, and that will be from a reduced level of appropriations that is not currently enough to maintain readiness to defend this country.

My commitment is to maintain readiness. Particularly, I call the attention of my colleagues to the fact that we are going to double the amount of money put into the environmental account this year. Where is it going to come from? It is going to come from reducing the size of some of the units that we thought we were going to have. Instead of divisions, we are going to have brigades. Instead of brigades, we will have battalions. Instead of a 600- or 700-ship Navy, we are going to have a 300-ship Navy.

I have to tell you, we are the world's last superpower. I hate to be around here in the year 2000 when the world needs a superpower, because we are not going to be one if we keep spending the money for the process of closing, but we do not get them closed.

I predict the bases ordered to be closed in 1988 will not be closed until 1998. Those ordered to be closed in 1991 will not be closed until 2001. That is about the delay. It is about a 10-year delay.

I agree, they are not maintained at the same level they were before the base-closure order, but there are still people there to protect them, there are still utilities there, there are still on-going costs of maintaining the Corps of Engineers.

Those costs alone, in terms of these bases that have not been closed, are mounting every year. I say to my colleagues, look at the reports of the GAO and the Congressional Budget Office and see what you can do to help us. We cannot stretch this dollar any further. The dollars available to us are decreasing, and the demands from the military people to not go any further are increasing.

I originally got in this because of a complaint from uniformed officers saying, "What are you doing to our services? The manpower is too low." I believe that this Base Closure and Realignment Commission concept should be examined once again in terms of the timing of spending money on closure of more bases that will not be closed until the next century.

Mr. McCAIN addressed the Chair.

The PRESIDING OFFICER. The Senator from Arizona.

Mr. McCAIN. Mr. President, I will be brief. I think the Senator from Alaska makes some very important points, es-

pecially in the area of his responsibilities in the Appropriations Committee.

First of all, it is a fundamental fact that we have an obligation to see that the Armed Forces of the United States are run in the most efficient manner. We cannot run the Armed Forces and conduct our operations in the most efficient fashion if we cut the defense budget by 45 percent and the support structure by only 15 percent. That is a fundamental imbalance which, over time, has to be extremely more expensive.

Until you get that balance between force structure and bases, then we will operate, with the taxpayers' dollars, in an inefficient and wasteful manner. Admittedly, it will be painful. Admittedly, the environmental problems were underestimated dramatically, but those are not going to change.

Now we come back to another question and a strong difference that I have had with the Senator from Alaska for a long time. I will fight as hard as I can to keep a level of defense spending which is appropriate to meet the national security requirements of this Nation. But I say to my friend from Alaska, if the Congress continues to cut, and the administration continues to propose these cuts, and we end up in the situation that the Senator from Alaska describes, at least I will have fought the good fight, and at least the people of this country will know who sounded the klaxon that this danger was upon us, and who did not go along and accept a premise that we have to go along with continued cuts in defense spending which will erode this Nation's ability to defend our vital national security interests.

It is just like the Grassley-Exon amendment that was going to cut the budget; therefore, automatically it was coming out of defense. I said, no, it does not have to come out of defense. It can come out of a whole lot of things, a list of which a mile long I can give the Senator from Alaska. But we accepted the premise that any cut in the budget was going to come out of defense.

I say no. I say we are rational, thinking people and understand that they cannot continue to come out of defense. They cannot, if we expect to defend this Nation's vital national security interests.

So I say to the Senator from Alaska, it is time we went to the American people and said we have to close these bases because we have to have a proper balance between force structure and the support structure which are represented by the bases. We may have to pay extra for it, but we do not necessarily have to throw men and women out of the military while we are doing it.

Why not cut some of these programs that the American people do not support anyway when they hear about them? Why not go at it from this direction rather than saying it is all going to come out of defense, guys, if we cut

the defense budget. It does not have to. That is a conscious decision made by the Congress of the United States.

I will not support it. I will speak against it and sooner or later the voters of this country will recognize who stood up for a strong national defense and who did not, and, unfortunately, in my view, it may be in a time of national crisis. But I am not going along to get along.

I yield the floor.

Mr. GRAMM addressed the Chair.

The PRESIDING OFFICER. The Senator from Texas.

Mr. GRAMM. Mr. President, I do not have a quarrel with our colleague from Alaska. I do not doubt the sincerity of his position, but here is the bottom line. Whatever it costs to consolidate bases or no matter how long it takes, we know that when defense has been cut by 40 percent and our base structure has been cut by 15 percent, we have a facility excess, and therefore we are going to have to continue the review process.

Nobody wants to do it. I hate to see bases closed in my State. I do not like seeing them closed anywhere. But there is something worse than not undertaking that assessment. What is worse is destroying our capacity to defend America and defend our interests. I know that we could get into a debate about how long it takes to recapture the money we spend to close bases, saying it will not happen until the end of the century. That sounds like a long time. But the end of the century is less than 6 years away. Closing bases is not going to get cheaper. It is not going to get easier. We know we have to do it if we are going to maintain defense. Does anybody believe we are going to have more money tomorrow than we have today given who is in the White House and given the makeup of the Congress?

I believe this is something that needs to be done. I feel the same way about base closings that I do about going to the dentist. I never went to the dentist until I was a teenager, and it was a shocking experience when I did. I hate going to the dentist. But when I find out I have to go, I want to get there and get it over with.

Finally, Admiral Boorda says, "There is not enough money to maintain infrastructure we no longer need."

Now, I think that is as clear a statement of this problem as you can have. The bottom line is, we have a lot of people in the Senate and the House, in the Pentagon and the White House—and I do not count the Senator from Alaska among them—who want to cut defense but act as if it does not have any impact; that their votes to cut defense do not affect their State, do not affect their bases.

Well, in reality we know what those votes do. What I want to do is make rational decisions. The Base Closure Commission process has helped us do what we hate to do but which we all know has to be done. Somebody may come forward with a rationale that

could convince me the process should be halted, but I would have to say that as of today I cannot imagine it. I am afraid that if we stop the base closure review while we continue to drastically cut defense, we are going to end up with a military that cannot meet its missions. That is something I do not want and I cannot support.

I yield the floor.

Mr. STEVENS addressed the Chair.

The PRESIDING OFFICER. The Senator from Alaska.

Mr. STEVENS. I just want to make sure my friends understand. The Senator from Texas does not just have a toothache and needs a dentist. He needs a root canal, and it is a bad one and he needs some other experts to look at the situation. I have to let him know that the experts we have used so far have told us that while the Congress has said to close these bases and while the authorizers say in effect they are closed, we have not closed 15 percent. We have closed less than 5 percent.

The reason we have closed less than 5 percent is because Congress keeps passing environmental standards which must be met by the military, and these bases now are costing us more to close than they cost to operate. As a matter of fact, part of the problem is it was estimated that we could close some and sell them, and the revenue would be turned back into the Treasury and would be available to help sustain the military at the level we thought it would be sustained. The sales are abysmally low. No one wants to bid on this land because of the environmental problems. They are not willing to take them.

As a consequence, we have the situation where, although we have ordered about 15 percent to be closed, they have not even come close to that. We are now going to order some more to be closed, and we are going to increase spending on them. It will actually be more expensive to go into it than to let them be delayed for a couple years. You can go ahead with your force structure reduction, but if you add more bases to be closed, you are going to hire more people to close them; it is a different set of people that handle closing a base than handle opening a base.

I can tell the two Senators, from the best I can tell, the increased cost of closing bases is decreasing our military readiness; it is decreasing the amount of money available to do what all of us want to do, and that is maintain the highest capability we can. I agree we should not cut as far as we could. I agree we should have proceeded more rapidly.

My point is I think that the authorizing committee has to take a look at what is going on. Streamlining our base structure in connection with the declining force structure is absolutely necessary.

By the way, the Senator's estimate is, in my understanding, very conserv-

ative as to the number of bases to be closed in the next round. The number of bases to be closed in the 1995 round is equal to the number that were ordered to be closed in 1988, 1991, and 1993. As I said, of those—about 10 percent ordered to be closed so far have been closed. The forces are not there. But the base maintenance costs are there. I really do not want to see another group of base maintenance people get paid and have us reduce further the number of people we can maintain in our standing Army, standing Air Force, and standing Navy.

Now, if I am not being understood—and it sounds like I am not being understood—I think we are basically in agreement in goals. But I would ask you how do we get the money to order more bases to be closed and move in more people to deal with the local communities, to tell them the bases will not be available to them, start planning for sales, and then find, as we have in all the rest them, that the environmental costs and the transitional costs are so great that the estimated savings have been nil so far? We have not saved one dime so far from any base that was ordered to be closed. That has not netted out yet, and we are now 6 years into the process. Six years is a short time all right, but I have to tell you in terms of base closures it is not very long at all. And I would predict to you that these bases are going to be on our base operations list as long as there are environmental problems. The environmental problems are increasing, not decreasing, by the laws that this Congress is passing.

Mr. MCCAIN addressed the Chair.

The PRESIDING OFFICER. The Senator from Arizona [Mr. MCCAIN].

Mr. MCCAIN. I wish to make a very brief comment. The Senator from Alaska, I am sure, knows that the laws passed by Congress require us to clean up the environment on a base whether it is open or closed. The environmental cleanup has to be carried out whether that base is open or closed.

So the fact is that bases that are open, we are required to not allow them to be in violation of the laws of land.

Yes, it is true. And the fact is that if the Senator from Alaska believes that these environmental problems are going to be any better if we delay these bases from being closed 1 or 2 or 3 or 5 years from now, he has different information from that received by the Armed Services Committee.

These environmental problems are getting worse and worse and worse. They are going to cost more and more and more to get cleaned up. So the sooner we get about it, the better.

Where the Senator from Alaska and I are in disagreement is where the money comes from. The Senator from Alaska assumes that it comes out of defense. I say maybe it will. Maybe that is the reality. But it does not have to be. It does not have to come out of defense. It can come out of the Cor-

poration for Public Broadcasting. It can come out of the pork barrel projects of which I identified—\$4 billion worth of unauthorized appropriations which had no use whatsoever except to satisfy some Senator or Congressman's district. It could come out of the airplanes that we purchased for the Department of Defense that they neither could use nor wanted. We could take it out of the funds for the airplanes that we bought for congressional junkets.

We could take it out of the billions of dollars that the CBO identified for me which was total pork barrel spending instead of taking it out of what we are doing now, and that is telling men and women who join the military for a career that they have to leave because we cannot afford to keep them.

Mr. HELMS addressed the Chair.

The PRESIDING OFFICER. The Senator from North Carolina is recognized. Mr. HELMS. I thank the Chair.

#### DON'T DO IT, MR. PRESIDENT

Mr. HELMS. Mr. President, Deputy Secretary of State Strobe Talbott and Deputy National Security Adviser Sandy Berger briefed the Foreign Relations Committee on Tuesday regarding President Clinton's policy toward Haiti. They had previously briefed the Members of the House of Representatives last week on the same subject, and that testimony last week was widely reported in the media.

Under the circumstances, it therefore seems to me absurd that Tuesday's briefing, if you want to call it that, by Secretary Talbott and Mr. Berger, was declared to be a secret meeting, an action which I protested at the time. I mention the matter today because not one syllable was uttered by either Mr. Talbott or Mr. Berger or anybody else that has not already been reported by the media.

However, Mr. President, the American people have every right to be astounded that the Clinton administration is unable to answer even the most basic policy questions about Haiti. Small wonder then that the conclusion is inescapable that the Senate briefing was classified totally for political reasons, and the American people are entitled to know that.

First of all, Mr. President, I am absolutely convinced, beyond any peradventure, that there is no justification for Mr. Clinton even thinking about sending United States military personnel into Haiti—as he clearly indicated was an option in some of his recent public statements. The Wall Street Journal described the President as a man who "talks loudly and carries a twig."

Having said that, Mr. President, it is important to bear in mind that all this political pontification about "restoring democracy to Haiti"—and we hear that over and over again—this is pure nonsense because Haiti has never had any democracy to restore. The nearest thing to a democracy that Haiti has

ever known was when that country was occupied by the U.S. Marines.

Mr. Aristide did not rule democratically by any stretch of the imagination during the 7 months that he was president, nor did he even try to. I will not go into the necklaces, and all the other things that occurred. But he did not try to be a democratic president.

Nevertheless, the administration continues to orate about returning Aristide to power. Considering the fact that sanctions have failed miserably, just what is it that the administration is proposing? "Tougher sanctions," said Mr. Talbott and Mr. Berger, plus a foolish hope that they expressed that the Haitian military will somehow and for some reason take flight and give up. Sanctions have not even begun to work, and there is no logic to support or believe that sanctions will ever work.

So, Mr. President, speaking for myself alone, as ranking member of the Senate Foreign Relations Committee, my unyielding position regarding Haiti is that not one American soldier or sailor shall be put in harm's way in Haiti. Congress must continue to forbid this administration sending United States troops to Haiti.

The United States has only one national security interest in Haiti, and that is to stop the flow of illegal immigrants into the United States. The life of even one American soldier or sailor should not be put at risk in a vain attempt to restore—"to restore," and I am saying that with quotation marks surrounding it—Mr. Aristide to power.

Just remember, on October 21 of last year the Senate passed by a vote of 98 to 2 a nonbinding resolution urging that the President not send United States troops to Haiti without congressional approval. I seriously doubt that Congress will even consider approving risking the lives of American service men and women in Haiti to defend Mr. Aristide, who demonstrably is no friend of the United States.

There was an interesting irony this past Tuesday. While President Clinton's advisers were in room S-116 on the first floor just below the Senate Chamber testifying at that secret meeting of the Foreign Relations Committee, and talking only about tougher sanctions, the President of the United States was by no means ruling out sending United States Armed Forces to Haiti.

But, Mr. President, surely, Mr. Clinton has given at least some consideration to the cost of U.S. military intervention. How long for example would it last? Will United States marines have to occupy Haiti for 19 years as they did earlier in this century? How many American lives will the Clinton administration be willing to lose to defend Aristide? And what will the President say to the parents of American soldiers and sailors who may be killed in that action of folly?

The last time the United States intervened militarily in Haiti earlier this

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**FROM:** Frank Cirillo/Air Force  
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**CC:**

**REMARKS:**  Urgent  For your review  Reply ASAP  Please Comment

Doug

This is all I can find in the time I had. I include the briefing chart Roger Houck used (among many) on May 21 as well as a copy of the related transcript words. As you can see Hill did well in all areas except in the "Expanded Rating". I do not have ready access to the specifics of the latter but the "AF" and "AF adjusted" were AF certified data as rated with G=6, G- =5...R=0. The GAO study was requested by Cong Fazio. Unfortunately I have not been able to locate much on that analysis but the Report is GAO//NSIAD-93-146R, Air Logistics Center Indicators. The rating was based strictly on a 1-5 rating = 5-1 ranking for each area rated by GAO(eg Rank #4 = Score of 2). The Flying Operations score in the case shown was for 'Fighter Operations' again using certified data and spread sheet programming. All are available in our library. As you know. Hill AFB was not added for consideration and thus not further analyzed.

In the 95 round the Depot, RDT&E and Lab analysis will be done by the Cross-Service Team on the Commission as headed by Mr Jim Owsley. fc

## BASE COMPARATIVE ANALYSIS CATEGORY: DEPOTS

FOR CONSIDERATION: Study Tinker, Kelly, Robins, and Hill AFBs FOR CLOSURE OR REALIGNMENT as an ALTERNATIVE OR ADDITION to McClellan AFB.

MAJOR ISSUES	Tinker	Kelly	McClellan	Robins	Hill
Scores (Preliminary)					
• Flying Ops (Staff) max 170	123	118	99	90	128
• Depot Operations					
•• Air Force max 66	48	51	21	57	54
•• Air Force (Adjust) max 90	69	63	39	72	63
•• R&A Staff Expd. max 85	58	53	55	55	43
Primary Aircraft Repaired	<ul style="list-style-type: none"> <li>• B-52</li> <li>• C-135</li> <li>• B-1</li> </ul>	<ul style="list-style-type: none"> <li>• B-52</li> <li>• C-5</li> <li>• T-38</li> </ul>	<ul style="list-style-type: none"> <li>• F-111</li> <li>• A-10</li> <li>• KC-135</li> </ul>	<ul style="list-style-type: none"> <li>• F-15</li> <li>• C-130</li> <li>• C-141</li> </ul>	<ul style="list-style-type: none"> <li>• F-16</li> <li>• F-4</li> <li>• C-130</li> </ul>
Other Major Repair Work	<ul style="list-style-type: none"> <li>• Engines</li> <li>• Hydraulics</li> <li>• Flt ctl sys</li> <li>• Oxy equip</li> </ul>	<ul style="list-style-type: none"> <li>• Engines</li> <li>• Elec Spt Eqp</li> <li>• Engine Instr</li> <li>• Nuc systems</li> </ul>	<ul style="list-style-type: none"> <li>• Elect Comp</li> <li>• Grd Elect</li> <li>• Hydraulics</li> <li>• Flt Ctl Sys</li> </ul>	<ul style="list-style-type: none"> <li>• Abn Elect</li> <li>• Life spt sys</li> <li>• Propellers</li> <li>• Gyroscopes</li> </ul>	<ul style="list-style-type: none"> <li>• Strat Missiles</li> <li>• Weapons</li> <li>• Munitions</li> <li>• Landing Gr</li> </ul>
Aircraft at base (FY95/4)	48	32	18	32	87
Encroachment? • Base/Community CLUP?	Yes No	Yes No	Yes Yes	Yes No	Yes No

May 21 / 1993

"Add: Hearing"

892

1           So I think the DOD is taking it on seriously, and  
2           it's being cost-driven. They really will have no  
3           alternative in out years.

4           COMMISSIONER BYRON: I think in some of the  
5           hearings that we had, several of the depots said that they  
6           had just begun to bid on other services' work, and if they  
7           are left to stay alive, they will be able to fill up their  
8           excess capacity and their hourly wage by the bidding process  
9           of interservicing.

10           MR. COOK: I would like to ask Roger Houck, then,  
11           to address the Air Force depot structure.

12           MR. HOUCK: Good evening, Mr. Chairman. The  
13           purpose of my comments this evening is to present to the  
14           commissioners information for consideration for adding  
15           Tinker, Kelly, Robins, and Hill Air Force Bases as  
16           candidates for closure or realignment as an alternative or  
17           addition to McClellan Air Force Base, California.

1           The Air Force depot structure consists of five air  
2 logistic centers, all of which perform air frame repair work  
3 and one specialized center, Newark Air Force Base, Ohio,  
4 which performs work on missile components, commercial  
5 navigation equipment, and test equipment calibration, or  
6 metrology, as it is called.

7           At this point, I would like to take a few moments  
8 to make a few comments about Newark Air Force Base, or the  
9 Aerospace Guidance and Metrology Center, as it is called.  
10 Newark is a highly specialized facility, which is considered  
11 a depot because it does things a depot does. It overhauls,  
12 it repairs, it maintains, it modifies equipment, like other  
13 depots.

14           Almost 1,700 civilian workers are employed at  
15 Newark. The installation, as you may know, has no runway.  
16 In fact, the presence of a runway at Newark would be  
17 detrimental to the basic mission of that center, which is  
18 missile guidance repair, commercial navigation equipment



1 repair, and calibration of testing equipment. A runway  
2 would create vibration and those kinds of things which would  
3 impair that installation's capability to do its basic repair  
4 work.

5 For purposes of this hearing, Newark will not be  
6 compared to the other depots because, as I said, it has no  
7 runway, it does not perform air frame structural repair  
8 work, and it's already on the DOD list.

9 If I could have the next slide, please.

10 Earlier, Mr. Cook explained to you the impact of  
11 the proposed 1993 depot closures, in which projected 1997  
12 workload was compared against 1992 and 1987 capacity. As  
13 you can see from these charts, the closure of one Air Force  
14 depot would be expected to result in a projected 89 percent  
15 capacity utilization, when compared against 1992 data.

16 Yet, if you compare that data to 1987 capacity,  
17 the high year, the benchmark, that capacity utilization  
18 drops back down to 65 percent.

TRANSCRIPT PORTION

5/21/93

895

Roger Houch

1

If I could have the next slide, please.

2

Before I discuss the preliminary results of the

3

staff's comparative analysis on the five Air Force depots, I

4

would like to explain that, for ease of reference, Tinker

5

and Kelly Air Force Bases have been shaded to reflect those

6

two bases or those two depots as, essentially, large

7

aircraft depots, depots which work on things like C-5s and

8

B-52s and E-3s, for example.

9

Contrast this to depots I would refer to as

10

smaller aircraft depots, depots like Hill, McClellan, and

11

Robins. It's not to say that Hill and Robins and McClellan

12

don't work on large airplanes; they do. McClellan works on

13

C-135s. Robins does work on C-130s and C-141s. Hill also

14

does repair work on C-130s. But, for the most part, you can

15

distinguish those depots and the big aircraft and small

16

aircraft depots. That's an important concept as we go

17

through my comments.

1           Staff has conducted preliminary analysis on the  
2   depots to include developing scores for both flying  
3   operations and depot operations. The Air Force team,  
4   earlier this evening, specifically, Major Dittmer and Mr.  
5   Frank Cantwell, explained to you the scoring methodology  
6   used to compute the flying operational scores. Those scores  
7   are depicted as shown for the five ALC or depot bases.

8           Continuing the preliminary scoring process, once  
9   we get inside the fence, inside the depot, we are attempting  
10   to take a look at efficiency and productivity within that  
11   depot. Three categories of depot operations scores are  
12   shown. The first is the Air Force score. These numbers  
13   were computed by assigning numerical values to green,  
14   yellow, and red ratings given to the bases by the Air Force  
15   in the final scoring process for the measurement criteria  
16   shown on the left side of the screen.

17           The depot bases, in the questionnaires, had  
18   provided specific data on 16 criteria in the areas of depot

1 operations, depot material management, utility cost, unique  
2 facilities, and so on. Eleven of these criteria were  
3 ultimately used by the Air Force in the final scoring  
4 process. Those scores are as shown.

5 The second score, the corrected Air Force score,  
6 represents the staff's adjustment to the Air Force's score.

7 Let me explain to you the process we employed. We cranked  
8 back in the five criteria the Air Force had chosen not to  
9 use, and we needed some arithmetic and computational  
10 corrections. We threw out a few criteria for which  
11 distorted data had been provided by the bases and should not  
12 have been used in the Air Force process.

13 There were another couple of examples. For  
14 example, Hill Air Force Base was inadvertently incorrectly  
15 rated green for current capacity, when it should have been  
16 rated red. Those were some of the kinds of adjustments that  
17 we made looking at that depot itself.

1           To provide yet another perspective on how the  
2           depots compare against one another, the staff developed a  
3           set of additional criteria, depicted as R&A expanded. It's  
4           an expanded list of performance indicators. All of these  
5           criteria, except the last, the percent of depot workload  
6           interservice, were derived, in large part, from a February  
7           1993 GAO study which examined all five Air Force depots.

8           Now, that GAO study was very heavily footnoted  
9           that, although the data had been obtained from OSD and the  
10          services -- in many cases, from the depots themselves --  
11          that data had not been verified and could be subject to  
12          differing interpretations, because of the different  
13          workloads and the different missions the depots have.

14          I would like to emphasize, once again, that all of  
15          the scores, the preliminary flying operation scores, as well  
16          as the depot operations scores, are preliminary in nature.  
17          Ongoing analysis will continue to further examine efficiency  
18          and productivity factors affecting these five depot bases.

# FAX MESSAGE BID AND PROPOSAL CENTER

*"Winning Tomorrow --- Today"*

11 JAN '95

FROM: DOUG FRIEDLI

ORGANIZATION: OO-ALC/FMPC

TELEPHONE #: DSJ 458-7111

FAX #: DSJ (801) 777-8320  
458-8320

TO: FRANK CIRILLO

ORGANIZATION: \_\_\_\_\_

TELEPHONE #: 703-696-0504

FAX #: 226-0550

NOTES: \_\_\_\_\_

FRANK, PER OUR CONVERSATION HERE'S A COPY OF THE OKLA

ARTICLE. ANYTHING YOU CAN HELP ME WITH ON THE CHART

(PG 2) IS APPRECIATED. SPECIFICALLY THE PARAGRAPH OF "1993 BASE

CLOSURE COMMITTEE" WHERE HILL SCORED 43

THANKS FOR YOUR HELP  
DOUG

NUMBER OF PAGES (INCLUDING COVER): 8

THE SUNDAY OKLAHOMAN  
18 Dec 94  
Page 1

# Battle for Air Depots Pits Tinker, Four Bases

By Chris Casteel  
Washington Bureau

WASHINGTON — In its fears about losing its Air Logistics Center — and in its efforts to prevent that from happening — Oklahoma City has company.

Company and competition. Four other communities have Air Force maintenance depots that repair jets, planes and components, and they're just as worried about the 1995 round of base closures.

They've formed task forces, they've visited the Pentagon, they've had Air Force officials visit them. Some, like Oklahoma City, have hired Washington consultants. Some are visiting other ALCs to see how their own measures up.

"We've been making trips for several months to do fact finding and intelligence gathering," said Paul Roberson, the project director for San Antonio's effort to protect the Air Logistics Center at Kelly Air Force Base.

But there's a definite lack of quality intelligence to be had at this point. Despite all the efforts to get inside information, community leaders don't even know how many of the ALCs might be closed, much less which ones.

Retired Maj. Gen. Mike Pavich, who was hired to help save the ALC in Ogden,

Utah, said a former Air Force chief of staff told a local group recently that none of the ALCs should be closed.

Tom Eres, president of the Sacramento Metropolitan Chamber of Commerce, said he had heard similar comments. But he said he has also heard that the 1995 round of closures will be the biggest yet.

"If you begin to translate that into bases, you'll give yourself an Excedrin headache," Eres said.

Dick Walden, executive vice president of the Warner Robins Chamber of Commerce, said closing one ALC "seems a certainty, and two is obviously not out of the question."

The Air Force is currently evaluating all of its bases and depots to determine which it can and can't afford to close. Secretary of Defense William Perry has to review the recommendations from all the services and submit a list to the Defense Base Closure and Realignment Commission by March 1.

Roberson, in San Antonio, said he had heard the Air Force's first draft of recommendations may be completed by early January. Retired Lt. Gen. Richard A. Burpee, who is heading the Tinker Task Force, said he had heard the first deadline is Jan. 15.

That means, if the information leaks out, communities may know in less than a month what the Air Force's initial recommendations are. But even if an ALC doesn't make the Air Force's or secretary's list, it can be added as late as May by the base-closing commission.

The Air Force decisions will be critical, since the defense secre-

tary generally doesn't deviate when making his own recommendations, and the base-closing commission usually makes few changes to the secretary's list.

One major exception in 1993 involved the ALC in Sacramento. The Air Force recommended that the ALC there be closed, but then Defense Secretary Les Aspin decided northern California had been hit too hard by previous closings. He declined to put it on the list submitted to the commission.

The commission later added McClellan to its review list, along with the ALCs in Oklahoma City, San Antonio and Warner Robins before deciding not to close any of them.

Many involved in the process viewed Aspin's decision about McClellan to be a political one aimed at winning favor in the delegate-rich state of California. Economic impact is supposed to get much less weight than military value, and McClellan was judged by the Air Force to be dead last in those categories.

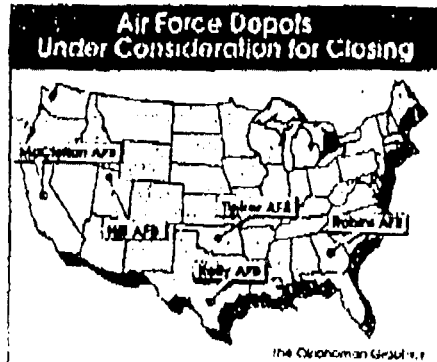
Walden, of Warner Robins, said the McClellan case "taught all of us a number of things."

"We found that (the base-closing process) could be done at a political level with some degree of effectiveness," he said. "We don't discount that possibility again."

Said Roberson, "The data I've seen is that McClellan is the one that should be closed. We're very concerned about some political agenda."

Others, including Burpee, said they assume McClellan will be the first target this round.

Pavich, who was the ALC commander at McClellan in 1993, said



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the commission's decision not to close the Sacramento depot was based on its strong feeling that the Air Force depots were the best of any service's and that they could take work from the other military branches.

"It doesn't make sense to close these national assets without trying to cross-service," Pavich said. "The issue really does come down to saving money. The cost to close ALCs is very expensive."

Indeed, it would cost about \$1 billion apiece to close the ALCs in Oklahoma City, Sacramento, Warner Robins and Ogden. That's higher than the cost of any base closed by the commission in 1993. Only McClellan had a significantly lower closure cost as estimated by the Air Force.

And, for all the ALCs but McClellan, it would be more than 100 years before the cost of closing was paid back in savings. The Air Force estimated it could break even on McClellan in 10 years.

Pentagon officials have said for several years that the military has more depots than it needs. According to a 1993 study by the Joint

Chiefs of Staff, some of the depots could be operating at less than half of capacity in the near future.

But ALC supporters contend that it would be wasteful to close an Air Force center and allow inferior Navy depots to remain open simply because the Pentagon couldn't resolve turf battles between the two services.

The 1993 base closure commission called on the Pentagon to conduct "an exhaustive review" of interservicing the maintenance workload and to present recommendations during the 1995 round.

Said Roberson of San Antonio, "We continue to get very positive statements out of the Department of Defense that they

Air Force Depots What They Do					
	MCCLELLAN	KELLY	TINKER	ROBINS	HILL
AIRCRAFT REPAIRED	<ul style="list-style-type: none"> <li>F-15</li> <li>KC-10a</li> <li>F-111</li> <li>A-10</li> </ul>	<ul style="list-style-type: none"> <li>C-9</li> <li>T-38</li> </ul>	<ul style="list-style-type: none"> <li>B-52</li> <li>E-3</li> <li>KC-135</li> <li>B-1</li> </ul>	<ul style="list-style-type: none"> <li>C-141</li> <li>F-16</li> <li>C-130</li> </ul>	<ul style="list-style-type: none"> <li>F-16</li> <li>A-1</li> <li>C-130</li> </ul>
OTHER REPAIRS	<ul style="list-style-type: none"> <li>Ground Communications electronics</li> <li>Hydrojet engines</li> <li>Lighting</li> <li>Flight Instruments</li> <li>Generators</li> <li>Strainers</li> <li>Software</li> </ul>	<ul style="list-style-type: none"> <li>Engines</li> <li>Nuclear Components</li> <li>Gas Turbine Engines</li> <li>Elect Support Equipment</li> <li>Software</li> <li>Electronics</li> <li>Mechanical Equipment</li> <li>Instrumentation</li> </ul>	<ul style="list-style-type: none"> <li>Engines</li> <li>Hydraulics</li> <li>Auto Flight</li> <li>Control Instruments</li> <li>Engine Instruments</li> <li>Oxygen Gas</li> <li>Garaging Equipment</li> </ul>	<ul style="list-style-type: none"> <li>Airborne Electronics</li> <li>Cyres</li> <li>Miscellaneous Instruments</li> <li>Manufacturing</li> <li>Life Support Equipment</li> <li>Propellers</li> <li>Software</li> </ul>	<ul style="list-style-type: none"> <li>Strategic Missiles</li> <li>Weapons</li> <li>Bluntions</li> <li>Landing Gear</li> </ul>
COST TO CLOSE	\$494.5 Million	\$1.1 Billion	\$1.1 Billion	\$900 Million	\$1.1 Billion
DEPT SCORES	21	51	48	57	54
AIR FORCE (MAX = 65)	16				
1993 BASE CLOSING COMMISSION STAFF (MAX = 65)	55	53	58	55	43
FLYING OPERATIONS SCORES					
BASE CLOSING COMMISSION STAFF (MAX = 174)	99	118	123	90	128

Steve Bordin, The Oklahoman Graphics

want to do interservicing. I think that's a possibility."

But no one's counting on it, and even an all-out commitment to interservicing wouldn't necessarily protect every ALC. That is why the communities are spending a lot of money to try to convince those involved in the process to keep their ALCs open.

Burpee, a former commander of the Oklahoma City ALC, said the Air Force's task in evaluating the depots is difficult because "there's no clear, easy way to compare them." For the most part, they fix different planes and different components,

he said, and the associated costs vary greatly.

In the last round, the Air Force and closure commission examined a wide range of factors under the umbrella of military value. Many of the factors concerned productivity and efficiency and the depots' ability to take on more missions.

In general, the Air Force is interested in how well a base is doing its job, how easy it would be to move the operations elsewhere and how well a base could accommodate the operations of another base.

The Air Force used a color-coded system for ranking military

value, assigning the three colors of a stop light to various criteria. The 1993 commission staff translated the Air Force rankings into numerical grades, then did its own analyses.

Community spokesmen said they are also carefully monitoring the selection of the 1995 base-closing commission. So far, only the chairman has been named — former Illinois Sen. Alan Dixon, a Democrat. There will be seven other members.

There has been widespread speculation that former Utah Sen. Jake Garn, a Republican, will be named to the panel, leading to some tears



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that he may try to protect the Utah ALC.

However, Senate Majority Leader-to-be Robert Dole is expected to have two recommendations and may use one to pick retired Maj. Gen. Jerry Holmes, a former AWACS commander at Tinker Air Force Base. Holmes now lives in Norman.

Following is a look at each of the ALCs and the views of those defending them. Employment figures are from June 1994, the latest available from the Air Force Logistics Command at Wright-Patterson Air Force Base.

**Oklahoma City  
Air Logistics Center  
Employment: Military — 1,851; Civilian — 10,443**

When the Air Force evaluated depot operations for the 1993 round, Tinker did not fare well, finishing fourth among the five Air Logistics Centers.

It was graded down for potential problems in expanding to take on more missions. But Burpee said some of the data given to the Air Force by Tinker may have been flawed.

The base-closing commission, which added factors the Air Force didn't consider, gave the Tinker ALC much better ratings, particularly in its capacity to take on more flying missions.

The Tinker Task Force has been working since the 1993 round on its strategy for this round. Area

businesses and residents have contributed to a fund to hire a lobbying firm in Washington. The two lobbyists working on Tinker are former staff members of the base-closing commission.

"The best thing about Tinker is its flexibility and its ability to accommodate new missions," Burpee said.

The base-closing commission staff in 1993 made the same assessment of Tinker. The staff member who headed the ALC research said Tinker's huge Building 3001 was one of only two unique facilities that truly stood out in the in-depth review of the ALCs. The other was a huge hangar at the San Antonio center.

The argument Tinker supporters make is that the massive hangar can take work from any other ALC.

Other arguments made by the base-closing commission staff in 1993 for keeping Tinker's ALC open were that it would be expensive to close it; Tinker would lose the relationship between the depot and the AWACS and Navy TACAMO planes stationed at the base; the B-2 bomber depot would be lost; the Air Force would lose the skills of workers involved in large aircraft and engine technology; and it would add nearly 6 percentage points to the area's unemployment rate.

The commission staff gave only generic reasons for closing it — that it would reduce excess depot capacity and promote interservicing by forcing competition for the workload lost at Tinker.

Burpee and others contend strongly that Tinker's ALC will survive if the process is objective.

**San Antonio  
Air Logistics Center  
(Kelly Air  
Force Base)**

**Employment: Military — 1,726; Civilian — 10,832**

The mayor of San Antonio put together a task force, and the city has also hired Washington-based consultants. The city tried to hire James Courter, the chairman of the 1991 and 1993 base-closing commissions, but he decided not to represent any bases in this round.

Kelly, like Tinker, has the capability to work on a lot of big planes at the same time.

Roberson said Kelly's main strengths are the quality of its work, its productivity and cost-effectiveness.

"I assume we're all going to be making similar arguments," he said. "It's really unfortunate that we're in the position of competing."

He said Kelly and Tinker could join forces to argue that the Air Force shouldn't get rid of the ALCs that do major engine overhauls.

One aspect frequent-

ly mentioned about Kelly's ALC is its large minority work force. In fact, 61 percent of Kelly's workers are Hispanic. The 1993 commission staff cited that as one reason against closing Kelly's ALC.

"We aren't trying to make the argument that it should stay open because it has a large minority work force," Roberson said. "You can't ignore that fact, obviously."

The 1993 commission staff also cited the costs of closing Kelly's ALC, the problems in moving its large aircraft workload and engine workload and the local economic impact as reasons against closing it.

**Sacramento  
Air Logistics Center  
(McClellan Air  
Force Base)**

**Employment: Military — 2,153; Civilian — 8,886**

The fact that the Air Force recommended this ALC for closure in 1993 is "a natural area of concern," said Tom Eres, president of the Sacramento Metropolitan Chamber of Commerce.

But he said, "We have certainly been given the impression that it's a level playing field (now) with a clear blackboard."

It may not help their cause that McClellan's ALC was the only one examined closely by the 1993 base-closing commission that had more arguments for closing it than against.

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The commission staff — beyond citing the generic benefits of reducing excess capacity and enhancing interservicing opportunities — said the Sacramento center would be the cheapest to close, that it would be an environmental plus to shut it down and that closing it would eliminate the depot with the highest labor costs.

Eres said McClellan backers dispute the claim that it would be significantly cheaper to close the ALC in Sacramento.

"There's no way you could have that level of disparity (in closure costs)," he said. "I don't think the documentation withstood scrutiny."

Sacramento has not hired lobbyists, and Eres said he hasn't seen any strong interest in doing so.

What Sacramento does have is the clout of California, though that hasn't helped a lot of other bases there. The 1993 commission shut down or realigned several bases and operations in California. The Sacramento area has lost a couple of installations over the last few years.

Eres said "cumulative economic impact," the factor raised by Aspin in 1993, is "still going to be on the screen" next year.

"I don't think you're going to find any other area that's already given twice at the office," he said.

But Eres said that factor is "awfully far down on the ladder" and that the community will continue to stress the ALC's military value and the difficulty the Air Force would have in replicating its centers of excellence.

**Warner Robins  
Air Logistics Center  
(Robins Air  
Force Base)**

**Employment: Military — 1,668; Civilian — 10,402**

Dick Walden, executive vice president of the Warner Robins Chamber of Commerce, said the community has been working since the 1993 round to shore up the strengths of the ALC and fix the weaknesses.

The Georgia legislature, he said, had appropriated \$1.5 million to buy some private property just outside the base to help convince the Air Force there was not a problem with community encroachment.

The community has also hired Washington lobbyists.

"We know the competition is strenuous," Walden said.

He said the expense of duplicating the ALC's workload at another center would be

"rather large." And he said an argument could be made for the base's geographical position, since it's the only one east of the Mississippi River.

Before Nov. 8, some thought the Georgia ALC's greatest strength was Sen. Sam Nunn, the Georgia Democrat who is chairman of the Senate Armed Services Committee. However, Nunn will lose that position in January when the GOP takes over. The state does have the incoming speaker of the House, Rep. Newt Gingrich.

Walden said there was some "obvious disappointment" that Nunn had lost his chairmanship. But, he said, while not ignoring potential political ramifications, Warner Robins backers have tried to focus on the criteria being examined by the Air Force.

Robins' depot operations were ranked high by the Air Force and the 1993 commission, though it did not score well in the commission's analysis of flying operations.

The 1993 commission said the Warner Robins community would take a harder economic hit than any of the other areas. The staff estimated closing the ALC would add nearly 23 percentage points to the area's unemployment rate.

**Ogden Air  
Logistics Center  
(Hill Air Force Base)**

**Employment: Military — 2,109; Civilian — 8,454**

Retired Maj. Gen. Mike Pavich, who is heading up the effort to defend Ogden's ALC, said the 1993 commission decided the Intercontinental Ballistic Missile program at Ogden was so unique that they wouldn't review it for a second time.

Whatever the reason, no one's arguing it's immune from closure now. Pavich, like Burpee in Oklahoma City, is a former ALC commander.

The Air Force gave Hill's depot operations high grades, but the commission rankings were much lower. The commission staff gave it the highest grade for flying operations.

Pavich said he was arguing that Ogden's ALC, like Tinker's, has a military mission connected to its depot. And he said it would be extremely expensive to close the ALC and move the ICBM workload.

# Document Separator

## **The Nuclear Posture Review**

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September 22



# NEWS RELEASE

OFFICE OF ASSISTANT SECRETARY OF DEFENSE  
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**REMARKS PREPARED FOR DELIVERY BY  
SECRETARY OF DEFENSE WILLIAM J. PERRY  
TO THE HENRY L. STIMSON CENTER  
20 SEPTEMBER 1994**

All our adult lives, we have lived with the threat of nuclear holocaust hanging over our heads like a dark cloud, threatening the extinction of all mankind. All of my 18 predecessors as Secretary of Defense have had to accept the existence of this cloud and to deal with it by temporizing measures designed to keep a cloudburst from occurring. For example, our nuclear policies during the Cold War did not presume to solve the nuclear problem, but only to keep it from exploding.

Politicians and nuclear scientists in both the U.S. and Soviet Union were consumed by this task of "reducing the risk." The spirit of these times was captured by Andrei Sakharov, who said, "Reducing the risk of annihilating humanity in a nuclear war carries an absolute priority over all other considerations."

Now, with the end of the Cold War, that dark nuclear cloud has drifted away, and the whole world breathes easier in the sunlight. My task as the Secretary of Defense is to take what action I can to keep that cloud from drifting back to threaten the world again. The threat today is not as immediate as it was to Sakharov during the Cold War, but the consequences of failure are no less dangerous. Therefore, I have to believe along with Sakharov that this is an "absolute priority" for me.

Of course, the drifting away of the cloud was not the result of any of our Cold War nuclear policies. Rather, the dramatic reduction in the threat of nuclear war is a result of the radically changed security situation today, including a democratic, non-hostile Russia, with whom we have a new political relationship, and drastic reductions in nuclear arsenals underway.

In light of this new situation, we recently conducted a comprehensive review of our nuclear forces and policies.

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This effort, called the Nuclear Posture Review, looked at policy, doctrine, force structure, operations, safety and security, and arms control. The Review confirmed that, with the demise of the Soviet Union and the disintegration of the Warsaw Pact, nuclear weapons will play a greatly changed role in our national security strategy. But in the course of the review, we also identified three problems that we must deal with as we reshape our nuclear posture:

- First, the small but real danger that reform in Russia might fail and a new government arise hostile to the United States, still armed with 25,000 nuclear weapons requires us to retain a nuclear hedge.
- Second, even with a friendly Russia, we are concerned that its overall drawdown of nuclear weapons is going more slowly than ours.
- And third, because of instabilities attendant to the drastic social, political and economic reforms underway in Russia and the other new states, we must be especially concerned with the security of nuclear components and materials in the nuclear nations of the former Soviet Union.

Russia has made tremendous strides toward reform. Political stability has increased markedly in Moscow since the siege of the Russian White House one year ago next month. Even more impressively, Russian economic reform is moving full speed ahead, with privatization as its centerpiece. In the security domain, Russia is cooperating on many fronts, from denuclearization, to joint exercises, diplomatic efforts in Bosnia and the Mideast, and membership in the Partnership for Peace.

Just to highlight one area of cooperation, two weeks ago, in Totskoye, American forces of the 3rd Infantry Division conducted joint peacekeeping training with the Russian 27th Guards Motorized Rifle Division. The exercise was a sharp contrast with the past. It took place on a remote training field where the Soviets conducted above-ground nuclear tests in the 1950s. These very divisions once faced off across the Fulda Gap, and trained to fight one another in war. Now, they've trained to work together for peace.

This is all good news.

But as I noted in a speech last spring to George Washington University, we have built a pragmatic partnership with Russia because we need to lock in these gains and successes.

There is still plenty of uncertainty. The Russian people have been trying, in a few short years, to change from an authoritarian government to a democratic government; from a state-controlled economy to a market economy. While Russia has succeeded in dismantling the controls of the previous system, the new institutions are still being created. Ukraine is experiencing similar successes and uncertainties. In short, Russia and the other states of the former Soviet Union are struggling, and will continue to struggle, with the historic changes underway.

But in contrast to the U.S., Russia has deactivated just over half of the ballistic missiles required under START agreements. Its non-strategic nuclear warhead stockpile greatly exceeds ours. And each of the Russian armed services continues to retain a nuclear role.

This lag is partly due to internal turmoil and old thinking about the role of nuclear weapons in military security. But more importantly, denuclearization is costly and complex.

There are two ways to deal with Russia's lag.

First, the Nuclear Posture Review indicated that the United States could make further reductions in its non-strategic nuclear arsenal and, assuming START I and II are implemented fully, further reductions in our strategic force structure. I believe that if Russia rethinks its security needs and budget realities, it too will revise its plans downward, especially in the area of non-strategic forces. We would like to see Russia consolidate these non-strategic weapons in the smallest possible number of storage sites; store them under stricter safeguards and inventory control; and dismantle its older and excess weapons sooner.

A direct way to speed up the dismantling of Russia's nuclear weapons is through the Nunn-Lugar cooperative threat reduction program.

The Nunn-Lugar program provides funds to help dismantle the former Soviet nuclear arsenal, convert the Soviet weapons industry to civilian production, and generally help reduce the former Soviet force structure. It's defense by other means.

However, over the past few months, a number of questions have come up in Congress about the Nunn-Lugar program -- questions about whether it's an appropriate use of defense resources, and the rate at which we've put these funds to work. Well, let me tell you how much this program has already accomplished:

- It has helped remove more than 1,600 strategic nuclear warheads -- roughly half -- from delivery systems in Russia, Ukraine, Belarus and Kazakhstan.
- It has helped withdraw strategic systems from those nations. SS-18s are coming out of Kazakhstan and SS-25s from Belarus. Ukraine has deactivated 40 SS-19s and 37 SS-24s.
- And 3,000 former weapon scientists are being re-employed on civilian projects.

Six months ago, when I was in Ukraine, I went down, underground, 12 stories, into the former Soviet ICBM launch control center at Pervomaysk. Two young officers went through the sequence that would have been used to launch 86 missiles, carrying 700 warheads aimed at the United States. And I saw, first hand, the terror of the Cold War.

The Soviet and Russian military custodians have an excellent record of control extending over half a century. But Russia's stockpiles are more numerous and varied than ours. Russia's strategic and non-strategic forces are scattered over more than 100 sites. Moreover, many of these weapons have antiquated safety and locking devices. It is critical that excess weapons be dismantled quickly, and that remaining weapons be stored in the smallest number of locations and under the strictest physical and inventory control.

Under President Clinton's leadership and Vice President Gore's work with Russian Prime Minister Chernomyrdin, we have created several programs to improve control over fissile materials and to improve our cooperative law enforcement efforts. These cover four basic areas:

- First, ceasing production of fissile materials. The United States and Russia signed an agreement in June to shut down the remaining plutonium-producing reactors by the year 2000, and to ban the use of plutonium in weapons. We have also contracted to buy 500 tons of highly enriched uranium from Russian weapons for conversion to civil reactor fuel.
- Second, safer storage. We want to work with the Russians to construct a new storage facility for fissile material from dismantled weapons.
- Third, more cooperation. We're expanding a number of U.S.-Russian cooperative programs that ensure nuclear control and accountability -- for example, between our weapons labs. And we're working together at the highest levels, all the way up to the U.S. Secretary of Defense and Russian Defense Minister.
- And fourth, better inventories. Our countries will continue to work toward a regime to confirm the inventories of excess nuclear warheads and nuclear materials from dismantled warheads.

These are great steps, but we should go farther. In particular, we should extend our cooperative efforts to control fissile materials, and cover the weapons themselves. The Nuclear Posture Review recommends that the United States set the standard for the world by setting up the most stringent safety and security standards for our own nuclear forces. This means equipping our nuclear weapons and systems with the most modern control devices, or retiring older ones that don't incorporate the most modern features.

Once again, we would encourage Russia to take this opportunity to strengthen its own nuclear safety, security and use control methods.

In addition, consistent with U.S. legislation, we propose to share, on a reciprocal and confidential basis, data on our stockpile of nuclear warheads. These include numbers, locations, and dismantlement schedules. This would serve to encourage transparency, trust, and inventory control.

Finally, we should embark on a new cooperative initiative under the Nunn-Lugar program, directed at strengthening the Russian "chain of custody" over nuclear weapons and hastening their dismantlement. But this will be possible only if Congress provides the Nunn-Lugar funds to do it.





# NEWS RELEASE

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**IMMEDIATE RELEASE**

September 22, 1994

## **DOD REVIEW RECOMMENDS REDUCTION IN NUCLEAR FORCE**

Secretary of Defense William J. Perry today announced the results of the Department of Defense's Nuclear Posture Review (NPR).

"In light of the post-Cold War era, President Bill Clinton directed the Defense Department to reexamine its forces," said Secretary Perry. "First, there was the Bottom Up Review of U. S. conventional force structure conducted under Secretary Aspin. Now we have just completed a review of our nuclear forces."

The NPR is the first such review of U.S. nuclear policy in 15 years, and the first study ever to include policy, doctrine, force structure, command and control, operations, supporting infrastructure, safety and security and arms control in a single review.

### **STRATEGIC NUCLEAR FORCES**

The most important results of the Nuclear Posture Review can be seen in the decisions made to reduce the strategic nuclear force structure the U.S. plans to retain after the START II Treaty is implemented. The NPR recommends the following strategic nuclear force adjustments:

-- Fourteen Trident submarines carrying Trident II (D-5) missiles -- retiring four submarines-- rather than 18 submarines, 10 carrying D-5 and 8 carrying C-4 missiles.

-- Sixty-six B-52 bombers, reduced from the 94 planned a year ago.

-- No requirement for any additional B-2 bombers in a nuclear role.

-- All B-1 bombers will be reoriented to a conventional role.

-- Three wings of Minuteman III missiles carrying single warheads (500-450). ✓

No new strategic systems are under development or planned.

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## COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE

While dramatic changes have taken place in the area of command, control, communications and intelligence, the NPR recommendations ensure that our C3I structure will continue to be able to carry out key missions to maintain a viable nuclear deterrent capability.

## INFRASTRUCTURE

The NPR also made a number of recommendations regarding the infrastructure that supports U.S. nuclear forces. The Department will work closely with the Department of Energy, under the aegis of the stockpile stewardship program, to maintain a reliable, safe nuclear stockpile under a comprehensive test ban treaty. The U.S. will maintain selected portions of the defense industrial base that are unique to strategic and other nuclear systems.

## THREAT REDUCTION AND PROLIFERATION

The NPR recommended that the U.S. take advantage of the new opportunities for threat reduction through cooperative engagement: supports the Cooperative Threat Reduction (Nunn-Lugar) program to reduce the danger of unauthorized/accidental use or diversion of weapons or materials from or within the former Soviet Union. It also supports the U.S. Counterproliferation initiative to enhance conventional responses to the use of weapons of mass destruction in regional conflict.

"The NPR decisions allow us to put our nuclear programs in DoD on a stable footing after several years of rapid changes in our forces and programs. These adjustments reflect the changed political situation at the end of the Cold War and the reduced role nuclear weapons play in U.S. security," said Dr. Perry.

"As we make adjustments in our future plans for the U.S. nuclear posture, uppermost in our minds is the fact that the states of the former Soviet Union are yet in the early stages of implementing the agreed reductions called for by the START I and START II agreements," Dr. Perry said. "We are trying to hasten that process through, among other things, our Cooperative Threat Reduction programs with Russia, Ukraine, Kazakhstan, and Belarus. But we kept in mind as we conducted the NPR that START I has not yet entered into force, nor has START II be ratified. For this reason, and because of the uncertain future of the rapid political and economic change still underway in the former Soviet Union, we made two judgments in the NPR.

"First, we concluded that deeper reductions beyond those we made in the NPR would be imprudent at this time; and second, we took several actions to ensure that we could reconstitute our forces as the decade went along, if we needed to," Secretary Perry said.

"The results of the NPR strike an appropriate balance between showing U.S. leadership in responding to the changed international environment and hedging against an uncertain future," he said.

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**Press Conference with  
Secretary of Defense William J. Perry  
General Shalikashvili, Chairman, JCS  
Deputy Secretary of Defense John Deutch  
Mr. Kenneth H. Bacon, ATSD-PA  
Thursday, September 22, 1994**

Mr. Bacon: Good afternoon. Secretary Perry and General Shalikashvili will open with comments, then Secretary Deutch will answer your questions. Unfortunately, Secretary Perry and General Shali will not be able to because they have an appointment at 4 o'clock.

**Q: Any chance for a quick dump on Haiti before you begin, Mr. Secretary, since the time is short?**

**A: No.**

Secretary Perry: Nuclear weapons were the most vivid and significant symbol of the Cold War. They were characterized by four principle factors. First of all, an application of enormous resources. During the peak of our spending we were spending about \$50 billion a year on our strategic nuclear programs. And of course they occupied some of our most talented scientists and engineers.

Secondly, it was characterized by an arms race between the United States and the Soviet Union, an arms race which was dangerous to both countries, and indeed, dangerous to the world.

Third, it was characterized by a unique web of treaties which were intended to try to control that arms race and reduce the danger.

Fourth, it was characterized by a unique military strategy called mutual assured destruction, or MAD. I would liken MAD to two men holding revolvers and standing about ten yards away and pointing their revolvers at each other's heads. The revolvers are loaded, cocked, their fingers are on the

mutual assured destruction, no longer based on MAD. We have coined a new term for our new posture which we call mutual assured safety, or MAS.

This press briefing will describe the results of the ten month study we've conducted on these issues, and will describe to you the blueprints we have put together for our nuclear posture on into the next century. This blueprint will determine the programs we have for force structure, for infrastructure, for safety and security, for command, control, communications and intelligence programs, all associated with our nuclear program.

This Nuclear Posture Review, like the Bottom-Up Review, was conducted by a joint civilian/military team in this building. The team was headed by Dr. Carter on the civilian side, Vice Admiral Owens on the military side. The study was an in-depth study, and it was a no-holds-barred study.

Last week we presented the results of the study to President Clinton, who gave us his full approval to proceed on this program. Today I wanted to introduce the study to you, ask General Shali to join me in the introduction, and then our Deputy Secretary, John Deutch, will give you a detailed report on our findings in the Nuclear Posture Review.

Let me now introduce General Shalikashvili.

General Shalikashvili: Before I relinquish this podium to Dr. Deutch, let me reemphasize the point that Secretary Perry made, and that is that this nuclear review is the product of a very close and collaborative effort between the Office of the Secretary of Defense, the Joint Staff, the services, and the commanders of our unified commands. The conclusions of this review are, in my judgment, a very prudent balance between our arms control accord, our current and anticipated deterrent requirements, and our conviction that we need to protect the inherent advantages of our triad structure. And I think equally importantly, the results also provide us with the necessary hedges in the event that some of our more optimistic anticipations don't materialize.

I think there is one other point that is important to emphasize, and that is that our commitments to our allies are neither changed nor in any way diminished by this review. The United States will retain all of the capabilities we need to sustain our commitments overseas. To this end, even though we are removing the capability to place non-strategic nuclear weapons in our surface ships and our carrier-based aircraft, we will retain our ability to place nuclear Tomahawk missiles on board our attack submarines and to deploy these forward. And of course, our dual purpose aircraft, those capable of performing conventional and nuclear missions, will

The structure of this review is described here. What you see is all the different pieces that have to be taken into account in arriving at a nuclear posture, in arriving at a policy for the role of nuclear weapons in our national security. There are a whole set of complicated considerations that have to be taken into account.

The effort that was undertaken by the Department, as Bill Perry and General Shalikashvili mentioned, included working groups from both the Joint Staff, Strike Com and our civilian parts of the Department of Defense. It was under the heading of Ash Carter and General Wes Clark. Bill Owens and myself served as head of the steering committee. But the important point here is the collaborative effort which involves all elements of the Department.

The most important part which I can talk to you about to begin this discussion has to do with perspective. If I can ask you to recall, since the height of the Cold War there have been significant reductions in our nuclear arsenal, there have been significant reductions in operations, and there have been many program terminations, and many of you here are well aware of the history that's led to such things as cancellation, first introduction and then cancellation of the small ICBM, the reduction in the size of the B-2 program. All these steps are things that have taken place as this country has responded to the changed strategic circumstances that have existed at the end of the Cold War.

Perhaps it's important to get a quantitative sense here. This may be one of the most important charts that I present to you. First of all, I would like you to note that the number of accountable strategic nuclear warheads as a result of our arms control efforts have dropped considerably from the beginning, from the height of the Cold War in 1965, but there has been a significant reduction. So today, the situation we have now, START I has been ratified but has not yet entered into force; START II has yet to be ratified or entered into force. Currently there is a major disparity in the countable nuclear warheads. But at 2003, the end of the time period under consideration by the Nuclear Posture Review, we expect that there will have been a sharp reduction for both Russia and the United States in terms of their accountable strategic nuclear weapons.

It's very important, one of the most important parts of the Nuclear Posture Review, is the decline which we anticipate will take place in non-strategic nuclear forces is not happening. Currently today Russia has between 6,000 and 13,000 non-strategic nuclear weapons. We have a much reduced number from that. We are anticipating going significantly lower in non-strategic nuclear forces, and we have to encourage the Russians--there

additional reduction; but it is also possible that Russia will not develop as we hope, and therefore, it is also necessary for us to maintain a hedge to return to a more robust nuclear posture should that be necessary.

Let me remind you that Russia has little prospect of returning to the kind of conventional force structure that they had at the height of the Cold War due to the collapse of their economy and the change in their political situation. It is a less expensive and less demanding matter for them to return to a much more aggressive nuclear posture. If something does go wrong in Russia, it is likely that it is in the nuclear forces area that we will face the first challenge. It is for this reason that we must keep the possibility both of hedging the need to increase these forces that we are planning to reduce down to the level of 3500, and at the same time, if matters go as we hope, towards a more democratic, more peaceful Russia, that we will be able to reduce the warheads even further. So this is a posture which allows us both to lead, lead in terms of the reductions we're taking, and to hedge in case we have to make adjustments in the future.

The way we arrived at requirements for U.S. nuclear force structure for this period of time through START II was to assess the capabilities of the former Soviet Union--the targets that are there--and we looked at the kind of targeting and kinds of attack plans we might have, and also are prepared to deal with hostile governments not only in Russia, but in other countries.

The central elements of our strategic posture are submarines, bombers and ICBMs. Each of these different platforms have important attributes, especially submarines, which have the virtue of contributing stability, too, because they are so difficult to target and impossible to track when they are deployed at sea. So each one of these elements was considered in the Nuclear Posture Review.

We looked at a variety of different targets--target sets that had to be required, that might be required. We looked at a variety of different force structures. What I would like to do is report to you now on the force structure decisions that have been made.

First, we will reduce the number of ballistic missile submarines from 18 to 14. We will retire four submarines.

Second, we proposed to retrofit all 14 of these submarines with D-5 Trident missiles. That means we will take four of the boats that currently have D-4 missiles and retrofit them with D-5 missiles.

Third, we plan to maintain two bases for this Trident force on both the East and West Coast[s].

Here are some of the modifications that have been made, and are proposed to be made in order to improve the command, control and communications of our nuclear forces.

We will continue to work on, although at a lower level from what was the case in the Cold War--to work on improving the command, control, and communications of these nuclear forces and especially to correct and improve the communications systems and attack warning systems for the nuclear systems.

Let me next turn to infrastructure. Consistent with the Bottom-Up Review we looked at the infrastructure. And I will just briefly report to you on some of the conclusions of our look at the industrial infrastructure--technological infrastructure for nuclear weapons. On this chart perhaps the most important point is our view that the D-5 production will not only serve a low cost way of providing for the missile systems with a reduced ballistic missile fleet, but it also preserve an industrial base for strategic missiles in this country.

Another aspect of our infrastructure concerns our relationship with the Department of Energy to assure that the Department of Energy has the capability in nuclear weapons that we need to arm our systems, and we have a mechanism in place through the Nuclear Weapons Council to provide our requirements to the Department of Energy. We think this is working very well. These are at the top levels, the requirements that we are placing into the Department of Energy. There is an issue about providing for tritium over the longer term which we are working with them. I want to stress that at the present time we do not see the need for new nuclear warheads to be added to our arsenal. No new designed nuclear warhead is required as a result of this review.

Connected with the command, control, and communications--which is such an important element of controlling forces--are the safety and security of the weapons themselves. This is an area where enormous effort has been taken by this Administration. Over a period of time, as a result of the reductions that we've had in our nuclear forces, we have a more controlled and a safer posture for our nuclear weapons. In addition to these changes in posture, we have a number of technical changes. Again, they're not very glamorous, but they are important to improving the controllability and the safety and reliability of these nuclear weapons. All of these permissive action links and safety improvements will be introduced over the next five-year period. We have the funds programmed to do it, and we will include these funds in the FY96 budget.

I'll be happy to take any questions you have. I'm sorry this went on so long.

Q: Two questions, one on numbers, one on policy. First on numbers.

You had a chart up there that said post START II force structure, 2003. The one where you talk about reducing 18 to 14 submarines and all of that. I was unclear from your chart. Are you meaning that that's what you want to initiate in 2003, or post START II? I just didn't understand...

A: That is where we will be at START II on its entry into force.

Q: Are you making any recommendations at this point to go below START II levels?

A: No, we are not. This is a study that I said stays within the framework of START II until it enters into force, and we are prepared at any time to consider reductions below that. Let me just point out to you that not only within strategic forces, we're also very interested in these non-strategic forces. That imbalance to us is of greater concern than small changes in the strategic totals.

Q: In May, you issued a report with your name on it that said we needed to spend \$400 million a year on counterproliferation.

A: Yes.

Q: You outlined it here today. Why is your office then coming up with a plan which they publicly say will only spend \$80 million at the most?

A: The \$80 million which I hope the appropriations conference will put in, is an incremental amount of money. In our base we have put in additional changes, as well. I believe we've gone a significant way to funding the initiatives and counterproliferation that were in the report that we submitted to Congress in May.

Q: I wanted to ask you about the hedge part of the strategy. It seems as though the review came to the conclusion that the former Soviet Union was not that stable enough for you to reduce below the START II levels. Was that a central element of your review?

A: Given the pace at which the Russians are bringing down their actual warheads, we think at this time, before START I has entered into force, before START II has been ratified, we who have to run programs believe that it would not be prudent to commit now for a reduction below those levels. We think it is enormously responsible to be in a posture to respond to a further reduction, but we don't think it would be responsible or prudent to commit now before START II has been ratified, much less entered into force.



Q: Do we know the rate of the Russian destruction of their weapons? And if so, how do we know?

A: We, of course, don't know with all precision. They do report to us, and we do have intelligence to estimate further. But we believe we have a pretty good fix on the rate at which they are bringing down their weapons and the state they are in different levels of dismantlement and the like. While it's obviously not 100 percent precise, we think we have certainly much better knowledge than we had five years ago about what is going on in the Russian nuclear program.

Q: It's not clear to me when the Administration would start negotiating a START III. Would it be only after START II is fully implemented, or would it be after the Russian Duma ratifies START II?

A: I don't think that decision has been made. Mr. Yeltsin is coming here next week, and initiatives could forward from that. Not every initiative with the Russians has to be in the context of a post START strategic nuclear agreement. There could be another kind of agreement which had to do with security of forces, including their controllability which we think is so important; improving the pace at which they dismantle their nuclear weapons; it could have to do with non-strategic nuclear weapons. So the possibilities here of improving stability in the world are vast. They don't only have to be with respect to START III, although that could be introduced at any time.

Q: You've announced a unilateral reduction in launching platforms. Will we be asking the Russians to make similar unilateral cuts?

A: That's the kind of issue that can be discussed in the Summit, and certainly the way we want to go is to point out steps that we are taking to lower the dependence on nuclear weapons, to improve their controllability, their safety, and their security, and we would hope that besides taking unilateral steps, we'll also improve the stability of the world.

Q: When you talk about the reconstitution capability, I assume you mean that warheads that are taken out of active service will be kept in some kind of a reserve so that you could re-arm if you wanted to. Is that the case? And also, do you expect that the Russian government would do a similar thing?

A: Yes, I think that both countries have warheads in reserve, warheads out of the military stockpiles. Then they have absolutely demilitarized warheads which with some time and effort and cost could be made into warheads again. But all of this has to look back against the management of the entire stockpile. But both of us keep some warheads in reserve.

Q: Did the review at all look at the question of the SIOP targetry developed in the Cold War and how much that's going to be reduced by?

which we want to go for further arms control, arms reduction efforts. Again, I want to tell you that this should not only be restrictive to strategic nuclear forces, but also to these non-strategic nuclear forces which are troublesome.

Q:...review of all of these things, and what you're doing is you're saying you've sort of eliminated them and pushed them off...

A: No, I think that as we went through our no-holds-barred analysis we saw that for the Department of Defense, the key issue was to arrive at a posture that was both leaning forward and a hedge for this START II period. This is from now to the year 2003. Here, we have to deal with the programs that have to be in place throughout this period. We have to have a structure that can flexibly respond to new political circumstances. All principle responsibility is to run those programs, design and run them properly. It is not to undertake large scale changes in the possible treaty end point that would come to a broader discussion between the United States and Russia. But our posture permits us to respond to them.

The way I would answer, the dramatic difference here is that we don't have an inflexible posture. We have one that can move this way or that way as circumstances require.

Q: Concerning the ICBM leg of the triad, you're saying that it will remain at 500 land-based missiles?

A: That's correct.

Q: Some Administration officials have said over the past 24 hours that the Administration plans to go down to 300.

A: They're wrong. [Laughter]

Q: Why the confusion?

A: I don't understand it, but I can tell you, this is it. I'm sorry, I've seen that speculation myself. The answer is 500, 450.

Q: There are some programs that have been ongoing where some of the platforms are increasing their conventional capability. Will this have any impact on that, or will those programs remain pretty much the same--such as the conventional capabilities on the B-1s, B-2s, that sort of thing?

A: Those are absolutely important. The conventional capabilities on the B-52, on the B-2, and the upgrades on the B-1 are very important, because that is central to the conventional capability of those bombers relating to our two major regional conflict strategies. So the principal purpose of these bombers is their conventional role, but they will maintain a nuclear role for the deterrent value they contribute.

**Q:** I'd like your assessment of military progress. Is it fast enough in Haiti to allow the return of exiled Parliamentarians so that they can participate in the vote by the recognized Parliament on the question of amnesty?

**A:** The first answer is that I am extremely pleased with the progress of the military buildup in Haiti, and principally its safety. No U.S. soldier has been harmed. No bullets have been fired. So I would say rather than swiftness, it is that aspect of the operation which is most gratifying to Bill Perry, to myself, and to General Shalikashvili.

With respect to the timing of the return of Parliamentarians, that's something that Aristide is going to have to consider. We are prepared to accommodate to that. It will be an issue which President Aristide will have to decide.

**Q:** Is it your understanding that that vote which Cedras is moving to call requires a so-called legitimate Parliament in Haiti, a recognized Parliament to be in place in order for a meaningful amnesty vote to occur?

**A:** I'm not really sufficiently on top of that issue to give you an absolutely accurate answer. I would guess that it would certainly require the legitimate Parliament to do the voting, yes. They've done so in the past, of course.

**Q:** The current military leader, Cedras, has told CBS he does not plan to leave Haiti. If he's not posturing and does not, in effect, leave, aren't you concerned that we are up against another Somalia revisited, right in the center of a coming civil war between Cedras and Aristide?

**A:** I would assume that there are many, many things which are on General Cedras' mind, and he may change his position three or four times between now and the date of the 15th. So I don't think we've heard the last word about where General Cedras or the other de factos may be when President Aristide returns.

**Q:** That's not answering the question, sir. If he does stay are we not caught, in effect, in a similar situation to what we were caught in in Somalia?

**A:** Not necessarily. I don't believe so. We have a legitimate government returning there, for one.

**Q:** How soon would you like to see Aristide get in? Is the expectation that he'll go sooner rather than closer to the 15th? Is that a priority, to get him in as quickly as possible?

**A:** I think the priority there is to first of all, introduce our troops in there safely, without casualties. The second thing is to establish public

Thank you all.

**-END-**

# Document Separator

Roles & Missions

CIRILLO

**Issues Tentatively Selected**

(September 28, 1994)

1. Close Air Support/Fire Support - Bioty
2. Deep Battle/Precision Conventional Strike - Deptula
3. Army and Marine Corps Capabilities -Gido
4. Joint Warfighting -Winsor
5. Overseas Presence - Wood
6. Airpower Organization - Briggs
7. Intelligence Dissemination/BDA - Ingholt
8. Peace Operations - Raach
9. UCP - Loren
10. Streamlining Acquisition Organizations - Ferrara
11. Materiel Supply Mgmt - Hovey
12. OSD, Joint Staff, and Service Secretariats - Kurtz/Hoffman/Antsen
13. Aviation Infrastructure - Rice (includes Service Support Aviation - Bath)
14. Theater Air/Missile Defense - Cantwell
15. Procurement Oversight/Auditing - Dolan
16. Central Logistics Support - Schaefer/Hovey
17. Depot Maintenance Management - Hovey
18. Medical Readiness and Health Benefits - Overslaugh
19. Space - Barker
20. Constabulary Forces - Rosenau
21. DoD Agencies - Hoffman
22. C4 and Information Technologies - (TBD)
23. Nuclear Triad - Schaefer
24. Combat Search and Rescue - Shaw
25. Coalition Interoperability - Jordan/Winsor

**Commissioner's Tentative Decisions on Other Issues**

(September 28, 1994)

AC/RC Maneuver Forces -- further study to de-scope the issue - Harrison

Intelligence Collection -- monitor and knowledge progress of PFIAB and Warner Commission - Ingholt/Sojka

Administrative Headquarters -- deal with non-deploying Service HQ's somewhere, but not as a separate issue

# Gen. Shalikashvili Sees Gap In Joint Force Ops

*Taking U.S. military into next century, defining its role is main concern of Joint Chiefs chairman*

**T**he U.S. military has a long way to go before it can conduct successful joint training for warfighting, said Gen. John M. Shalikashvili, USA, chairman of the Joint Chiefs of Staff.

"Perhaps we have only done the easy things when it comes to jointness. It is now time to move on to the tougher things," he asserted to a Washington DC-audience comprised of members of the American Defense Preparedness Association and the National Security Industrial Association.

Joint doctrine, said Gen. Shalikashvili, underpins joint warfighting. The problem, he explained, is that not enough warfighters on the field fully understand it. Proper joint doctrine must be spread throughout the services because, he added, doctrine is what drives training exercises and actual warfighting.

### Shortfalls in Training

While each individual service has made significant progress in moving its training capabilities into the 21st century, he said,

"We have not yet capitalized on simulation technology for joint training." Joint training, he noted, still needs considerable improvement.

Even though the services have taken giant leaps in sharpening their readiness tools by efficiently allocating resources, said Gen. Shalikashvili, joint readiness is yet to be defined. There are functional areas of military readiness that have been studied and acted upon by each service. The chairman of the Joint Chiefs wants to see those areas addressed and specified in the context of joint readiness.

The Army, Navy, Air Force and Marine Corps should all be aware of what systems and equipment they have individually and collectively, noted Gen. Shalikashvili. "We must look at functional areas as joint requirements," he added.

The Joint Chiefs will be taking action to fix what is not working with joint training, he observed. The goal is to capitalize on the strengths of each service by using them in joint training efforts. "We want to add to their strength, not subtract," he explained.

Joint warfighting requirements, asserted Gen. Shalikashvili, will be shaped by those capabilities that best support the services and can be integrated into joint operations.

### Budget Decline

The increasing demands on the U.S. forces to conduct non-traditional operations throughout the globe has challenged the services to do more with less. During these times of scarce funds, he said, "We have to question everything we do. We must look at roles and missions of the military, ensuring we can get more capabilities out of every dollar." The old ways of doing business are no longer acceptable, he added, and "We now need to put on our thinking hats."

Gen. Shalikashvili has great confidence in the ability of U.S. forces to conduct successful operations, even when equipment runs short or takes too long to be transported. His one big fear, however, is "whether we, in Washington, will be able to do a good job guiding the military into the 21st century without being distracted by day-to-day short-term concerns."

Protecting U.S. interests and national security requires, he said, that "we think of what kind of military we need for the next century." Reductions in force levels, such as those recommended by the Pentagon's 1993 bottom-up review, are acceptable, but only provided that the quality of the forces improve, he explained.

"By just getting smaller we will fail," asserted Gen. Shalikashvili. He wants to see the military find better ways of doing business and become more disciplined in its purchasing practices. By doing this, weapon system enhancements would be purchased in the necessary quantities and will be integrated properly to enhance the quality of the forces.

GAP...Pg. 13

## USMC. Army force mix to be addressed

### **PENTAGON'S ROLES AND MISSIONS COMMISSION NARROWS LIST OF ISSUES TO 25**

The congressionally mandated Roles and Missions Commission said late last week it has narrowed the list of issues it will examine over the next several months to 25. Among the list of contentious topics the panel will tackle is the "appropriate overall size and mix of capabilities between the Army and Marine Corps for forcible entry and sustained land combat," according to a Sept. 30 statement from the commission.

In addition, the panel, chaired by Harvard University's John White, will study how best to organize U.S. forces to perform theater air and missile defense, whether significant adjustments should be made to the Unified Command Plan, and the "appropriate role and organization for DOD space activities in the next century."

The commission began with a list of nearly 60 "candidate issues." At a Sept. 23 meeting, the list was pared to 25. Commission spokesman Cmdr. Gregg Hartung said more topic areas may crop up as the panel begins its work. For example, no issues dealing with the reserve component are on the current list, yet National Guard and Reserve force structure issues will be dealt with by the commission.

The initial issues to be addressed fall into three categories: military operations and operational support, infrastructure and central support, and the national security decision-making process.

The following is a rundown of the rest of the roles and missions issues the commission will study:

- Joint warfighting: "How can we better organize, train, equip support and integrate the capabilities of the forces provided to the joint force commanders in order to improve the effectiveness of joint warfighting?"

- Office of the Secretary of Defense, Joint Staff and service secretaries: "How can the military departments, OSD and the Joint Staff be better structured to more efficiently and effectively provide the suitably trained and equipped elements of the military force structure that are responsive to the needs of the joint warfighting commanders as envisioned by [the] Goldwater-Nichols [DOD Reorganization Act]."

ROLES...Pg. 13

ADA...  
from Pg. 12

own anybody," Edmonds said.

He was the former director of the command, control, communications and computer systems directorate in the Joint Chiefs of Staff.

Now that he "owns" DISA, Edmonds said he plans to find some projects that lend themselves to software engineering discipline and use them as Ada test platforms.

"I don't know any other way to do it, but to get on with it," he said.

Edmonds stressed that the projects are not intended to be "shoot-outs," pitting Ada against C and C++, two languages that have gained popularity in DOD

although neither one is on the department's list of approved high-order languages. Rather, he said he wants the projects to generate scientific results detailing the benefits of Ada.

"I can find the smartest captains and majors, and they'll convince me one way or the other," he said. The Ada debates will continue ad infinitum, Ed-

monds added, until DOD produces scientific results that show why Ada is a sound engineering approach to software development. He said he wants DISA to play a role in formulating these scientific findings.

Edmonds, a chemistry graduate, said, "That's what I understand. I understand science." ■

GAP...from Pg. 7

**Post-Cold War Reality**

"It is not enough to get smaller and better," he cautioned. Another pressing issue for the U.S. military is defining how forces will be used in a post-Cold War environment.

"We don't really know how victory should be measured," observed Gen. Shalikashvili. Pentagon leaders, he added, are increasingly trying to come to grips with what really constitutes victory in a humanitarian mission.

As the chairman of the Joint Chiefs, Gen. Shalikashvili sees as one of his primary missions to ensure the U.S. military can transition into the 21st century with a force that can continue to win the nation's wars and protect U.S. assets worldwide. "When we are getting smaller, readiness has to improve," he said.—SIM ■

LOS ANGELES TIMES  
(Wash. Ed.)

Oct. 4, 1994

Pg. 3

**Iran Rejects  
Russia Vow  
to Halt Arms**

■ **Weapons:** A 1988 arms deal between the two countries was effectively open-ended, continued after the '92 breakup of Soviet Union, official says.

*From a Times Staff Writer*

NEW YORK—Russia's promise not to sell more arms to Iran, given by Russian President Boris N. Yeltsin to President Clinton last week, "amounts to nothing," a senior Iranian official said Monday.

A 1988 arms deal between the former Soviet Union and Iran was effectively open-ended, said the official, who asked not to be identified. Russia decided to stick with that deal after the breakup of the Soviet Union in 1992, the official said, and there is nothing in the promise Yeltsin made in

IRAN...Pg. 14

ROLES...  
from Pg. 7

- DOD Agencies: "To what extent can the process for aligning responsibilities to defense agencies be improved while providing confidence that such responsibilities are being efficiently met without degrading responsiveness to the operating forces?"
- Coalition interoperability: "To what extent should the U.S. explicitly plan, organize, train and budget to best take advantage of the contributions of likely coalition partners in future major regional contingencies?"
- Overseas presence: "Are there more efficient ways to accomplish the objectives of overseas presence?"
- Space: "What is the appropriate role and organization for DOD space activities in the next century?"
- C4 and information technologies: "To what extent should the organization and management of C4 and information technology activities be changed to better support current and future military and DOD operations?"
- Intelligence dissemination: "How should we organize to provide more timely and responsive intelligence support during military operations?"
- Streamlining acquisition organization: "Can the current complex Department of Defense weapons acquisition organizational structure be made more efficient?"
- Procurement oversight/auditing: "Can the added cost of unique DOD procurement oversight and auditing practices be reduced while ensuring efficient and effective delivery of quality products and services?"
- Central logistics support: "To what extent should DOD policy for central logistics support be restructured to take advantage of modern management techniques?"
- Depot maintenance management: "To what extent should DOD planning for and management of depot maintenance be restructured?"
- Materiel management: "To what extent should the management of the department's central supply activities be further restructured?"
- Medical readiness and health benefits: "Can the Defense Department's medical readiness be improved while preserving health care benefits for current beneficiaries in the post-Cold War environment?"
- Airpower organization: "Four air forces -- Can military effectiveness be increased through better integration and/or allocation or air capabilities and, if so, how?"
- Aviation infrastructure: "Can the aviation infrastructure (maintenance depots, training, labs, acquisition, test and evaluation, software support, etc.) be made more effective and efficient?"
- Combat search and rescue: "Which DOD activities should have the responsibilities for developing, fielding and operating combat search and rescue resources?"
- Nuclear Triad? "How should U.S. needs for strategic nuclear forces be met in the longer term?"
- Close air support/fire support: "What is the appropriate mix of systems and assignment of responsibilities?"
- Deep battle/precision conventional strike: "What is the appropriate mix of deep battle systems and responsibilities? How can we best manage and exploit our growing precision strike capabilities?"
- Peace operations: "To what extent should the Defense Department specialize in and explicitly program and budget for peace operations?"
- Constabulary forces: "Who should have the primary responsibility for organizing, training, and equipping foreign constabulary forces?"

The commission will meet next in closed session on Oct. 11-12. The panel's report to Congress on its findings and recommendations is due in May.



# Document Separator

Memo from  
FRANK A. CIRILLO, JR., P.E. E/y

To ~~Ben B~~  
Ed ~~MB~~  
Bob ~~ck~~  
Al ~~SA~~  
~~Tom~~ ~~TH~~  
Bill ~~W~~

Interesting but expensive  
weekly ill. 2 force new line  
we might consider subscribing  
if our budget allows -  
Not enough to justify  
\$530. Need something closer to  
"Can't breathe w/o it." & Frank  
Please Return

# **Inside the Air Force**

*an exclusive weekly report on Air Force programs, procurement and policymaking*

Vol. 5, No. 34, August 26, 1994

## **AIR FORCE COUNCIL APPROVES MOVE TO KILL F-15C SEAD PROGRAM IN FAVOR OF F-16**

The Air Force Council, a small group of senior-level service leaders, last Friday (Aug. 19) blessed a proposal to cancel the lethal suppression of enemy air defenses (SEAD) program for the F-15C fighter in favor of a more modest and less costly effort on the F-16, according to government and industry officials. The move was prompted by a need to cut costs across the Air Force's future years defense program. But the cancellation of the "precision direction finding" (PDF) program after FY-95 was made possible by a feeling among key service officials that the so-called HARM targeting system (HTS) on the F-16 is sufficient to meet interim SEAD requirements until a more capable system can be fielded on the new F-22, sources said.

*continued on page 6*

## **As space-based infrared architecture review nears completion . . .**

### **COMBINATION OF SYSTEMS CONSIDERED FOR SPACE-BASED INFRARED REQUIREMENTS**

Pentagon and service officials are considering a combination of low-earth orbit and geosynchronous space-based infrared systems to meet the requirements of the Air Force and other users of space as part of an ongoing review of space-based infrared architectures, Air Force and Pentagon officials said. An alliance of systems, possibly including elements of the Air Force's Alert, Locate and Report Missiles (ALARM) system, could reduce the total cost for early warning systems without jeopardizing essential capabilities, officials said.

Officials hope to conclude the review by mid-September, in time to influence deliberations on the services'

*continued on page 4*

## **DEUTCH TO INOUE: DOD WILLING TO KILL SPACE-BASED LASER TO SAVE BPI ACTD**

In a bid to save the Air Force's Boost-Phase Intercept kinetic energy program, Deputy Defense Secretary John Deutch has offered the Senate appropriators a deal: The Pentagon is willing to kill the lower-priority space-based chemical laser program in exchange for continued funding of the kinetic energy BPI program. Deutch outlined the proposed deal in a letter to Senate Appropriations defense subcommittee Chairman Daniel Inouye (D-HI), in which he urged Inouye to approve both Ballistic Missile Defense Organization and Air Force funding for the service's kinetic energy BPI advanced concept technology demonstration.

Deutch's letter responds to concerns by Senate appropriators that the Pentagon cannot afford to continue

*continued on page 11*

## **News analysis**

### **WITH OSD, ARMY ASSAILING USAF's PREMIER PROGRAM, F-22 ENTERS FIRST DOGFIGHT**

Until now, it had been almost sacred: the Air Force's F-22 Advanced Tactical Fighter was for the most part untouched by Defense Department or congressional criticism. A General Accounting Office recommendation (leaked to *Inside the Air Force* a year ago and released early this year) that the F-22 be shelved for seven years seemed to have been a false alarm. The Air Force in March staged an unusual campaign to school defense reporters on where the GAO went wrong, and the service did in fact avoid any protracted discussion of the GAO's recommendations in either the press or in congressional budget hearings which followed in the spring. But the notion that the new air superiority

*continued on page 8*

## **U.S. LIKELY TO KEEP NUCLEAR HEDGE OF OVER 2,000 WARHEADS; RUSSIANS, LESS**

Under the various force posture options most likely to emerge from the Pentagon's ongoing Nuclear Posture Review, the United States will retain a latent ability to increase its nuclear forces by over 2,000 warheads as a hedge against a possible reversal in currently friendly relations with Russia, or as insurance against potential technical difficulties with one or more legs of the nuclear triad. The hedge will be made possible under the nuclear force of 2003 by weapons put into storage as the START arms control agreements are implemented.

Meanwhile, U.S. intelligence estimates put the Russian nuclear warhead hedge once the START II agreement is implemented at some 1,850 warheads, over and above the 3,308 "treaty accountable" weapons Russia is expected to

summit between President Clinton and Russian President Boris Yeltsin -- are taking further reductions beyond the still-unratified START II treaty. NPR officials have also proposed another idea, resisted by the Air Force, involving the removal of warheads from land-based strategic nuclear missiles, according to DOD sources close to the review.

Other initiatives under consideration are: accelerating the removal of warheads down to levels called for by START II, which is officially to be implemented by Jan. 1, 2003; and making further reductions in non-strategic nuclear weapons deployed at U.S. bases abroad.

Operational proposals on the table include one that would delay both sides' ability to launch land- or sea-based ballistic missiles, and another that would introduce procedures for cooperative warning and verification of alert status, sources said.

Keeping tabs on the existing stockpile is another concern, according to Pentagon officials. The NPR is looking at proposals for: a U.S.-Russian stockpile data exchange; a stockpile inventory cap; monitoring the dismantlement of nuclear weapons; and storing nuclear weapons or materials outside of Russia.

## MOVE AFOOT IN CONGRESS TO MODIFY BOMBER APPROPRIATIONS LANGUAGE

Concerned that a move by the Senate Appropriations Committee in its FY-95 defense appropriations bill would damage efforts to outfit the bomber force with precision-guided munitions, some members of Congress are working to influence the upcoming appropriations conference not to adopt language that would restrict funds for bomber force upgrades until a thorough bomber force analysis is completed next year, according to Capitol Hill and industry sources. In a letter to be sent early next month to House Appropriations defense subcommittee chairman Rep. John Murtha (D-PA), Rep. Charles Stenholm (D-TX) and several co-signers assert that "if left unchanged, [the Senate panel's measure] will cripple modernization of the nation's long-range bomber fleet."

The Senate Appropriations Committee's version of the FY-95 defense appropriations bill, approved in a vote earlier this month, would require a cost and operational effectiveness analysis to determine the most cost-effective bomber force that could meet the two-conflict requirement set out in last year's Bottom-Up Review. The committee recommends a provision "which would restrict the obligation of procurement and research and development funds for upgrading and modifying the bomber fleet until the report has been concluded," according to the report accompanying the committee's bill. The committee expects that such a report could be completed in time to influence the FY-96 budget cycle, the report stated.

The action by Senate appropriators has also raised concerns among Air Force officials about the bomber force's ability to successfully prosecute two nearly-simultaneous major regional contingencies, prompting Air Combat Command chief Gen. John Loh to go to Capitol Hill recently and express his concern about the offending language, according to congressional sources.

If the Senate appropriators' measure were to prevail in the final appropriations bill passed by Congress, it could endanger industry's ability to upgrade the bomber force, according to one industry source. It could "destroy the B-1 industrial base" in terms of its ability to upgrade the bomber, the official said.

Stenholm is continuing to gather signatures for the letter to Murtha, targeting members from California, South Dakota, Kansas, Oklahoma Texas, and other locations most likely to be directly affected by the Senate panel's moves, a congressional source said. Stenholm currently has 44 signatures from fellow members concerned about the bomber force bill language.

"The Senate provision completely undercuts what the Air Force, DOD and the Congress have been working for -- a capable, flexible and affordable bomber force," the letter states.

Stenholm hopes to send the letter to Murtha in early September, prior the appropriations conference committee, which is expected to convene later next month, according to a congressional staffer.

## USAF FORMALLY NAMED EXECUTIVE AGENT FOR THEATER AIR DEFENSE BM/C4I

Pentagon command, control, communications and intelligence chief Emmett Paige has sent a memo to the service secretaries formally tapping the Air Force as the executive agent (EA) for theater air defense battle management/command, control, communications, computers and intelligence (BM/C4I). The decision, although agreed to by the services several months ago, could reignite a service-wide turf battle as the Air Force formally lays plans to develop and manage a TAD BM/C4I program. In anticipation of such controversy, a Joint Staff-led oversight committee -- with representatives from all the services and the Ballistic Missile Defense Organization -- is being set up to resolve disagreements on TAD BM/C4I issues.

Paige's memo directs the Air Force to "designate and resource an activity to act as the EA to develop, plan, coordinate, and manage, in collaboration with the CINCs [commanders-in-chief], Joint Staff, and services, a TAD BM/C4I program," according to a source familiar with the memo. As part of its job, the Air Force will be responsible for reviewing requirements, programs and system architectures and any proposed changes that might affect TAD BM/

## **USAF, OTHER SERVICES SEEK TO DEFINE REQUIREMENTS FOR 'INFORMATION WARFARE'**

The Air Force is currently crafting the service's definition of requirements for information warfare with an eye toward joining the other services in evolving a common definition of information warfare in the future, service officials said.

Information warfare might be defined broadly as the ability to control the spectrum of information and make it available in the most accessible and effective ways possible to friendly forces while at the same time denying such advantages to the enemy. But one difficulty in identifying a clear set of information warfare requirements and in assessing the threat environment U.S. forces would likely encounter is a lack of consensus on what "infowar" really means, sources said. Information warfare "is a trendy buzzword that is used a lot," but one that means different things to different people, said one Air Force official.

Air Force officials are said to be currently reviewing approaches to information warfare and defining requirements and concepts of operations. A four-star Air Force review on information warfare is expected sometime soon, sources said.

Shared by the services is a recognition that, although each has unique missions, there is a need for shared capabilities. Interviewed for the Aug. 29 edition of *Inside the Navy*, the Navy's director for space and electronic warfare, Vice Adm. Arthur Cebrowski, noted that "we are all going to be operating in this information technology intensive domain . . . [so] everybody needs to be invited in. We need this synergistic play of ideas . . . This is a wonderful opportunity to work together, and there is every indication that that is exactly what is happening."

An issue the Air Force could be expected to consider is how best to incorporate an increased emphasis on information warfare in an institutional framework. "The Air Force's problem is that it has no organization" on which to hang the responsibility for developing information warfare, according to one observer. The task for the service is to give visibility to and highlight the capabilities of information warfare developments while integrating them into the combat commands where they will be put to use, the observer said. But "stovepiped" organizations focusing on information warfare could be too "inward looking" to benefit the entire service, while spreading the discipline among various combat commands could mean that information warfare efforts would lose focus, the observer said.

## **STATE ISSUES LICENSES FOR INDIAN MiG-21 UPGRADES -- WITH CONDITIONS**

Within the past two weeks, the State Department has issued licenses to U.S. companies interested in bidding for projects to upgrade Indian MiG-21s, but caveats were put in place that could hurt the companies' chances to compete, according to sources. The Department of Defense insisted that a proviso be attached to the licenses stating that there can be "no third-country transfers" of U.S. technology. Moreover, government officials would prefer that U.S. officials integrate U.S. technology, although this is not part of the formal proviso, according to State and DOD sources.

Nonetheless, this marks the first time that U.S. companies have been granted permission to participate in upgrades of equipment designed by the former Soviet Union. Earlier this summer, the State Department agreed to consider license applications for the Indian MiG-21 upgrade program on a "case-by-case" basis, but until now had not granted any licenses.

India has already chosen the prime contractors for the project, according to an industry source, so U.S. companies are mainly competing for subcontracting roles in areas such as displays and cockpit canopies.

A State Department source declined to specify which companies have been granted licenses, but did say that "quite a few more" licenses will be awarded. The licenses awarded by the State Department are only for defensive upgrade applications, the source stressed.

According to an industry source, the Indian government has formally invited a number of U.S. companies to participate in the program. These companies hope to hear something from the Indian government by October, sources said.

U.S. companies are also seeking State Department approval to participate in a Romanian MiG upgrade effort. So far, State officials have not decided how they will address license applications for the Romanian program.

## **USAF ACQUISITION OFFICIAL SEEKS BRIEFING ON ADVANCED MILSATCOM SYSTEM**

Citing an opportunity to learn from the "mistakes" made on the Milstar program, Air Force deputy acquisition chief Darleen Druyun has asked for a briefing from the service's program executive office for space on Air Force plans to acquire an advanced military satellite communications (MILSATCOM) system, according to an Aug. 1 memo. Among the subjects Druyun requests be addressed in the briefing are developments in the commercial communications satellite sector that might be of benefit to an advanced MILSATCOM system, as well as an assessment of testimony by officials of the General Accounting Office which asserts that an advanced extremely high frequency (EHF) satellite system could be accelerated several years "at acceptable risk."

House and Senate authorizers urged Defense Department officials to take advantage of progress in the commer-

critic likened the HTS to searching for targets straight ahead through a soda straw.

But F-16 proponents say that HTS is attractive to Air Force leaders because it is cost-effective in the interim period before the F-22 comes on-line. These sources say that if the Air Force so chooses, upgrades could be made to improve the podded system. Or, HTS could be brought into the F-16 cockpit and enhanced with antennas, allowing it yet greater capability.

Proponents of spending an estimated \$500 million to equip 100 F-15Cs with a PDF system say that if more funds are to be spent, they should be applied to a system optimized for detecting targets in today's tactical environment rather than one "kluged" together as a quick fix as the F-4G retires.

As it stands, the Air Force has delayed the retirement of the F-4G until 1997, but a Joint Staff assessment group is reviewing lethal SEAD alternatives that include postponing the Wild Weasel's departure for the boneyard yet further (*Inside the Air Force*, Aug. 19, p5). -- Elaine M. Grossman

## JOINT STAFF GROUP SUPPORTS ACQUISITION OF AMRAAM, AIM-9X

In a briefing to the Joint Requirements Oversight Council on Tuesday, Aug. 23, a Joint Warfare Capability Assessment working group recommended "strong support for continued acquisition of Advanced Medium-Range Air-to-Air Missiles and AIM-9X," according to a source familiar with the briefing. The JWCA suggested acquiring the systems in accordance with the services' future years defense budget from FY-96 to FY-01. Earlier, some officials on the group had suggested the possibility of cutting back AMRAAM buys.

This week's recommendation reiterates what the JWCA agreed to during pre-brief meetings last week, sources said.

The JWCA comprises Joint Staff-led working groups, established by Vice Chief of the Joint Chiefs of Staff Adm. William Owens, to review the roles and missions of the services. During the Aug. 23 briefing, the JWCA made several recommendations to the JROC on issues associated with air superiority, and the JROC plans to take these recommendations and others on the road to brief the commanders-in-chief of the unified commands starting Aug. 28.

## JWCA wants to get CINCs' input on EF-111...

### JOINT STAFF GROUP PROPOSES EF-111 FUTURE BE DECIDED IN FY-97 BUDGET REVIEW

In an Aug. 23 briefing to the Joint Requirements Oversight Council, a Joint Warfare Capability Assessment working group recommended that a decision on whether to retire the EF-111 be put off until the FY-97 program review, and recommended that the JROC solicit input from the commanders-in-chief of the unified commands on the EF-111's role in non-lethal suppression of enemy air defense (SEAD), a source close to the issue said.

At issue is whether the Air Force can afford to support EF-111s through the FY-96 to FY-01 future years defense budget. Some officials argue the Navy's EA-6B is cheaper to support over the same time frame and could take on the mission of the EF-111. According to a source, for 40 EF-111s, the Air Force needs to shell out \$1.6 billion to maintain the fleet over these five years. The Navy would also pay \$1.6 billion for 125 EA-6Bs, said the source. Supporting the EF-111s "is more than three times more expensive for less capability," said the source.

The CINCs stated in their integrated priority lists issued this spring that they want both the EF-111s and the EA-6Bs, according to a source. But in an increasingly tighter budget environment, Pentagon officials are questioning whether both aircraft can be supported.

McClintock  
would be  
to (info)

## EXPORT ADMINISTRATION ACT EXPIRES; PRESIDENT INVOKES EMERGENCY POWERS

Last Saturday, Aug. 20, the Export Administration Act expired as Congress continued to debate an EAA follow-on bill, leaving President Clinton to issue an executive order invoking the International Emergency Economic Powers Act (IEEPA), according to sources.

The executive order, according to a statement issued by the White House, continues in effect all rules and regulations issued by the secretary of commerce under the authority of the EAA of 1979, as amended, and generally all orders, regulations, licenses and other forms of administrative actions under the act. President Clinton issued the order because he felt that "even a temporary lapse in this system of controls would seriously damage our national security, foreign policy, and economic interests and undermine our credibility in meeting our international obligations," the White House statement says.

The executive order continues "national security export controls that are aimed at restricting the export of goods and technologies, which would make a significant contribution to the military potential of certain other countries and which would prove detrimental to the national security of the United States," according to the White House statement.

Neither the government nor industry are happy about the IEEPA; both would prefer a short-term congressional extension of the act. The IEEPA allows courts new freedoms to "second-guess" export licensing, it gives people more

year at this time . . ." Add to that a recent assessment by the GAO that the Pentagon is planning to spend over \$150 billion more on military programs than it has within its FY-95 to FY-99 budget.

While the GAO's conclusions recently made a splash on Capitol Hill, the notion that the Pentagon has an over-planning and under-budgeting problem is nothing new. DOD tactical air analyst Franklin Spinney in 1983 first presented in high-profile congressional testimony his assessment that the Pentagon was biting off more than it could chew and that its emphasis on high technology at the expense of workhorse weapon systems was misplaced.

In a briefing developed over the past couple years called "Anatomy of Decline," Spinney describes in detail the "mismatch" between program plans and ultimate costs. The subtitle to his briefing summarizes in a nutshell the concerns that many are expressing about the ways in which the Defense Department is making reductions: "How Modes of Conduct Evolved During the Cold War Are Setting the Stage for a 'Hollow Military' or Higher Defense Budgets in the Mid- to Late-1990s."

In a series of what he calls "spaghetti diagrams" drawn from DOD planning data and actual cost data, Spinney

*continued on next page*

## **Transcript of Deutch's Aug. 23 Press Conference**

### **DoD News Briefing**

Deputy Secretary of Defense, John M. Deutch  
Director for Defense Information, Colonel Doug J. Kennett  
Tuesday, August 23, 1994 - 1:00 p.m.

Col. Kennett: Good afternoon.

We have Dr. Deutch, our Deputy Secretary of Defense, who will be on the record on a single subject -- that internal working document that many of you seemed to get a copy of. He'd like to talk a little bit about that document, some of the reporting on it, which has been accurate and some of which has not been. He has a short statement, and after that he'll be here to take a few of your questions.

Dr. Deutch: Good afternoon.

I want to inform you about the motivation for the program decision memorandum entitled "Additional Program Alternatives" that I issued on August 18, 1994. I'd like to make four brief points, and then answer your questions.

First, Bill Perry and I believe that we must identify additional dollars over the five year defense planning period to support readiness, military pay increases, and quality of life improvements for our troops. We believe we need to find additional funds, even assuming that OMB grants us, over the five year period, the \$20 billion for inflation and pay that has been discussed since last year at this time when we were at the time of the Bottom-Up Review.

In our view, unless we get more money from Congress, which we doubt will happen, in order to fund these needs of readiness, military pay, and quality of life for our troops, we will have to reduce some of our out year modernization programs.

In sum, this message is money is tight, and we are choosing people over systems.

For example, if we must delay chemical lasers in space in favor of housing for our enlisted people, then Bill Perry and I will do so.

A second point. The list of candidate modernization cancellations is awesome. I want to stress that it is a list of candidate cancellations and terminations or postponements -- nothing has been decided. There will be an extensive period of process for consultation with the service, with the Joint chiefs. At the end of that time there will be decisions that are made. I am quite confident that there will be a handful of cancellations, but as of now, no decisions have been made.

Third, I want to stress that Bill Perry and I believe the Bottom-Up Review strategy is not affected by any of these proposed reductions. Please note that the force structure suggested for the Bottom-Up Review has not been changed at all by any of the proposed reductions. And near term programs that affect the capability of our forces are also not reduced. Indeed, some near term capabilities have been augmented -- for example, precision guided munitions capability.

The fourth and final point that I want to make is that the annual review of the five year defense program will always involve some rebalancing, given the new circumstances that we face and the availability of funds, so that the program review cycle that is underway today which involves these candidate program reductions, involves what is in the judgment of Bill Perry and myself a sensible and prudent management approach that we will be doing every year, and there is nothing different or unique about this year relative to other years.

With that, I'll be glad to take any questions you may have.

Q: There must be, as you say, a tremendous sigh of relief at Lockheed in Dallas, for the moment. Are the F-22 and the V-22 programs in that handful as you now see it, or is it too early?

A: It is too early for me to comment about decisions that will be taken on any of the 11 or so candidate systems that were in the list.

Q: To what extent are the operations with the Haitian refugees and the Cuban refugees also Rwanda, how much is the drawdown of funds to support these affecting the decision that you have to make?

A: The need to carry out peacekeeping and humanitarian assistance is certainly taking money away. It's taking money away from operations and maintenance. But it's part of our defense posture, it's part of what we are doing in the Bottom-Up Review and what our forces are for. But quantitatively, even if those requirements weren't on us here today, we'd still have to take some of these actions.

Q: There was a memo that came out the day before PDM on BMDO. Can you elaborate on the Administration's BMD strategy a little bit? How it fits in with this?

A: We are trying as best we can to stick with the ballistic missile defense strategy that was articulated and described at the time of the Bottom-Up Review. We do not want to deviate from it. However, we have noticed that Congress is not appropriating the money that we have proposed for it. We hope that Congress does. We have taken some reductions in ballistic missile defense consistent with congressional direction, which reduces the total and places greater emphasis on theater missile defense rather than national missile defense. So we believe the actions taken will be consistent with both congressional direction, and remain within the general restructuring of the Ballistic Missile Defense Office program, and we hope that Congress will support these programs in the future.

Q: You're choosing readiness and people over weapon systems, but aren't you, in effect, delaying, creating a situation where somewhere down the line you're going to have a readiness problem because you're using old systems that are harder to maintain, that are less effective.

A: Basically, that's correct. We are delaying two items. We are delaying recapitalization of some of the -- not all, but some of the equipment of the Army, the Navy, and the Air Force. And secondly, we are delaying modernization of some of the systems on which our Army, Navy, and Air Force depend.

Let me make two remarks about that. First, within a fixed budget situation you have to make these choices. And as I said before, for the time being, given the national security needs that we see and which are in front of us every day in the newspapers, we are choosing people, we are choosing quality of life of the troops in contrast to provisions for the future.

Secondly, I also have to say that the character of the threat that we are facing in terms of the technological sophistication is changing, but we do have some room here. The fact of the matter is, we are delaying modernization and capitalization for near term readiness and people.

Q: Another way you could save big money would be to reduce infrastructure further. Is there another look now at a new round of base closures or stepping up the round for '95?

A: First of all, we are going to go ahead, as I've said before, with a very aggressive base closure in '95. That will not lead to net savings over this five year period. That's the answer to the second part of your question. To answer the first part of your question, we will take additional identified reductions in infrastructure in the near term years as well, and I believe that some of the documents that have been issued indicate we will be looking for near term savings and infrastructure as well.

Q: Was the four year slip in the F-22 at all predicated in part on a diminished threat that you see out there in the long term?

A: In part. In part.

Q: What has been the White House reaction to this memo, and how much extra money are you looking for?

A: The White House reaction, to the extent that there has been some, has been generally supportive. I think they recognize, as I hope everybody does, the fact that difficult choices have to be made in a constrained budget environment; and quite frankly, I think they look to us to manage that process. That's what we're here for.

and "continual pressure to reduce readiness."

One strategy Defense Department policy-makers use to get around the difficult funding environment to maintain modernization and readiness is "political engineering," Spinney argues, which he says "aims to lock [the] money spigot open by hooking Congress on [the] narcotic of defense spending." How? "Spread dollars, jobs and profits to as many important congressional districts as possible."

An industry official agreed with this assessment, invoking the classic "prisoner's dilemma" in explaining why companies must engage in focusing their manufacturing in key congressional districts -- because every other major company does so and "if you don't, you're out in the cold."

The strategies DOD officials employ as they "struggle to obtain scarce resources," albeit with good intentions, Spinney states, leads to an outcome of "moral corruption." That occurs, according to the briefing, "when an evolved mode of conduct (formal or informal, written or unwritten) inspires habitual behavior that permits individuals and factions to obtain scarce resources and hence improve their well-being at the expense of the people . . ."

Whither the F-22? We may now see the all-out debate over the merits of continuing with the state-of-the-art stealthy fighter that the Air Force expected as a result of the GAO report early this year.

The Air Force, in an unusual 27-page booklet published this month devoted to describing the F-22 and reprinting DOD leaders' praise for the aircraft, describes the F-22 as "the most important development effort in the Air Force today because the F-22 is the nation's future for air superiority." Although Deutch said in his press conference that the relook at the F-22 production schedule is based "in part" on the diminished threat, the Air Force states that "air superiority in the 21st century will be increasingly difficult to attain. Smaller total force structures will demand more flexible and lethal forces to deal with the wide range of air-to-air, surface-to-air and surface-to-surface threats."

An official representing F-22 prime contractor Lockheed told reporters at an Aug. 24 press briefing on the program that the aircraft program has already suffered over nine years of delay in its fielding because of a diminished threat: originally, initial operational capability was expected this year, while now it is expected in early FY-04. Deutch expects the Air Force to present alternative procurement options for the F-22 and the other service programs in question by Sept. 7. -- *Elaine M. Grossman*

## **DOD WOULD KILL SPACE-BASED LASER TO SAVE BPI TECH DEMO . . . begins page one**

funding three separate BPI programs. Deutch apparently wants to weigh into the debate before the House and Senate appropriators meet in conference next month on the FY-95 defense spending bill.

In the Aug. 10 letter, Deutch stated that the BPI ACTD "represents a higher priority than directed energy concepts, such as space-based chemical laser and airborne laser programs." Deutch goes on to say that "in light of what I see coming out of both the Defense Appropriations and Authorization bills on directed energy, I have determined that it is appropriate to plan for the orderly closeout of BMDO's chemical laser program."

Shortly after he made the proposal to Congress, Deutch mandated in an internal Pentagon program decision memorandum dated Aug. 16 that SBL be terminated no later than FY-95 (*Inside the Air Force*, Aug. 19, p1). ABL was not mentioned in the PDM.

Senate appropriators, in their FY-95 defense spending bill, called for DOD to choose one of the three competing BPI programs, stating, "in a defense budget which already is underfunded by \$20 billion, the committee believes the use of limited research and development funds to pursue all three BPI concepts is unwise." The committee appropriated \$90 million for whichever program was selected.

House appropriators allocated only \$17.7 million for the Air Force's BPI program (the same funding level they approved for the Army's Corps Surface-to-Air Missile program) and appropriated \$120 million for the Navy's Upper Tier program in their FY-95 defense appropriations bill.

The House report language makes it clear that the House appropriators do not support BPI. For example, the report states: "The department's emphasis on the program is unwarranted considering the technological challenges, the possibility of countermeasures, and possible Anti-Ballistic Missile compliance issues. Furthermore, the committee believes that BMDO cannot afford to initiate development of another expensive technology." Since the Bottom-Up Review emphasized the Navy's Upper Tier, the report states, the committee decided to add funds to that program.

The House and Senate authorization conferees recommended a \$90 million cap for BPI programs, with \$20 million going to the airborne laser program, \$40 million to BMDO for its BPI program, and the remaining \$30 million under the \$90 million cap to BMDO for high-power laser research.

In his letter, Deutch also made a case for Congress to maintain both BMDO and Air Force funding for the BPI ACTD. Deutch states that budget submissions were "divided according to each agency's strengths and responsibilities." According to the letter, BMDO would fund a "demonstration of the high-speed, low-altitude kill vehicles for such an interceptor." The Air Force budget would "provide funds for the integration of the interceptor technology onto test aircraft and for developing the appropriate operational concepts for a deployed capability."

*continued on next page*



# Special Report

## SENATE AUTHORIZERS DENY USAF FY-94 B-1/JDAM REPROGRAMMING REQUEST

The Senate Armed Services Committee rejected an Air Force request to reprogram \$16.9 million in FY-94 funds to support efforts to integrate the Joint Direct Attack Munition (JDAM) onto the B-1 bomber, according to a list of that committee's recent action on the Defense Department's FY-94 omnibus reprogramming package. The other three defense-related committees approved the B-1 reprogramming request in their separate actions on the omnibus package, but approval from each of the four committees is required before a request is granted.

The Air Force had requested the money be added to the B-1's research and development account "because the B-1B/Joint Direct Attack Munition integration flight test schedule does not adequately support JDAM production decisions," according to DOD's reprogramming request, which was forwarded to the defense-related committees in June. The extra B-1 funds are needed to accelerate engineering and manufacturing development activities in order to "complete the flight test program approximately six months earlier," thereby removing risk to JDAM decision, the request stated.

House and Senate authorizers agreed to include \$16.9 million to accelerate the integration of JDAM onto the B-1 in their report on the FY-95 defense authorization bill. The money is intended to accelerate the date for operational capability of JDAM on the bomber, rather than to speed preparations for the bomber to serve as the test platform for JDAM, according to an Air Force official.

In its test platform configuration, one B-1 will be outfitted with a prototype system that will allow the aircraft to drop the weapon and with instrumentation to record "what's going on," the official said.

The actions of the Senate Armed Services Committee, Senate Appropriations defense subcommittee and the House Armed Services Committee on DOD's FY-94 omnibus reprogramming request are reprinted below.

### House Armed Services Reprogramming

August 19, 1994

Honorable William J. Perry  
Secretary of Defense  
The Pentagon  
Washington, D.C. 20301

Dear Mr. Secretary:

The Committee on Armed Services has reviewed the Department's proposed reprogramming request 94-3 PA, Cooperative Threat Reduction; reprogramming request 94-6, Omnibus Reprogramming; and reprogramming request 94-8, Research, Development, Test and Evaluation, Army 94/95. Except as noted below, the committee interposes no objection to your proceeding with these reprogramming actions:

#### Reprogramming Request 94-3 PA

Of the \$318.5 million reprogramming increase, the commit-

tee defers action on \$3.4 million designated for environmental restoration activities in supporting materials provided to the committee by the Department, thereby neither approving nor disapproving this item at this time. In addition, the committee denies approval of \$57.358 million in sources from the Aircraft Procurement, Navy 93/95 EA-6B/Remfg (Elec W/F) Prowler program identified on page 7 of the reprogramming action.

#### Reprogramming Request 94-6

Of the \$2,622,098 million reprogramming increase, the committee defers action on the proposed \$10.6 million transfer from the Defense Nuclear Agency to the Former Soviet Union Threat Reduction account for the environmental restoration activities identified on page 23 of the reprogramming request, thereby neither approving nor disapproving this item at this time. In addition, the committee denies approval of the following increases identified in the reprogramming request (dollars in thousands):

RDTE	AF	93,	PE	301324F	Forest Green	+ \$4,622
RDTE	DW	94,		602301E	Computing Sys \$ Comm Tech	+ \$2,000
RDTE	DW	94,		305190D	C3I Intelligence Programs	+ \$9,000

The Committee denies approval of the following sources identified in the reprogramming request (dollars in thousands):

RDTE	A	94,	PE	601102A	Defense Research Sciences	- \$9,774
OPN		94,			SOSUS	- \$7,500
APN		94,			CH/MH-53E (Helo) Advance Procurement	- \$15,000
MPA		94,			Avenger System Summary	- \$10,400

(\$ in 000's)		FY 94 UNENCUMBERED INCREASES		(\$ in 000's)		FY 94 ENCUMBERED INCREASES	
Account	YX	Title	Amount	Account	YX	Title	Amount
MPERSN	94	Unemployment Compensation	88,100	OMN	94	F/A-18 Engine Maintenance	27,438
MPERSN	94	Retired Pay	79,100	OMMC	94	School Training Support	8,840
MPERSN	94	Accelerated Decommission.	29,900	OMAF	94	Depot Level Repairables	44,009
OMN	94	Voluntary Separation	94,000	OMDW	94	Overseas Oper Exp (Depend Educ)	9,588
OMN	94	F/A-18 Engine Maint.	3,362	OMDW	94	Global Cmd & Cntrl Soft Integ (JCS)	7,400
OMMC	94	Locality Pay	10,460	OMDW	94	Commission on Roles & Missions (OSD)	3,000
OMMCR	94	Environmental Compliance	1,900	OMDW	94	Investig. Capability Advisory Bd.	1,300
OMMCR	94	Planned Unit Relocations	1,700	OMAFR	94	Homestead AFB BOS	11,000
OMMCR	94	Depot Level Repairables	1,200	OMAFNG	94	Depot Maintenance	13,950
OMMCR	94	Maintenance of Equipment	600	FSU	94	Assistance to the Rep. of Belarus	10,600
OMMCR	94	Trng. and Maintenance MIAL	600	PAA	94	Sunflower Army Ammo Plant	15,200
AFN	94	MH-60H	96,978	OPA	94	Fmly of Med Tac Veh (MYP) (Fr Reimb)	9,484
AFN	94	E-2C Adv. Proc.	37,781	OPA	94	Hi Bob Multi Wheeled Veh (Fr Reimb)	4,217
AFN	94	CH-53E	15,000	OPA	94	Tact Trailers/Dolly Sets (Fr Reimb)	282
ROUTEN	94	Conventional Munitions	4,200	OPAF	94	Information Transmission Systems	2,000
MPERSAF	94	C-130 Units realignment	211,600	RDTEA	94	Base Operations - RDT&E	4,700
MPERSAF	94	Retired Pay	80,000	RDTEA	94	Programwide Activities	3,000
OMAF	94	Depot Level Repairables	91,692	RDTEA	94	Army Test Ranges & Facilities	2,400
OMAF	94	Locality Pay	91,849	RDTEAF	94	Advanced Program Evaluation	4,900
OMAFR	94	Locality Pay	15,350	RDTEAF	94	B-1B bomber	16,900
OMAFR	94	Bergstrom AFB mission	6,000	<b>OTHER ENCUMBERED INCREASES</b>			
OMAFR	94	71st Special Operations Squadron	2,300	PAA	93	Layaway of Industrial Facilities	15,000
OMAFNG	94	Locality Pay	17,400	DBOF	93	Def Business Operations Fund	33,814
MPAF	94	Defense Spt. Prog. Adv. Proc.	32,435	DBOF	92	Def Business Operations Fund	13,000
RDTEAF	94	C-17 Program	53,700				
OMDW	94	Teacher's Salaries	32,900				
OMDW	94	Overseas Oper. Expenses	16,212				
OMDN	94	Locality Pay	16,232				
OMDN	94	Conversion of non-standard mapping	13,900				
COURT	94	Locality Pay	87				
PDW	94	Classified Equipment	20,400				
PDW	94	Major Equipment	12,150				
NGRE	94	Electronic Tandem Net	4,475				
RDTEAW	94	Tactical Cryptologic Act.	7,000				
RDTEAW	94	Special Technical Spt.	6,400				

(\$ in 000's)		FY 93 UNENCUMBERED INCREASES		(\$ in 000's)		DENIED SOURCES	
Account	YX	Title	Amount	Account	YX	Title	Amount
WLDCUP	93	Security for World Cup Games	1,800	OMAF	94	NOAA	-17,000
PAA	93	Layaway of Industrial Facilities	5,900	PAA	94	M483-M864 Conversion	-25,000
OPA	93	Items Less than \$2.0 Mil (Intel Spt)	400	OPA	94	FAD-GBS	-1,155
APN	93	E-6 Trainers	5,000	OPA	94	Common HW/SW	-1,500
APAF	93	C-17 (MYP) Adv Proc (CY)	26,000	OPA	94	XM56 Smoke Generator System	-4,900
PDA	93	Major Equipment (OSD/WHS)	1,000	OPA	94	Training devices, Nonsystem	-5,000
NGRE	93	Surface Warfare Tactical Trainer	8,750	OPA	94	Intgrtd. Fmly of Test Equip. (IFTE)	-10,000
RDTEA	93	Exploitation of Foreign Items	50	OPA	94	Family of Heavy Tactical Vehicles	-11,094
RDTEA	93	Tactical Airborne Recon	7,000	OPA	94	SINCGARS Family	-12,500
RDTEA	93	SEW Surveil/Recon Support	1,000	APN	94	EA-6B/REMFG Prowler	-77,586
RDTEAF	93	Upper Stage Space Vehicles	43,343	MPAF	94	Special Update Program	-3,442
RDTEAF	93	TITAN Space Launch Vehicles	11,057	OPAF	94	Special Update Program	-395
RDTEAF	93	F-16 Squadrons	14,300	OPAF	94	BSU-49 Inflatable Retarder	-8,000
RDTEAF	93	Forest Green	4,622	PDW	94	Major equipment (DPSO)	-23,000
RDTEA	93	CJI Intelligence Progs	2,500	RDTEA	94	Aviation Tech	-1,000
RDTEA	93	Intel Planning & Rev Act	1,050	RDTEA	94	Environmental Quality Tech	-1,000
DBOF	93	Def Business Operations Fund	350,142	RDTEA	94	EW Development	-1,200
<b>OTHER UNENCUMBERED INCREASES</b>				RDTEA	94	Medical Technology	-2,000
APN	92	F-3 Series Mod	14,506	RDTEA	94	Environmental Compliance	-2,750
MPAF	92	Space Boosters (MYP)	8,900	RDTEA	94	Aviation - Eng Dev	-3,300
PDA	92	MH-47/MH-60 Modifications	8,000	RDTEA	94	Weapons and Munitions - Eng Dev	-3,600
DBOF	92	Def Business Operations Fund	61,495	RDTEA	94	Aviation - Ad Dev	-5,510
SCN1	90	Coast Guard Patrol Boat	793	RDTEA	94	Programwide Activities	-7,000
SCN1	88	Trident (Nuclear)	3,450	RDTEA	94	Defense Research Sciences	-9,774
SCN1	86	MSH-1 Coastal Mine Hunter	3,000	RDTEA	94	Combat Vehicle Improve Prog	-17,000
<b>(\$ in 000's)</b>				RDTEA	94	Ship Self Defense	-2,500
<b>FY 94 ENCUMBERED INCREASES</b>				RDTEA	94	Adv Submarine Combat Systems	-3,000
Account	YX	Title	Amount	RDTEA	94	Advanced ASW Technology	-14,600
MPERSA	94	Unemployment Compensation	32,300	RDTEAF	94	Space Sys Environ Inter Tech.	-70
OMA	94	Locality Pay	103,116	RDTEAF	94	Minimum Essential Emer Comm Net	-200
OMA	94	Foreign Nat'l. Pay Raise	48,549	RDTEAF	94	Special Evaluation Program	-270
OMA	94	Base Closure Recoveries	16,000	RDTEAF	94	Space & Msla Rocket Propulsion	-300
OMA	94	Recruiter Train. & Ad. Support	20,700	RDTEAF	94	Evaluation and Analysis Program	-500
OMA	94	Contingency Missions	20,504	RDTEAF	94	Adv Avionics for Aerospace Veh	-500
OMA	94	Strat. Mobil. Prog. & War Res.	12,000	RDTEAF	94	Crew Sys and Pers Protect Tech	-652
				RDTEAF	94	Advanced Spacecraft Tech	-1,000
				RDTEAF	94	Airborne Warning and Control Sys	-1,300
				RDTEAF	94	Adv Materials for Weapons Sys	-1,106
				RDTEAF	94	Command, Control and Comm	-2,000
				RDTEAF	94	Ballistic Missiles Tech	-2,243
				RDTEAF	94	Applied Technology & Integration	-2,400
				RDTEAF	94	Rocket Prop & Astronautics Tech	-2,606
				RDTEAF	94	B-52 Squadrons	-3,000
				RDTEAF	94	Defense Satellite Comm Sys	-5,000
				RDTEAF	94	Space Subsystems Tech	-5,500
				RDTEAF	94	Defense Research Sciences	-2,400
				RDTEAW	94	Intel. Planning & Review Act	-2,000

SENATE ARMED SERVICES COMMITTEE

INCREASES APPROVED

ROTEDA	1993	35190D C3i Intelligence Progs	2,500
ROTEDA	1993	35884L Intel: Planning & Rev Act	1,040
DBOF	1993	Defense Business Operations Fund	387,958
APN	1992	P-3 Series Mods	14,506
MPAF	1992	Space Boosters (MYP)	8,900
PDA	1992	MH-47/MH-60 Modifications	9,000
DBOF	1992	Def Business Operations Fund	74,490
SCN	1990	Coast Guard Patrol Boat	793
SCN	1988	Trident (Nuclear)	3,450
SCN	1986	MSH-1 Coastal Mine Hunter	3,000
TOTAL INCREASES APPROVED			2,596,198

INCREASES NOT APPROVED

ROTEWD	1994	35190D C3i Intelligence Progs	9,000
ROTEAF	1994	64226F B-1B	16,900
TOTAL INCREASES NOT APPROVED			25,900

DECREASES APPROVED

MPERSMC	1994	End Strength	19,300
MPERSAF	1994	Revalidation of Subsistence Entitlement	11,800
RPA	1994	Professional Develop & Other Trng	46,245
RPMC	1994	Mobilization Training	1,932
RPMC	1994	Personnel Workyear Reduction	4,068
OMAF	1994	NOAA	17,300
OMAF	1994	C-130 Units Funding Realignment	105,000
OMDW	1994	DLA Requirements	45,900
OIG	1994	Oper & Maint, FY 1994	1,500
CMAR	1994	Reserve Comp Automation Sys	7,400
OMANG	1994	Electronic Tandem Network	475
OMANG	1994	Reserve Comp Automation Sys	15,200
DHP	1994	Defense Health Program (O&M)	25,800
APA	1994	Common Ground Equipment	1,600
APA	1994	AH-64 Mods	2,000
APA	1994	Spare Parts	3,500
APA	1994	Aircraft Survivability Equipment	7,177
APA	1994	Airborne Command & Control Consoles	372
MPA	1994	Air Defense Targets	136
MPA	1994	Army Tactical Missile System (ATACMS)	7,000
MPA	1994	Spares and Repair Parts	7,222
MPA	1994	Stinger System Sum (New Production)	7,700
MPA	1994	Stinger System Summary	9,600
MPA	1994	Avenger System Summary	2,000
PWTCVA	1994	Bradley Fighting Vehicle Family (MYP)	12,300
PAA	1994	CTG, 50 Cal, All Types	500
PAA	1994	First Destination Transportation (Ammo)	1,100
PAA	1994	Conventional Ammo Demilitarization	3,000
PAA	1994	Ctg., 5.56MM, All Types	3,224
PAA	1994	Ctg Tank, 105MM, TP-T M490A	5,000
PAA	1994	Ctg Tank, 105MM TPD5-P M724A	5,000
PAA	1994	AT-4 Upgrade	10,000
PAA	1994	Maintenance of Inactive Facilities	15,200
PAA	1994	M483-M864 Conversion	25,000
OPA	1994	FAAD - GBS	155
OPA	1994	Spares and Repair Parts (TAC)	1,223
OPA	1994	Common HW/SW	1,500
OPA	1994	Corps/Theater ADP Svc Ctr	3,500
OPA	1994	Initial Spares - PEO Communications	4,700
OPA	1994	XM56 Smoke Generator System	4,900
OPA	1994	Training Devices, Nonsystem	5,000
OPA	1994	Mask, Protective NBC M40/M42	9,300
OPA	1994	Integrated Family of Test Equip (IFTE)	10,000
OPA	1994	Natural Gas Utilization System	10,000
OPA	1994	Family of Heavy Tactical Vehicles (MYP)	11,094
OPA	1994	Reimbursable Program (Trucks, HMMWVs)	13,983
OPA	1994	Standard Integrated Cntrl Post System	15,000
OPA	1994	Automated Data Processing Equipment	24,000
APN	1994	P-3 Series Mods	2,074
APN	1994	H-53 Series Mods	2,200
APN	1994	Common Ground Equipment	5,000
APN	1994	E-2 Series Mods	9,900
APN	1994	F-14 Series Mod	20,000
APN	1994	Spares and Repair Parts	25,000
APN	1994	SH-60B (ASW HELO) Adv Proc (CY)	27,150
APN	1994	E-2C (Early Warning) HAWKEYE	27,981
APN	1994	F/A-18 (Fighter) HORNET	28,800
APN	1994	Common ECM Equipment	30,000
APN	1994	SH-60F CV (ASW HELO) Adv Proc (CY)	36,633
APN	1994	EA-6B/REMFG Prowler	77,586
APN	1994	SH-60F CV (ASW HELO)	84,817
WPN	1994	5154 Gun Ammunition	2,100
WPN	1994	76MM Gun Ammunition	2,100
WPN	1994	General Purpose Bombs	14,000
OPN	1994	Submarine Pump Retrofit Kits	1,000

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OPN	1994	AN/SSQ-53 (DIFAR) Sonobuoy	8,054
OPN	1994	Gun Fire Control Equipment	7,200
OPN	1994	SOSUS	7,500
OPN	1994	Airborne Expendable Countermeasures	8,000
OPN	1994	Natural Gas Utilization	10,000
OPN	1994	Surface TOMAHAWK Support Equipment	10,000
OPN	1994	AN/SSQ-77	34,200
APAF	1994	Common ECM Equipment	396
APAF	1994	F/RF-4 Mods	2,000
APAF	1994	Comon AGE	3,039
APAF	1994	F-15 Mods	3,400
APAF	1994	EF-111 Mods	3,750
APAF	1994	Other Production Charges (FOTRS)	3,854
APAF	1994	Other Production Charges (Training)	4,398
APAF	1994	C-130 Mods	4,500
APAF	1994	E-8B	4,800
APAF	1994	F-16 Mods	9,450
APAF	1994	B-1B (MYP)	9,900
APAF	1994	Other Proc Charges (Classified Programs)	14,586
APAF	1994	C-130H	18,400
APAF	1994	F-16 C/D (MYP), Adv Proc (CY)	20,946
APAF	1994	C-17 (MYP), Adv Proc (CY)	23,300
APAF	1994	Spares and Repair Parts	36,114
APAF	1994	C-17 (MYP)	69,350
MPAF	1994	Advanced Cruise Missile	1,800
MPAF	1994	Defense Satellite Comm System (DSCC)	2,000
MPAF	1994	Space Shuttle Operations	2,000
MPAF	1994	ionics (MYP)	2,500
MPAF	1994	Global Positioning (MYP)	3,300
MPAF	1994	Special Update Programs	5,009
MPAF	1994	AMRAAM (Cost Savings)	5,600
MPAF	1994	AMRAAM (Conversion to ADA)	14,000
MPAF	1994	Medium Launch Vehicles	29,700
MPAF	1994	Defense Support Program (MYP)	32,435
MPAF	1994	Tri-Serv Attack Missile (Cost Initiatives)	35,000
MPAF	1994	Tri-Service Attack Missile (Initial Buy)	38,318
OPAF	1994	Minimum Essential Emer Comm Network	1,300
OPAF	1994	Modifications	1,500
OPAF	1994	Special Update Program	2,395
OPAF	1994	Tactical Shelter	2,504
OPAF	1994	Mobility Command and Control	3,637
PDW	1994	Development Test Facility (DMA)	1,800
PDW	1994	Major Equipment (OSD/WH5)	3,950
PDW	1994	Major Equipment - GCCS Realignment (JCS)	5,900
PDW	1994	Corporate Info Mgmt (CIM)	6,100
PDW	1994	Major Equipment (DSPO)	23,000
CHEM	1994	Procurement, 94/90	17,000
RDTEA	1994	0602801A Combat Veh and Automotive Tech	500
RDTEA	1994	0602720A Environmental Quality Tech	1,200
RDTEA	1994	0604270A EW Development	1,200
RDTEA	1994	0603804A Logistics and Eng Eq - Adv Dev	1,250
RDTEA	1994	0602784A Military Engineering Tech	1,700
RDTEA	1994	0604622A Family of Heavy Tactical Veh	1,900
RDTEA	1994	0602787A Medical Technology	2,000
RDTEA	1994	0602337A Advanced Weapons Technology	2,100
RDTEA	1994	0203802A Other Miss Prod Imprv Prog	2,400
RDTEA	1994	0602705A Electronics & Electronic Devices	2,500
RDTEA	1994	0603806A NBC Defense Sys - Adv Dev	2,727
RDTEA	1994	0605856A Environmental Compliance	2,750
RDTEA	1994	0602788A Logistics Technology	3,000
RDTEA	1994	0604801A Aviation - Eng Dev	3,300
RDTEA	1994	0603085A Combat Svc Sup Computer Sys Eval	4,000
RDTEA	1994	0603004A Weapons and Munitions Adv Tech	5,000
RDTEA	1994	0603801A Aviation - Adv Dev	5,500
RDTEA	1994	060120A Electronic Surv & Fuzing Tech	6,000
RDTEA	1994	0605801A Programwide Activities	7,000
RDTEA	1994	0601102A Defense Research Sciences	9,774
RDTEA	1994	0604768A TRACTOR BAT	10,000
RDTEA	1994	0605805A Munitions Stand. Effect. Safety	10,228
RDTEA	1994	0203735A Combat Vehicle Improve Prog	17,000
RDTEA	1994	0603755N Ship Self Defense	2,500
RDTEA	1994	0603504N Adv Submarine Combat Systems	3,000
RDTEA	1994	0605864N Test and Evaluation Support	3,900
RDTEA	1994	0604214N AV-8B Aircraft - Eng Dev	7,500
RDTEA	1994	0603747N Advanced ASW Technology	14,600
RDTEA	1994	0604270N EW Development	16,400
RDTEAF	1994	0205667N F-14 Upgrade	55,500
RDTEAF	1994	0604750F Intelligence Equipment	68
RDTEAF	1994	0603410F Space Sys Environ Inter Tech	70
RDTEAF	1994	0604711F System Survivability (Nuc)	100
RDTEAF	1994	0303131F Minimum Essential Emer Comm Net	200
RDTEAF	1994	0207248F Special Evaluation Program	270
RDTEAF	1994	0203140F Info Sys Security Program	300
RDTEAF	1994	0603302F Space & Miss Hocket Propul	300
RDTEAF	1994	0603723F Civil/Environmental Engr Tech	300
RDTEAF	1994	0604233F Specialized Undergrad Pilot Trng	300
RDTEAF	1994	0605708F Nav/Radar/Sled Track Test Sup	300
RDTEAF	1994	0305906F NCMC - TW/AA System	400
RDTEAF	1994	0602206F Civil Engineering & Envir Qual	400
RDTEAF	1994	0207579F Advanced System Improvements	432
RDTEAF	1994	0603726F C3i Sys Integ (AF Submit)	442
RDTEAF	1994	0207141F F-117A Squadrons	500
RDTEAF	1994	0207424F Evaluation and Analysis Program	500

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**Air Force Association**

**SPECIAL REPORT**

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**Forces, Requirements, and Strategy**

**The US Air Force in Regional Conflicts**

June 24, 1994

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The Air Force Association  
1501 Lee Highway, Arlington VA 22209

## **Forces Requirements, and Strategy**

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## **Forces, Requirements, and Strategy**

### **The US Air Force in Regional Conflicts**

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For several weeks in the summer of 1993, Secretary of Defense Les Aspin tested public opinion with a proposal for a sequential military strategy called "Win-Hold-Win." The reaction to it was overwhelmingly negative. Mr. Aspin was in a fix of his own making. He was searching for a program that would match the radical defense spending cuts he and President Bill Clinton had announced earlier,<sup>1</sup> before investigating the impact the reductions would have on force capability. Details were to be worked out in a "Bottom-Up Review" to follow.

"We have been dealing with numbers grabbed out of the air," Sen. Sam Nunn (D-Ga.), chairman of the Senate Armed Services Committee, complained. "No one knows where these cuts are going to come from."<sup>2</sup> Sen. John McCain (R-Ariz.) said the Clinton-Aspin budget set up a precipitous drop in force levels.<sup>3</sup>

Indeed, initial Pentagon analysis of requirements in the Bottom-Up Review pointed to a larger force than the budget would cover, which led to the "Win-Hold-Win" proposal. When that went down under fire, Mr. Aspin proclaimed the "two-MRC" strategy that is still in effect today: that US forces be prepared to fight and win two

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<sup>1</sup> "FY 1994 Defense Budget Begins New Era," Department of Defense, March 27, 1993.

<sup>2</sup> Gelman, "Defense Budget 'Treading Water'," *Washington Post*, March 28, 1993.

<sup>3</sup> "Beyond the Base Force and Defense Budget Cuts," April 2, 1993.

major regional conflicts "nearly simultaneously."<sup>4</sup>

Four months later, Mr. Aspin announced the force structure to implement this strategy.<sup>5</sup> It was a steep drop from the "Base Force" proposed by the Bush Administration. The Air Force, for example, would field twenty fighter wings rather than 26.5. The Army would have ten active divisions instead of twelve.

Among the unconvinced was Rep. Ike Skelton (D-Mo.), chairman of the Military Forces and Personnel subcommittee of the Senate Armed Services Committee. He declared that "simple third grade arithmetic" showed that the projected force could not cover two major regional conflicts.<sup>6</sup>

Senator Nunn also saw troubles ahead. "Our military forces are not capable of carrying out the tasks assumed in the Bottom Up Review with this kind of eroding defense budget," he said last October. "We are either going to have to adjust the resources or our expectation of what military forces will be able to do, because the two are going in opposite directions."<sup>7</sup> He repeated his concern in November: "The warning lights are flashing in terms of our military strategy vs. our resources and . . . our commitments vs. our capabilities."<sup>8</sup>

Sen. John Glenn (D-Ohio), said that, "You could sustain something like Desert Storm with [an active force level of] 1.3 to 1.5 million . . . We are beginning to cut to the point where we may be below that, so our ability to sustain even the size of a Desert

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<sup>4</sup> Aspin, speech to Air Force Senior Statesmen symposium, Andrews AFB, Md., June 24, 1993.

<sup>5</sup> Aspin, "Report on the Bottom-Up Review," October 15, 1993.

<sup>6</sup> Skelton, statement at Army personnel hearing, October 27, 1993.

<sup>7</sup> Floor speech to Senate, October 21, 1993.

<sup>8</sup> Floor speech, November 17, 1993, during Senate Debate on the FY 1994 defense budget.



Storm is going to be jeopardized."<sup>9</sup>

Concerns about the two-conflict regional strategy have not abated. The argument is not with the basic concept -- on which there is fairly general agreement -- but about the force levels and budgets proposed to go with it.

In April 1994, Mr. Skelton wrote to Mr. Aspin's successor, William J. Perry. "Simply put, today we cannot fight two major regional conflicts," he said.<sup>10</sup> He expressed two broad worries: the size of the forces projected by the Bottom-Up Review (BUR) and the funding for them. "The Navy and the Air Force are already reducing the force structure laid out in the BUR due to budgetary constraints," he said. Mr. Skelton asked Mr. Perry to "look at the war plans for fighting another conflict in Southwest Asia and for fighting a war in Korea. If you total those forces up you will see that we run out of forces before we take care of the needs of the two CinCs."<sup>11</sup>

He isn't the only one with doubts about the strategy. In March, for example, Senator Nunn said that, "I am very concerned, and I know others are, about not having enough bombers to carry out a two-war scenario."<sup>12</sup>

"It's crazy," said Rep. G.V. "Sonny" Montgomery (D-Miss.), chairman of the House Veterans' Affairs Committee. "You need more forces."<sup>13</sup> The House Armed Services Committee says that it "remains concerned that the number of long-range bombers programmed in the [Defense] Department's force plan [is] inadequate to support

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<sup>9</sup> November 17, 1993. In fact, the active-duty force level is projected to drop to 1.4 million in FY 1999, according to Pentagon news release, "FY 1994 Defense Budget," February 4, 1994.

<sup>10</sup> Skelton, letter to Perry, April 14, 1994.

<sup>11</sup> Theater commanders-in-chief.

<sup>12</sup> Dudney, "Another Year, Another Cut," *AIR FORCE* Magazine, May 1994.

<sup>13</sup> Green, "Montgomery Attacks the Decline," *AIR FORCE* Magazine, February 1994.

requirements for two major regional conflicts."<sup>14</sup>

"I would be willing to bet that if you were to poll the Joint Chiefs of Staff and the Unified Commanders, you would find total agreement about the stated policy but serious questions about being able to carry it out," Mr. Skelton wrote to Mr. Perry, adding that "you can be sure that potential adversaries will come to the same conclusion."

If the two-MRC strategy cannot be funded, Mr. Skelton said, perhaps it is time to consider a different one, such as a "*force generation strategy*," geared to the capability to fight a second MRC three to six months after the beginning of the first one. Mr. Skelton emphasized that such a move would not allow further cuts to defense -- merely align US armed forces with an objective they would be structured to handle.

In his State of the Union address this year, President Clinton said that, "The budget I send to Congress draws the line against further defense cuts. It protects the readiness and quality of our forces. Ultimately, the best strategy is to do that. We must not cut defense further."<sup>15</sup>

The controversy, however, is far from settled. The Forces, Requirements, and Strategy issue has three component parts, which can be expressed as questions:

**Is the strategy sound?**

**What does the strategy require?**

**Is the strategy credible?**

These questions apply to all of the armed services, individually and in the context of joint operations. This report, however, concentrates on the implications for the US

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<sup>14</sup> House Armed Services Committee, May 6, 1994.

<sup>15</sup> January 25, 1994.

Air Force, partly because that is the center of focus for the Air Force Association and partly because airpower will be pivotal in response to regional crises of the future.



### Origins of the 2-Conflict Strategy

As a form of planning shorthand, strategies are frequently described in terms of the number of wars or conflicts that the armed forces are supposedly prepared to fight. Obviously, conflicts differ in scope and in intensity. Definitions of "war" and "conflict" may vary as well. The following array of the spectrum of conflict, adapted from the *1991 Joint Military Net Assessment*, should be an adequate point of reference for the purposes of this report.

- Peacetime engagement/counterinsurgency.
- Lesser regional conflict.
- Major regional conflict.
- European conflict.
- Global conflict.
- Nuclear war.

The "2½ war" standard was the basis for US conventional force planning from 1961 to 1968. It supposedly covered simultaneous response to a Soviet/Warsaw Pact invasion in Europe, an attack by the Chinese in Asia, and a "lesser contingency" elsewhere. The lesser contingency, or "½ war" was Vietnam<sup>16</sup> -- which was equivalent certainly, and perhaps then some, to a full-up major regional conflict as defined today.

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<sup>16</sup> Record, *Revising US Military Strategy*, 1984.

The "1½ war" Strategy, 1969-79, was adopted by the Nixon Administration following the Sino-Soviet rift. It was based on the capability to repel a Warsaw Pact invasion of Europe and fight a half-war elsewhere, e.g., a Chinese-sponsored North Korean invasion of South Korea.<sup>17</sup>

The No-Number strategy, 1982-1993. At the beginning of the Reagan rearmament program, Secretary of Defense Caspar Weinberger rejected "mechanistic assumptions" about the number of wars to be fought and said that force structure would be based on "much broader and more fundamental judgments."<sup>18</sup>

The next two Defense secretaries, Frank C. Carlucci and Dick Cheney, took generally the same approach.<sup>19</sup> No specific number of conflicts was publicly stated as an element of strategy, but it was clear always that the defense posture was intended to cover multiple threats. Mr. Cheney, for example, prescribed "the capability to deal with more than one concurrent major regional contingency."

Refocus on Regional Conflict. In 1990, just before the Gulf War began, the United States switched to a new defense strategy, built around smaller forces, fewer deployments overseas, and the assumption that the primary threats would be regional rather than global.<sup>20</sup> The reduced configuration of the armed forces was to be called the Base Force.

The Base Force strategy specified the capability to cover "multiple regional crises."<sup>21</sup> Secretary Cheney said that even while the US was engaged in a prolonged operation, "our forces must remain able to deter or respond rapidly to other crises or to expand

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<sup>17</sup> Record.

<sup>18</sup> Weinberger, *Annual Report*, 1982.

<sup>19</sup> See, e.g., Carlucci and Cheney, *Annual Reports*, 1988 and 1991.

<sup>20</sup> Joint Staff, *1991 Joint Military Net Assessment*; Correll, "The Base Force Meets Option C," *AIR FORCE Magazine*, June 1992.

<sup>21</sup> Powell, *National Military Strategy of the United States*, 1992.

an initial crisis deployment in the event of escalation, also on short notice."<sup>22</sup>

A critical turn en route to the next strategy came in March 1993, when Secretary Aspin announced the Clinton Administration's first defense budget. It roughly doubled the budget reductions the Bush Administration had planned. As Senator Nunn complained, the numbers were "grabbed out of the air." Force and program decisions to implement this budget were to come later, after a "Bottom-Up Review."<sup>23</sup> The general inspiration for the new Clinton defense plan, however, was a set of force and budget options -- notably one called "Option C" -- that Mr. Aspin had developed while he was in Congress.<sup>24</sup>

**Win-Hold-Win.** In the summer of 1993, the Joint Staff worked on force structure options to fulfill the arbitrary 1994-1998 defense budget projections. Details of the work in progress leaked and were published by *The New York Times*, the *Los Angeles Times*, and other newspapers. That was the first public revelation of the "Win-Hold-Win" concept,<sup>25</sup> in which US forces would prosecute fully one regional conflict and conduct a holding action on a second front until more forces were available. "Win-Hold-Win" was met with withering criticism, which continued to mount. Within weeks, advocacy of it had become untenable.

**2 MRCs Nearly Simultaneously.** Mr. Aspin finally gave up on Win-Hold-Win on June 24, declaring that, "After much discussion, we've come to the conclusion that our forces must be able to fight and win two major regional conflicts, and nearly simultaneously."<sup>26</sup>

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<sup>22</sup> Cheney, "Global Strategy," 1993.

<sup>23</sup> "FY 1994 Defense Budget Begins New Era," Department of Defense, March 27, 1993; "Decoding the New Defense Budget," *AIR FORCE Magazine*, April 19, 1993.

<sup>24</sup> Aspin, "An Approach to Sizing American Conventional Forces for the Post-Soviet Era," February 1992; Correll, "The Base Force Meets Option C," 1992.

<sup>25</sup> See, e.g., Gordon, "Cuts Force Review of War Strategies," May 30, 1993; Pine, "US May Limit Its Wars to One at a Time," May 31, 1993.

<sup>26</sup> Aspin, Andrews AFB, June 24, 1993.

### Is a 2-Conflict Strategy Necessary?

The negative reactions to "Win-Hold-Win" -- and Mr. Aspin's fundamental retreat from it -- indicate a fairly broad base of opinion that a stronger defense posture is required. While the two-MRC strategy was not Secretary Aspin's first choice, his stated logic for it was well put:

"There was concern," Mr. Aspin said in his annual report to Congress, "that if the United States was drawn into a war with one regional aggressor, another could well be tempted to attack its neighbors -- especially if they were convinced that the United States and its allies did not have enough military power to deal with more than one MRC at a time. Moreover, sizing US forces for more than one MRC will provide a hedge against the possibility that a future adversary might one day mount a larger than expected threat. Therefore, the recommendation to President Clinton was for the United States to be able to win two nearly simultaneous MRCs."<sup>27</sup>

Previously, Mr. Aspin had described the objective in more detail: "US forces will be structured to achieve decisive victory in two nearly simultaneous major regional conflicts and to conduct combat operations characterized by rapid response and a high probability of success, while minimizing the risk of significant American casualties."<sup>28</sup>

Another consideration, pointed out by the RAND Corp.<sup>29</sup>, is that "a larger force structure provides flexibility and some margin for responding to the unexpected -- both valuable qualities when dealing with something as inherently uncertain as military operations ten to twenty years in the future."

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<sup>27</sup> Aspin, *Annual Report*, 1994.

<sup>28</sup> Aspin, "Report on the Bottom-Up Review," October 15, 1993.

<sup>29</sup> Bowie et.al. *The New Calculus*, 1993.

### Concurrent conflicts improbable?

There is, to be sure, a body of opinion that holds a two-conflict strategy to be unnecessary, questionable, or excessive.<sup>30</sup> In February, for example, *The New York Times* objected to the supposedly unrealistic requirement that US forces be ready to fight two near-simultaneous regional conflicts. Within the month, the Clinton Administration had put Serbia and North Korea, more or less simultaneously, on what sounded very much like warnings of war.<sup>31</sup>

Failure to be prepared for a second crisis could also provoke its occurrence. Should the United States have most of its forces tied down by one conflict, an aggressor looking for an opportunity on another front would surely see that as the time to move.

### Regional conflict easy -- and containable?

Some commentators speak of regional conflicts as if they would be little fights and local affairs, not amounting to much. The fact is that MRCs are not easy, as the United States found out in Vietnam, and as the Soviet Union learned in Afghanistan.

Regional conflict can escalate, even when it seems improbable. Today -- with the memoirs all written and the records of the combatant nations subjected to decades of historical scrutiny -- it remains difficult for most of us to understand how the assassination of Archduke Francis Ferdinand in Sarajevo in 1914 lit the fuse on World War I.

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<sup>30</sup> E.g., "More is the Pity at the Pentagon," *New York Times* editorial, February 9, 1994; Krepinevich, "The Bottom-Up Review: An Assessment," Defense Budget Project, 1994; "How Big An Army, and For What?" *New York Times* editorial, June 3, 1994.

<sup>31</sup> Correll, "Hawkish Moves, Dovish Means," April 1994.

Two-conflict force excessive?

The United States has a fairly consistent history of underestimating in peacetime the forces that it will require in wartime. The Gulf War, for example, ultimately required a third more fighter forces than the strategy estimated. It required most of the Air Force's best aircraft and the largest coalition air fleet to see combat since World War II.<sup>32</sup>

RAND Corp. analysts, studying regional conflict for the Pentagon, reported a pattern in which "US ability to forecast future force needs has been far from perfect. Peak US force deployments in Korea, Vietnam, and Iraq exceeded planners' prewar expectations by a factor of two in critical areas."<sup>33</sup>

Threats level or diminishing?

The danger of global war has diminished, but there has been a corresponding increase in the probability of regional conflict. In some instances, such conflicts may have implications that reach beyond the region. The potential for escalation to larger and wider wars is always present.

Early visions of the "new world order" to follow the Cold War were optimistic and idealistic. It is now clear that the new order is characterized by instability, regional power struggles, and violence that sometimes was restrained when the superpowers exerted more influence on lesser powers.

Five years ago, it was considered almost eccentric to worry about North Korea as a military threat. Nobody is smirking today.

Five years ago, before the breakup of the Warsaw Pact and the collapse of the Soviet

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<sup>32</sup> Loh, January 31, 1992.

<sup>33</sup> Bowie et al. *The New Calculus*.



Union, the prospects of near-term conflict in Europe were rated as virtually nil. Few would make that judgment today with the same confidence, having seen the relentless animosity unleashed in the Balkans and the tensions at play among the new nations of the old Soviet Union.

It does not take a hyperactive imagination to conceive of trouble originating in -- or spreading from -- the former Soviet Union. Russia still has 1.4 million active-duty troops, 6,766 strategic nuclear warheads, and more combat airplanes than the US does. It is upgrading its force with such systems as the Su-34 tactical bomber and a prototype "superfighter" to be operational in the 21st century.<sup>34</sup>

The current US air superiority fighter, the F-15C, armed with the AIM-120 Advanced Medium-Range Air-to-Air Missile, is hard to beat. New technologies, such as active missiles, advanced radar and avionics, and radar cross section reduction, are within reach of numerous nations and will almost certainly erode and overcome this advantage before too long.<sup>35</sup>

Twenty-three different kinds of short-range ballistic missiles and thirteen kinds of intermediate-range missiles are already deployed by *Third World nations*. Since 1973, ballistic missiles have been used in five regional conflicts. Sixty-six countries now possess sea- and land-skimming cruise missiles, which are fast becoming the "alternate status symbol" for nations that lack depth in other forms of military power.

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### Perceptions of Security

The nation's sense of security can change rapidly. In times of peace, an austere

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<sup>34</sup> Mehuron, "Russian Military Almanac," *AIR FORCE* Magazine, June 1994.

<sup>35</sup> Shaver, Harshberger, and Crawford, "The Case for Airpower Modernization," *AIR FORCE* Magazine, February 1994.

<sup>36</sup> Gertz, "Scud's Bigger Brothers," *AIR FORCE* Magazine, June 1994.

defense posture can seem adequate and reductions to defense may appear harmless, even wise. A limited crisis, well short of war, can sometimes upset such perceptions overnight. In 1993, for example, the terrorist bombing of the World Trade Center was enough to make both the Administration and Congress wonder (momentarily) if the pace of defense cuts had been too hasty.<sup>37</sup>

Americans might also remember their reactions to the stunning news August 19, 1991, of a hard-line coup in Russia. Suddenly, US defense reductions looked far less prudent than they had the day before and continued to look imprudent for the next three days until the coup foundered.

If a major crisis began tomorrow, it is a safe bet that the nation would feel less secure in its defense arrangements than it does today. The standard for defense planning must be the level of capability the nation would need and want in wartime, not the posture that seems sufficient in the tranquility of peacetime.

And anyway...

A nation with pretense of being a global power ought to be able to handle two regional conflicts. It's a fairly modest goal.

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<sup>37</sup> Bedard, "World Crises Force Rethinking on Defense Cuts," *Washington Times*, March 17, 1993.

<b>What airpower does a 2-MRC strategy require?</b>
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In announcing the two-conflict strategy, Mr. Aspin acknowledged that "we don't know where trouble might break out first, or second. We can predict, however, that wherever it does, we won't have sufficient forces there."<sup>38</sup> Analysis during the Bottom-Up Review said the US should expect the typical aggressor in a major regional conflict to have up to 750,000 troops, 4,000 tanks, 1,000 combat aircraft, and 1,000 Scud-class ballistic missiles.<sup>39</sup> The United States would expect to respond to such a crisis in four operational stages:

**The Four Phases of US Combat Operations.<sup>40</sup>**

*Phase 1. Halt the Invasion.* Minimize the territory and critical facilities an invader can capture. In event of short-warning attack, US forces deploy rapidly to theater and enter battle as quickly as possible.

*Phase 2. Build up US combat power in the theater while reducing the enemy's.* After stopping the attack and stabilizing the front, insert land, sea, and air forces to ensure enemy does not regain initiative on the group. Sustained attacks to reduce enemy's capabilities in preparation for combined arms counteroffensive.

*Phase 3. Decisively defeat the enemy.* Large-scale air-land counteroffensive, decisively attack centers of gravity, retake territory, destroy warmaking capabilities, achieve "other operational or strategic objectives."

*Phase 4. Provide for postwar stability.* Some forces may remain to ensure conditions that resulted in conflict do not recur.

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<sup>38</sup> Remarks at Fort McNair, June 16, 1993.

<sup>39</sup> Aspin, October 15, 1993.

<sup>40</sup> Aspin, October 15, 1993.

The reliance on airpower in this plan is obvious. Less apparent is the extent to which the nation would depend on land-based bombers and strike aircraft to take out the critical, early targets.

**Airpower Against High-Value Objectives  
in Early Phases of Major Regional Conflicts<sup>41</sup>**

Objective	Measure of Evaluation	Pct by land-based airpower
Destroy enemy's warmaking capacity by destroying fixed assets.	Precision ordnance deliverable against fixed targets.	91%
Halt and destroy the invading force.	Precision ordnance deliverable against moving targets.	77%
Destroy dug-in forces.	Kill potential against revetted armor.	74%

The percentages in this analysis can be -- and have been -- challenged. The numbers are consistent, however, with the experience of the Gulf War, where land-based aircraft from the US Air Force delivered ninety percent of the US precision-guided munitions and seventy-two percent of the US gravity bombs.

Before the Bottom-Up Review...

Once Mr. Aspin had proclaimed the two-conflict strategy, the critical question became what force configuration would be fielded to execute it. The Bottom-Up Review in the summer of 1993, however, was not the first effort to size a force for a regional conflict.

Considerable analysis was done before and after the nation converted to a regional

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<sup>41</sup> Data from Ochmanek and Bordeaux, "The Lion's Share of Power Projection," *AIR FORCE Magazine*, June 1993.

strategy in 1990. The Base Force estimate -- as well as most other estimates<sup>42</sup> that were made prior to the budget-driven Bottom-Up Review -- arrived at requirements for a force substantially larger than the one projected by the FY 1995 defense budget.

Even so, the Joint Chiefs of Staff in 1992<sup>43</sup> saw limitations in a Base Force that would have included 26.5 fighter wing equivalents (15.25 active, 11.25 Reserve). Their assessment was that "US Armed Forces will improve as specific enhancements are made in mobility and warfighting areas. However *the Base Force is capable of resolving quickly -- with low risk -- only one major regional crisis at a time.* For two crises occurring close together, the United States would have to employ economy of force and sequential operations and make strategic choices. The risk to US objectives in either case is no more than moderate, but there is little margin for unfavorable circumstances." (*emphasis added.*)

RAND<sup>44</sup> also looked at the requirements question before the Bottom-Up Review, having been assigned to evaluate the capabilities of the Base Force. This study was based on the expectation of 27 FWE (15.7 active, 11.3 Reserve) and 184 operational bombers in FY 1997. RAND concluded that:

- A single MRC requires ten fighter wings, eighty heavy bombers, and ninety percent of the airlift.
- A second MRC would entail shuttling and shifting.
- Three aircraft carriers per MRC.

RAND concluded also that the Base Force would not have enough assets in some categories to cover two conflicts. In Desert Storm, the Air Force used about thirty

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<sup>42</sup> See following sections on "Fighter Forces" and "Bomber Forces."

<sup>43</sup> 1992 Joint Military Net Assessment.

<sup>44</sup> *The New Calculus*, released June 2, 1993. For an earlier -- and more candid -- version of this analysis, see "The Lion's Share of Power Projection," *AIR FORCE*, June 1993.

percent of its total fighter assets, but nearly all long-range fighter bombers and C<sup>3</sup>I elements were committed.

### Bottom-Up Deliberations

In the summer of 1993, the Joint Staff studied requirements for response to two MRCs simultaneously, one MRC at a time, and a hybrid strategy called "Win-Hold-Win." The Joint Staff initially came up with the following force numbers.

**The Computation Before "Correction"<sup>45</sup>**

Strategy	Force Structure
2 MRCs simultaneously	24 FWE 12 active Army div. 12 carriers
Win-Hold-Win	20 FWE 10 active Army div. 10 carriers
1 MRC at a time	16 FWE 8 active Army div. 8 carriers

The problem was that the costs associated with the preferred strategy were too high to match the "thin air" budget numbers. To implement the two-MRC strategy, therefore, Mr. Aspin and his colleagues inserted "nearly" before "simultaneously" -- and dropped four fighter wings and added one active and one reserve carrier. Note that the number of fighter wing equivalents eventually adopted for the two-MRC strategy are identical to the numbers originally identified for Win-Hold-Win.

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<sup>45</sup> Gordon, "Cuts Force Review of War Strategies," *New York Times*, June 1, 1993. *AIR FORCE Magazine* obtained independent confirmation of these figures.

**Forces Projected by Bottom-Up Review.<sup>46</sup>**

	<b>Total Forces Projected</b>	<b>Single MRC Requirement</b>
Air Force fighter wings	13 active, 7 reserve	10
Air Force heavy bombers	Up to 184	100
Army divisions	10 active divisions, 15 Guard brigades	4-5
Marine divisions	3 active, 1 reserve	4-5 brigades
Navy carriers	11 active, 1 reserve	4-5

The Bottom-Up Review stipulated that "Certain advanced aircraft -- such as B-2s, F-117s, JSTARS, and EF-111s -- that we have purchased in limited numbers because of their expense would probably need to shift from the first to the second MRC." The Bottom-Up Review did not project airlift requirements or plans.

The corporate Air Force has signed up to the budgeted force of twenty FWEs and 100 operational bombers.<sup>47</sup> Gen. Merrill A. McPeak, Chief of Staff, has endorsed that projection personally, but says that until the B-2 bomber and adequate numbers of precision guided munitions (PGMs) are available, "the force structure will be pretty well stretched to accomplish the two-MRC strategy."<sup>48</sup>

The Air Force will give "overwhelming priority" to rigging all of its bombers and strike fighters to carry and launch two or more types of PGMs for a variety of missions. Most of the smart weapons and stealthy cruise missiles to arm the aircraft are still in development.<sup>49</sup>

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<sup>46</sup> Data from Aspin, October 15, 1993 report; Aspin *Annual Report*, 1994.

<sup>47</sup> Widnall and McPeak, "Joint Statement on Air Force Posture," March 1994.

<sup>48</sup> Canan, "How Many Bombers Are Enough?" *AIR FORCE Magazine*, February 1994.

<sup>49</sup> Canan, "In Search of Equalizers," *AIR FORCE Magazine*, July 1994.

Gen. John Michael Loh, commander of Air Combat Command has said he needs to know more about the nature and timing of the potential conflicts on which the strategy and force structures are predicated. For example, he asked, "what do we mean by 'nearly simultaneously'? And what do we mean by 'two MRCs'? Do we mean two Desert Storms? Do we mean a Desert Storm and a Panama?"<sup>50</sup>

Questions about the bomber force have been particularly acute. In February, General McPeak told reporters that "our analysis indicates that we can service the target set that comes at you from two major regional contingencies, near simultaneously, with a bomber force of about 100 deployable bombers equipped with PGMs" and that the Air Force was "on a path" to having that PGM capability around the turn of the century.<sup>51</sup>

General McPeak told the Senate Armed Services Committee in March that the Bottom-Up Review "set a requirement for bombers that [we already cannot meet] because the budget doesn't support the Bottom-Up Review bomber force structure. So for me, the Bottom-Up Review force structure is an abstraction. The budget is a reality." He said the Air Force "backed into bomber cuts" to meet lower budget ceilings and that nothing had changed to alter Air Force analyses of a year or so ago which called for a force of 184 bombers to cover critical targets early in a conflict.<sup>52</sup>

□ The CBO "Mirkwood" analysis.<sup>53</sup> The Congressional Budget Office, searching for possible economies, concluded not only that the Bottom-Up Review force provides "substantial capability" for two MRCs but also that "DoD may be able to withstand further force reductions and still be able to bring significant forces to bear in two regional wars."

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<sup>50</sup> Canan, "How Many Bombers Are Enough?"

<sup>51</sup> Press conference, Orlando, Fla., February 18, 1994.

<sup>52</sup> Morrocco, "McPeak Defends Bomber Plan," *Aviation Week*, March 21, 1994.

<sup>53</sup> CBO, "Planning for Defense," March 1994.



CBO used a model named "Mirkwood" to simulate the first ninety days of two nearly simultaneous MRCs and evaluated the capability of forces with "TASCFORM" scores developed by The Analytic Sciences Corp. (TASC) to measure relative performance of weapon systems.<sup>54</sup> This analysis assumed extraordinary buildup time. US forces were assumed to have three months to achieve full deployed strength in MRC I, separation of the two crises by one month, and two months to achieve full deployed strength in MRC II. Those were not the only big assumptions. The report said that, "CBO has not assessed the airlift and sealift problems that the services are experiencing today, though it appears that the problems that exist are being addressed." (Others are less comfortable than CBO is about how lift problems are "being addressed." See the subsequent section on "Airlift Forces" in this report.)

For the past several years, the strong performance of US forces in the Gulf War has been cited often as evidence that capabilities are adequate or excessive.<sup>55</sup> Testifying to Congress in 1994, Robert D. Reischauer, director of the Congressional Budget Office, cited Gulf War success to suggest reduction below levels now projected: "Given the superiority that US forces demonstrated in Desert Storm, it might be possible to eliminate some duplicative forces without endangering US national security."<sup>56</sup>

As Mr. Reischauer knows (or should know), *the force that won the Gulf War no longer exists*. It was reduced by the Bush Administration in its Base Force planning, and the Bottom-Up Review made further cuts. The "superiority that US forces demonstrated in Desert Storm" is not a guaranteed element in planning for future conflicts.

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<sup>54</sup> CBO notes that TASCFORM does not measure forces engaged in combat, and that Mirkwood does not reflect the impact of many factors -- such as attrition -- "which would influence the outcome of the war." CBO says its modeling efforts were reviewed by the Joint Chiefs of Staff and deemed "simplistic." JCS said also that forces would not be employed as CBO modeled them in its conflict simulations.

<sup>55</sup> See, for example, "A New Guide for Pentagon Budget Cuts," *New York Times* editorial, March 9, 1993.

<sup>56</sup> Testimony on "Options for Reconfiguring Service Roles and Missions," Senate Budget Committee, March 9, 1994.

**Gulf War Force Vs Bottom-Up<sup>57</sup>**

	<b>1991 Force</b>	<b>Bottom-Up Force</b>
Air Force fighter wings	22 active, 12 reserve	13 active, 7 reserve
Air Force heavy bombers	261	Up to 184
Army divisions	16 active, 10 reserve	10 active divisions, 15 Guard brigades
Marine divisions	3 active, 1 reserve	3 active, 1 reserve
Navy carriers	15	11 active, 1 reserve

*(The Air Force bomber total, stated as "up to 184" in the Bottom-Up Review, has since been reduced again. For details, see subsequent section on "Bomber Forces.")*

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<sup>57</sup> Data from Aspin, October 15, 1993 report; Mehuron, "Aspin's Challenge," *AIR FORCE*, June 1992; Bowie et al, *The New Calculus*; Aspin, *Annual Report*, 1994.

<b>Fighters, Bombers, and Airlifters</b>
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## I. FIGHTER FORCES

### How Many Wings? Evolution of the Goal

□ **40 Wings.** Beginning in 1976 and continuing into the 1980s, the Air Force was building toward forty combat-coded fighter and attack wings. The forty-wing goal was somewhat arbitrary, the result of a compromise between requirements and budgets. The requirement actually indicated was about forty-four wings.<sup>58</sup>

□ **37 Wings.** In 1987, bowing to fiscal reality, the Air Force dropped its goal to thirty-seven fighter and attack wings and said it would concentrate on supporting that number properly.<sup>59</sup>

□ **26 Wings.** The Pentagon announced plans on February 4, 1991, to reduce the Air Force to twenty-six wings.<sup>60</sup>

□ **24.3 Wings.** In March 1993, the Pentagon's annual budget announcement said the Base Force goal (26.5 FWE) would be reduced to 24.3. This was the only major force structure change that Mr. Aspin announced at that time.<sup>61</sup> The Bottom-Up Review had not yet begun.

□ **20 Wings.** The decision of the Bottom-Up Review.

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<sup>58</sup> Correll, "Tactical Warfare High and Low," 1986.

<sup>59</sup> Correll, "Thirty-Seven Wings of the Best," 1987.

<sup>60</sup> Correll, "Twenty-Six Wings," 1991.

<sup>61</sup> "FY 1994 Defense Budget Begins New Era," March 27, 1993.

The following charts show the diminishing level of Air Force fighter wing equivalents, the intended composition of the future force by mission and aircraft, and where that force will be based.

#### FWE Levels and Projections<sup>62</sup>

Force Level in 1990	24 active; 12 reserve
Base Force projection	15.25 active; 11.25 reserve
Win-Hold-Win projection	13 active; 7 reserve
Bottom-Up Review projection	13 active, 7 reserve
Force Level in 1994	13.4 active, 8.7 reserve
FY 1995 budget projection	13 active, 7 reserve

#### The USAF Fighter Force in 1996<sup>63</sup>

Tot. FWE	Mission	Aircraft	Active FWE	Res. FWE
4.1	Air superiority	F-15C/D	3.5	0.6
2.6	Long-range attack	F15E/F-111F	1.9/0.75	0
10.25	Multirole	F-16C/D	5.05	5.2
0.5	Attack	F-117	0.5	0
0.5	Defense suppression	F-4G	0.3	0.2
2.0	Close air support	A-10	1.0	1.0
20.0			13.0	7.0

<sup>62</sup> 1992 *Joint Military Net Assessment*; Aspin, Report on Bottom-Up Review, October 1993; Hamre, budget briefing, February 5, 1994; Department of Defense news release, February 7, 1994.

<sup>63</sup> Aspin, *Annual Report*, 1994.

**USAF Fighters 1999<sup>64</sup>**  
**FWE, Regional Projection**

	Europe	Pacific	US active	US ARC	Total
Air Superiority	.5	1.25	1.75	0.6	4.1
Long range/ interdiction	.6	.25	1.5	N/A	2.35
Short range interdiction/CAS	1.2	1.7	4.25	6.4	13.55
<b>Total</b>	<b>2.3</b>	<b>3.2</b>	<b>7.5</b>	<b>7.0</b>	<b>20.0</b>

Consequences of the defense drawdown include a reduction overseas of fifty-eight percent in aircraft and fifty-three percent in bases. The US Army will have seventy percent fewer soldiers in Europe than in 1988. The Navy will have thirty-nine percent fewer ships than during the Cold War and has reduced its overseas presence.<sup>65</sup>

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<sup>64</sup> AF/XOF, November 1993. CAS is close air support.

<sup>65</sup> Loh, "Adapting US Military Organizations to the New Security Environment," 1994.

The following chart shows the steady decrease in numbers of fighter and attack aircraft operated by the Air Force. Fiscal Year 1995 is a benchmark of note, since the active-duty fighter fleet will slip below 1,000 aircraft.

**Air Force Fighter and Attack Aircraft<sup>66</sup>**  
**PAA (Primary Aircraft Authorized)<sup>67</sup>**

	Active	Reserve	Total
FY 1988	1,868	909	2,777
FY 1990	1,722	873	2,595
FY 1991	1,560	861	2,421
FY 1992	1,254	924	2,178
FY 1993	1,131	816	1,947
FY 1994	963	627	1,590
FY 1995	936	504	1,440
FY 1996	936	484	1,420

**Fighters in the Gulf.** The Clinton-Aspin force structure grew out of a set of options - the favored one being "Option C" - that Mr. Aspin devised while he was chairman of the House Armed Services Committee. Option C used as its benchmark a "Desert Storm Equivalent."<sup>68</sup> The assumption was that the force employed in the Gulf War would be approximately the force required for a major regional conflict in the future.

Mr. Aspin said in 1992 that, "The basic Desert Storm Equivalent -- the 'force that mattered' -- has six heavy divisions, an air-transportable, early arriving light division, one Marine division on land and an excess of one brigade at sea, twenty-four Air

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<sup>66</sup> Aspin, *Annual Report*, 1994.

<sup>67</sup> Aircraft PAA are those available for operational use. The total aircraft inventory number will be higher.

<sup>68</sup> Correll, "The Base Force Meets Option C."

Force fighter squadrons, seventy heavy bombers, and two early arriving carrier battle groups building up over time to four carrier battle groups including surface combatants providing AEGIS defenses and capability for launching large numbers of cruise missiles."<sup>69</sup>

General McPeak said that what Mr. Aspin's numbers amounted to was "*Desert Drizzle*," not Desert Storm. He said the actual Desert Storm force had thirty-three US Air Force fighter squadrons (about eleven FWE) plus eight FWEs from allies for a total of fifty-seven land-based fighter squadrons.<sup>70</sup>

The RAND Corp. says that, "Historically, the Air Force has deployed an average of ten fighter wings to the three major post-World War II conflicts: Korea, Vietnam, and Iraq."<sup>71</sup> Air Force operations data breaks it out more precisely:

Force Size: MRC Experience<sup>72</sup>

Korea July 1953	Vietnam December 1968	Desert Storm February 1991
10.4 FWE	10.6 FWE	10.6 FWE

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<sup>69</sup> Aspin, "An Approach to Sizing American Conventional Forces for the Post-Soviet Era," February 25, 1992.

<sup>70</sup> Correll, "The Base Force Meets Option C."

<sup>71</sup> *The New Calculus*.

<sup>72</sup> AF/XOF, November 1993 briefing.

## II. BOMBER FORCES

### Air Force Long-Range Bombers (Long-Range Attack Mission)

Department of Defense Projection, January 1994<sup>73</sup>

Aircraft PAA	FY 1994	FY 1995	FY 1996	FY 1997
B-52H	64	40	40	40
B-1B	84	60	60	60
B-2	4	7	11	12
<b>Total</b>	<b>152</b>	<b>107</b>	<b>111</b>	<b>112</b>

The Bottom-Up Review said 100 Air Force heavy bombers would be required per conflict (but projected a total of 184 bombers for the two-conflict strategy). The current defense budget proposal projects even fewer bombers -- 107 in 1995, rising to 112 in 1997. Eventually, the Air Force will have twenty B-2s, of which sixteen will be operational.

Under Secretary of the Air Force Rudy de Leon sought to clear up the confusion in his confirmation hearings.<sup>74</sup> "The analysis supporting the Bottom-Up Review (BUR) assumed a bomber force of 184 TAI/158 PAA in 1999," he said. "The analysis concluded that deploying 100 bombers forward with two crews per bomber would, in conjunction with other forces including fifty-four F-111Fs, be sufficient to fight two nearly simultaneous major regional conflicts (MRCs). The deployed bombers were shifted from the first to the second MRC, so that the total needed for the two-MRC scenario was still 100 bombers. (There was some confusion on this point in the unclassified BUR report.)"

<sup>73</sup> Aspin, *Annual Report*, January 1994.

<sup>74</sup> Testimony to Senate Armed Services Committee, March 25, 1994.



### 87 Combat Coded Bombers?

The FY 1995 budget clearly does not fund 184 bombers -- and the operational numbers have been challenged, too. The budget funds about 126, according to figures provided by the Air Force to Senate Budget Committee member Kent Conrad (D-ND). Of the 126 budgeted, only eighty-seven would be combat-coded. "I think it would be unwise, and I think my colleagues would be very surprised to learn that we're talking about having eighty-seven bombers combat-coded in this budget," said the senator. "We deployed, just in Desert Storm, seventy-five B-52s. And I am told that for [nuclear war planning], we would need at least thirty-two B-52s held in reserve." Secretary of Defense Perry told the committee that the strategic force study would determine what the actual size of the bomber force will be."<sup>75</sup>

### Estimating the Requirement

There are numerous estimates of the bomber requirement, but three main ones -- all done since the end of the Cold War and Desert Storm, and all predicated on the assumption that PGMs will be available -- are of particular interest.

- ▶ USAF's Bomber Roadmap, June 1992.
- ▶ *The New Calculus*, 1993.
- ▶ RAND, May 1994.

■ **The Bomber Roadmap.**<sup>76</sup> In 1992, the Air Force revised its requirement for bombers, projecting a fleet of 211 compared to the 300 or so B-52s and B-1s it had at the time. The B-1 was seen as the workhorse of the smaller fleet, to be employed against the bulk of defended, time-critical targets in a regional conflict.

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<sup>75</sup> Oliveri, "Study Will Decide the Size of Bomber Force," *AIR FORCE Magazine*, May 1994.

<sup>76</sup> "The Bomber Roadmap," USAF, June 1992; Dudney, "The Bomber Roadmap," *AIR FORCE Magazine*, September 1992.

**The 2001 Bomber Fleet as Roadmapped in 1992**

	Total	Operational
B-52H	95	80
B-1B	96	80
B-2	20	16
	211	176

The Air Force said that in a Desert Storm-like scenario, the 1992 bomber fleet could destroy only twenty-four percent of the priority targets in the first five days, whereas the projected fleet would be able to destroy 100 percent of the priority targets in the first five days.

Drawing on ACC's classified "Combat Forces Roadmap," Gen. John Michael Loh, Air Combat Command commander, told Congress in June 1993 that "we need about 180 to 200 operational bombers" and thus "a total bomber force of between 210 and 230" to allow for attrition, training, and downtime for maintaining and upgrading the operational fleet.<sup>77</sup>

■ *The New Calculus*.<sup>78</sup> This RAND Corp. study had considerable influence on the Bottom-Up Review. It allocated eighty Air Force bombers (sixteen PAA B-2s, sixty-four PAA B-1Bs) to MRC I. Selected forces -- including the B-2s -- would shift to MRC II. RAND figured the forces for the second conflict would necessarily be smaller but have the "ability to blunt an invasion successfully and conduct strategic strikes." It noted, however, that "US capabilities for conducting an attack of surface forces and strategic targets simultaneously are reduced." (*This sounds not unlike Win-Hold-Win.*)

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<sup>77</sup> Loh, testimony to Senate Armed Services Committee, June 29, 1993; Canan, "How Many Bombers Are Enough?" February 1994.

<sup>78</sup> RAND's analysis was of the Base Force, and this study assumed the availability of 27 total fighter wings and 184 operational bombers.

■ Rand 1994.<sup>79</sup> According to this report, given adequate weapons and suitable modifications, the *programmed bomber force* (60 B-1s, 40 B-52s, ~20 B-2s) should be able to handle "a stressing regional conflict." RAND says, however, that there is no reserve for nuclear use, little margin for attrition, no margin for tradeoff, no extra firepower for the unexpected, and that *the programmed force has only a limited capability to support a second MRC.*

The report adds that a force of sixty suitably equipped B-2s and forty B-52s would have more capability in a stressing major conflict as well as a moderately demanding, near simultaneous second major conflict. (RAND said also that forty properly armed and configured B-2s and forty B-52s would be "roughly comparable in effectiveness to an improved version of the programmed force," but easier to employ and have more flexibility for a second conflict although its firepower would still be limited.)

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<sup>79</sup> Buchan and Frelinger, "Providing an Effective Bomber Force for the Future," May 1994.

### III. AIRLIFT FORCES

**Intertheater and Intratheater Airlift<sup>80</sup>**  
**PAA (Primary Aircraft Authorized)**

	FY 88	FY 90	FY 92	FY 93	FY 94	FY 95	FY 96
C-5	98	109	109	109	109	104	104
C-141	234	234	234	214	214	199	187
KC-10	57	57	57	57	57	54	54
C-17	0	0	0	3	9	14	19
C-130	521	460	433	406	382	388	388

In its 1993 analysis of theater airpower requirements,<sup>81</sup> RAND war-gamed a US response when one crisis was followed by another in five days. The analysts found that "constraints on lift and tankers would make such operations implausible." To make the two-MRC strategy work, the scenario had to separate the two crises by twenty-one days -- that being the time required for the first sealift ships to arrive. This scenario shifted eighty percent of the organic airlift and twenty percent of the Civil Reserve Air Fleet (CRAF)<sup>82</sup> to MRC II.

The most recent mobility requirements study prescribed airlift of 57 million ton-miles per day.<sup>83</sup>

Gen. Ronald R. Fogleman, Commander in Chief of US Transportation Command

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<sup>80</sup> Aspin, *Annual Report*, 1994.

<sup>81</sup> *The New Calculus*.

<sup>82</sup> Aircraft and crews from civilian airlines that can be mobilized, in accordance with previous agreements, to carry military passengers and cargo in a national emergency.

<sup>83</sup> Allsup, "The Air Mobility Master Plan," *AIR FORCE Magazine*, February 1994.

and Air Mobility Command, says<sup>84</sup> that "One measure of airlift capability is millions of ton-miles per day (MTM/D). The current 'advertised' capability for AMC is 49.2 MTM/D: however, to reach this figure we must completely activate the reserve component and the full Civil Reserve Air Fleet (CRAF Stage III). By design, without these two extraordinary actions by the President, our nonmobilized capability is less than 17 MTM/D. In other words, extended periods of high OPTEMPO during peacetime places great strain on our active-duty forces and limits our capability to respond to nonmobilized, surge operations."

The CRAF program, upon which the Air Force depends for about a third of its total airlift capability objective, is "in trouble," General Fogleman says. The Gulf War experience made airlines wary. Those participating delivered on their agreements, but lost business when nonparticipating and international carriers moved in on the routes left unattended and took away significant amounts of the business base.<sup>85</sup>

■ **How much airlift for an MRC?** In Operation Desert Shield, according to General Fogleman, "we averaged fifteen to seventeen ton-miles per day into Saudi Arabia -- after we had activated the Guard and Reserve, after we had called up the CRAF." During a critical seven-day period of buildup in Somalia -- which was still a humanitarian relief mission, not an MRC, at that point -- Air Mobility Command averaged 9.5 to ten million ton-miles per day.<sup>86</sup>

"Airlift in this country is broken right now," Gen. Joseph Hoar, Commander in Chief of US Central Command, told Congress in March 1994. "I'm not sure its workable for one major regional contingency."<sup>87</sup>

General Fogleman acknowledged that, "Today, I cannot provide the lift for two major regional contingencies. I can do it for one. . . although even there, there are some

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<sup>84</sup> House Appropriations Defense Subcommittee, April 20, 1994.

<sup>85</sup> Fogleman, Air Force Association symposium, February 18, 1994.

<sup>86</sup> Correll, "The Air Force Sharpens Its Aim," April 1993.

<sup>87</sup> Testimony to Senate Armed Services Committee, March 3, 1994.

fairly heroic assumptions that are made with regard to activation of the Civil Reserve Air Fleet."<sup>88</sup>

**How Airlifter Capabilities Compare<sup>89</sup>**  
Millions of Ton Miles per Day and  
Throughput in Tons per Day

	C-141B	C-5B	C-17	DC-10	747-400	MD-11
MTM/D	.066	.1507	.1460	.1307	.1911	.1375
Throughput	492	481	963	800	585	842

Procurement problems with the new C-17 airlifter have led to exploration of other solutions. One possibility is to buy fewer C-17s and supplement the fleet with commercial "nondevelopmental airlift aircraft." Leading contenders include the Boeing 747-400F and the McDonnell Douglas DC-10 and MD-11F.

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<sup>88</sup> Green, "Rock Bottom on C-17s," *AIR FORCE Magazine*, June 1994.

<sup>89</sup> Terry, "Strategic Airlift: Military Versus Commercial Aircraft," CRS, May 25 1994. Attributes MTMD figures to Institute for Defense Analysis.

### Military and Commercial Airlifter Features<sup>90</sup>

	C-141B	C-5B	C-17	DC-10	747-400	MD-11
Troops: Without modification	160	73	102	0	0	0
Troops: with passenger pallets	140	270	154	TBD	TBD	TBD
Medical Evac	yes	no	yes	no	no	no
Bulk Cargo	yes	yes	yes	yes	yes	yes
Oversize Cargo	yes	yes	yes	some	some	some
Outsize Cargo	no	yes	yes	no	no	no
LAPES	no	no	yes	no	no	no
Air Refueling	yes	yes	yes	no	no	no
Roll-on/off	yes	yes	yes	no	no	no
Short field takeoff/land	no	no	yes	no	no	no

Deputy Secretary of Defense John M. Deutch has reminded Congress that capabilities differ widely among airlifter candidates: "What can a military airlifter do that a cheaper commercial wide-body cannot do? It can airdrop. It can do parachute low-altitude extraction. It can work on short and unimproved airfields. It can carry outsized cargo. It has a capacity for air refueling. It has the ability to drive on and drive off cargo and thereby get high throughput."<sup>91</sup>

### The C-17 Question

The critical issue is a replacement for C-141, which has been flown hard and is wearing out. RAND has noted that unless the C-141 is replaced when it reaches the end of its service life "early in the next decade," organic airlift capacity will be reduced by about fifty percent. Refurbishing the C-141 is not a real option. The Air Force needs a new core airlifter with an outsize cargo bay to handle larger Army equipment.

<sup>90</sup> Terry, "Strategic Airlift." LAPES is the low-altitude parachute extraction system, by which containers are dropped by aircraft.

<sup>91</sup> Deutch, House Armed Services Committee, May 17, 1994.

The Air Force's choice is the C-17. It had initially planned to buy 210 of them, but lowered the total to 120 in 1991. In late 1994, the Department of Defense capped the program at forty aircraft, pending correction of problems in the acquisition program.<sup>92</sup>

In testimony to the House Defense Appropriations Subcommittee April 20, General Fogleman<sup>93</sup> said analysis still confirms 120 as the best option, but he stunned listeners with his rock bottom estimate: He said the Air Force could meet its minimum outsize cargo requirements with seventy to eighty C-17s, which would give him sixty to sixty-five on the ramp.

Deputy Secretary Deutch rejected that number. He said that, depending on outcome of the probationary period applied to the procurement, the Department of Defense might halt the program at forty or go ahead to 120, but that he could not see the seventy-to-eighty option as a contender. General Fogleman said later, "The whole point that I was trying to make was not that I wanted to come down to eighty planes from 120, but. . . [that] forty was not enough. You cannot stop at forty and have any kind of a viable core airlifter fleet."<sup>94</sup>

#### Long-Range Tanker Aircraft (PAA)<sup>95</sup>

	FY 1993	FY 1994	FY 1995	FY 1996
KC-10	57	57	54	54
KC-135	489	489	478	475

Aerial refueling is also critical to force deployment, but this is not seen as a problem. Air Mobility Command expects the KC-135 and KC-10 tanker fleet to meet US requirements well into the next century.<sup>96</sup>

<sup>92</sup> Lynch, "The C-17 on Probation," *AIR FORCE Magazine*, March 1994.

<sup>93</sup> Green, "Rock Bottom on C-17s," *AIR FORCE Magazine*, June 1994.

<sup>94</sup> Muradian, "AMC Chief Regrets C-17 Statements," *Air Force Times*, May 23, 1994.

<sup>95</sup> Aspin, *Annual Report*, 1994.

<sup>96</sup> Allsup, "Air Mobility Master Plan."



### Is the plan credible?

A multitude of reasons contribute to doubt that the armed forces are prepared to execute a two-conflict strategy. There is manifest disagreement about force requirements, and the solutions chosen smack more of fiscal expediency rather than of hard-eyed military analysis. It is clear also that the defense budget projection is not sufficient to fund even the lower force levels that are planned. Furthermore, the program is based on a number of critical and questionable assumptions.

#### The Funding Shortfall

The Administration's defense program developed in a strange order:

- ▶ First, the overall budget total in March.
- ▶ Then, the Bottom-Up Review to determine requirements.
- ▶ Then, declaration of the strategy, midway through the requirements Review.
- ▶ Only after these steps were the actual force projections and corresponding budget allocations made public.

On September 1, Mr. Aspin announced the force projections as decided in the Bottom-Up Review, but said "We don't have the dollar figures today" to explain funding allocations to elements of the force decided upon. The dollar figures were announced October 15 -- and Mr. Aspin said they were \$13 billion short of covering the "Bottom-Up Force."<sup>97</sup>

That confirmed what the critics had said all along, but it wasn't nearly the end of it. In the month of December 1993 alone, Administration officials said the funding gap was \$50 billion, then \$31 billion, then -- with the addition of \$10 billion to the account -- resolved.<sup>98</sup> It was reliably reported that senior officials in the Pentagon and in the Office of Management and

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<sup>97</sup> Aspin, "Report on the Bottom-Up Review," October 15, 1993.

<sup>98</sup> Correll, "Roots of Failure," February 1994.

Budget said privately that the defense program was underfunded by at least \$100 billion.<sup>99</sup> Secretary of Defense Perry, who succeeded Mr. Aspin, said the plan was about \$20 billion short of funding the projected forces.<sup>100</sup>

It is little wonder that belief persists that the two-conflict force is seriously underfunded. Few people are any longer willing to take Administration numbers at face value.

### An Emphasis -- But Not the Total Mission

The two-conflict standard is a basis for force planning and the centerpiece of the strategy, but it is not the only task. In addition to the requirement to respond to regional strategy, US armed forces have other missions, including direct defense of the United States and its treaty allies as well as an expanding package of other tasks termed "missions other than war."<sup>101</sup>

The Administration has shown a proclivity for multilateral activism and peacekeeping operations. US forces may be employed for various "limited objectives" and the standards for committing troops to combat are less restrictive than during the previous Administration.<sup>102</sup>

Certain of these missions short of war call for the allocation of substantial force. The Department of Defense<sup>103</sup> officially defines the "prudent level" of forces to be planned for "a major intervention or peace enforcement operation" as:

- ▶ Three Army divisions (airborne, light infantry, and mechanized).
- ▶ One or two Air Force composite wings.
- ▶ One or two carrier battle groups.

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<sup>99</sup> Cordesman, "US Defense Policy: Resources and Capabilities," December 1993.

<sup>100</sup> Congressional Budget Office, "Planning for Defense," March 1994.

<sup>101</sup> Terry, "Military Operations Other Than War," CRS, 1994.

<sup>102</sup> Correll, "Soft Power," May 1994.

<sup>103</sup> Aspin, *Annual Report*, 1994.

- ▶ A Marine brigade.
- ▶ Airlift, special ops, and 50,000 troops.

### The problem of assumptions

The strategy is awash in assumptions – some stated, some not stated; some correct, some not correct. For example, a feature in the optimistic analyses is that they assume extended *warning and preparation time*, similar to the five-month buildup time in Desert Shield. There is no good basis for such an assumption. There is no guarantee that an invader will pause as Saddam Hussein did after the invasion of Kuwait in August 1990. In fact, the more likely presumption is that a militarily competent aggressor would keep rolling while he still had the advantages of surprise and numbers.

The original Aspin strategy statement, the Bottom-Up Review, the CBO "Mirkwood" analysis, and some other assessments assumed, explicitly or implicitly, the *sufficiency of airlift*. That is a very big assumption, considering that senior officers of all services declare strategic lift to be a major concern and that airlift is the primary factor limiting global deployments.

Sometimes assumptions get the *numbers wrong*. Mr. Aspin's Option C in 1992 – which influenced the budget and strategy decisions of 1993 -- assumed the US Air Force fighter component of the "Desert Storm Equivalent" to have been twenty-four squadrons, when in actuality, it was thirty-three squadrons. The difference equates roughly to three fighter wing equivalents.

(Mr. Aspin's designating a "Desert Storm Equivalent" as the benchmark for regional conflict carried with it an implicit assumption about *circumstances of combat*. Such benchmarks cannot be taken too literally, because circumstances will vary. In the Gulf War, for example, US forces had the advantage of deploying without active opposition upon arrival. It would have changed the exercise considerably had they been obliged to fight their way into the battle area.)

The Base Force strategy assumed *reconstitution* of forces as a main pillar and as a basic

condition for reducing forces.<sup>104</sup> The nation would preserve the means to rebuild forces from scratch if the threat worsened. In 1991, the Joint Chiefs of Staff said "reconstitution may well prove to be the linchpin of America's long-term security."<sup>105</sup>

Current defense policy virtually ignores reconstitution. The prevailing assumption seems to be that the armed forces can replace their losses by reactivating equipment that was mothballed during the force reductions. For example, Secretary of Defense Perry, when questioned by Sen. Daniel K. Inouye (D-Hawaii), said that, "We don't have anything in our program to sustain a bomber industrial base. That is a weakness of this program that we're presenting to you, and you may rightly challenge and criticize that assumption, the assumption that underlay that decision."<sup>106</sup>

Much of the defense industrial base has already disappeared and more of it is going. Norman Augustine, CEO of Martin Marietta Corp., calculates that thirty to forty percent of the jobs remaining in the aerospace industry will be eliminated, and that some of today's leading defense contractors may be out of business by the turn of the century.<sup>107</sup>

It is widely assumed that whatever we might lack in force size will be made up with *new technology* (much of which we don't have yet) and improved systems (most of which are themselves under budgetary attack).

### The Complexity of War

The complexity of deploying and sustaining a large battle force is often underestimated by laymen, and the effect of change in a single variable of the operation is greater than popularly imagined.

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<sup>104</sup> Powell, *National Military Strategy of the United States, 1992; Joint Military Net Assessment, 1992.*

<sup>105</sup> *Joint Military Net Assessment, 1991.*

<sup>106</sup> Senate Appropriations Defense Subcommittee, March 1, 1994.

<sup>107</sup> Grier, "Reengineering the Industrial Base," *AIR FORCE Magazine*, August 1994.

Combat is more than guns and bullets. At one point in the Gulf War, empty cargo pallets were piling up in the war zone while a pallet shortage loomed at supply centers in the United States.<sup>108</sup> This was not a trivial problem, and it illustrates the extraordinary number of details that must fit together to make a force deployment work.

Without use of three staging bases -- Lajes in the Azores, Torrejon in Spain, and Rhein-Main in Germany -- during Operation Desert Shield in 1990, airlift throughput to Southwest Asia would have been reduced by forty-six percent and force closure time would have increased by forty-eight percent.<sup>109</sup> (Since then, the Air Force has left Torrejon and is in the process of returning most of its facilities at Rhein-Main to the German government. When the drawdown is complete, the Air Force will have less than half the number of bases in Europe it once did. Furthermore, the number of other sites where supplies are prepositioned in Europe has dropped from seventy to nineteen.)<sup>110</sup>

#### A More Realistic Force Structure

Overall, the defense program is figured much too tightly to support the declared strategy. It is not possible to calibrate war that way -- counting on the last bullet to kill the last enemy on the last day of the fighting.

The strategy hangs on too many optimistic assumptions about sufficiency of forces, timing, coordination of widely separated operations, and shuttling of critical assets between conflicts. Without more depth in the force structure, it is not convincing enough to be credible.

The two-conflict standard is a reasonable basis for force planning and posture. It is appropriate also as the central focus of defense strategy. Implementation, however, requires a more realistic force structure, both to carry out the tasks imposed by the strategy and to serve as a clear deterrent to aggression wherever and however US national security and interests may be

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<sup>108</sup> Coyne, *Airpower in the Gulf*, 1992.

<sup>109</sup> Fogleman, House Armed Services Committee, April 20, 1994.

<sup>110</sup> Kitfield, "The New Way of Logistics in Europe," *AIR FORCE Magazine*, August 1994.

threatened.

It is impractical to believe the force structure will be determined purely by military requirements. Some balance will inevitably be struck with political and budgetary considerations. The objective, therefore, must be a force that reaches the threshold of credibility and that keeps the risk to US security and interests within reasonable limits.

The conventional US Air Force component of such a force structure would include:

- ▶ Not less than twenty-four combat-coded fighter and attack wings, modernized and properly equipped;
- ▶ At least 184 operational bombers with precision guided munitions; and
- ▶ A full complement of 120 C-17 airlifters, assuming the problems in the procurement program can be resolved, plus adapted commercial cargo aircraft as required.

★ ★ ★

## References

AIR FORCE ASSOCIATION, "Lifeline Adrift: the Defense Industrial Base in the 1990s," Aerospace Education Foundation, September 1991.

AIR FORCE ASSOCIATION Advisory Group on Military Roles & Missions, "Long-Range Airpower," June 29, 1993.

AIR FORCE ASSOCIATION Science & Technology Committee, "The Growing Gap: The Air Force in a Dangerous Decade," May 18, 1994.

"The Air Force and US National Security: Global Reach-Global Power," US Air Force white paper, June 1990.

ALLSUP, Dan, "The Air Mobility Master Plan," *AIR FORCE* Magazine, February 1994.

ASPIN, Les, Rep., Chairman of House Armed Services Committee, "An Approach to Sizing American Conventional Forces for the Post-Soviet Era: Four Illustrative Options," February 25, 1992.

\_\_\_\_\_, "Defense 1997 Budget Alternatives, Supplemental Materials," March 24, 1992.

\_\_\_\_\_, "The Use and Usefulness of Military Forces in the Post-Cold War, Post-Soviet World," speech to Jewish Institute for National Security Affairs, September 21, 1992.

\_\_\_\_\_ and Rep. William Dickinson. *Defense for a New Era: Lessons of the Persian Gulf War*. US Government Printing Office, 1992.

ASPIN, Les, Secretary of Defense. *Annual Report to the President and the Congress*. January

1994.

\_\_\_\_\_, Remarks at National Defense University Graduation, Fort McNair, Washington DC, June 16, 1993.

\_\_\_\_\_, Remarks at the US Air Force Senior Statesman Symposium, Andrews AFB, Md., June 24, 1993.

\_\_\_\_\_, "Report on the Bottom-Up Review," October 15, 1993.

BEDARD, Paul, "World Crises Force Rethinking of Defense Cuts," *Washington Times*, March 17, 1993.

"The Bomber Roadmap: Enhancing the Nation's Conventional Bomber Force," Department of the Air Force, June 1992.

"Bottom-Up Review," Directorate of Forces, Office of the Air Force Deputy Chief of Staff/Plans and Operations (AF/XOF) briefing, November 1993.

BOWIE, Christopher, Fred Frostic, Kevin Lewis, John Lund, David Ochmanek, and Philip Proper. *The New Calculus: Analyzing Airpower's Changing Role in Joint Theater Campaigns*. RAND, 1993.

BUCHAN, Glenn C. and David R. Frelinger, "Providing an Effective Bomber Force for the Future," RAND, May 1994.

CANAN, James W., "Airpower From Home Base," *AIR FORCE Magazine*, June 1994.

\_\_\_\_\_, "Expeditionary Force," *AIR FORCE Magazine*, June 1993.

\_\_\_\_\_, "Global Power From American Shores," *AIR FORCE Magazine*, October 1982.

\_\_\_\_\_, "How Many Bombers Are Enough?" *AIR FORCE Magazine*, February 1994.



\_\_\_\_\_, "In Search of Equalizers," *AIR FORCE Magazine*, July 1994.

CARLUCCI, Frank C., Secretary of Defense. *Annual Report to the Congress*. February 18, 1988.

CHENEY, Dick, Secretary of Defense, "Global Strategy for the 1990s: the Regional Defense Strategy," Department of Defense paper, January 1993.

\_\_\_\_\_, *Annual Report to the President and the Congress*. January 1991.

"The Clinton Administration's Policy on Reforming Multilateral Peace Operations," National Security Council, May 1994.

CLINTON, President Bill, "A Vision of Change for America," Report to Congress accompanying the State of the Union Address, February 17, 1993.

\_\_\_\_\_, State of the Union Address, January 25, 1994.

CONGRESSIONAL BUDGET OFFICE, "Planning for Defense: Affordability and Capability of the Administration's Program," March 1994.

CORDESMAN, Anthony, "US Defense Policy: Resources and Capabilities," Working Paper 98, Division of International Studies, Woodrow Wilson International Center, December 1993.

CORRELL, John T., "The Air Force Sharpens Its Aim," *AIR FORCE Magazine*, April 1993.

\_\_\_\_\_, "The Base Force Meets Option C," *AIR FORCE Magazine*, June 1992.

\_\_\_\_\_, "The Bottom-Down Review," *AIR FORCE Magazine*, December 1993.

- \_\_\_\_\_, "The Destruction of National Defense," *AIR FORCE Magazine*, May 1993.
- \_\_\_\_\_, "Hawkish Moves, Dovish Means," *AIR FORCE Magazine*, April 1994.
- \_\_\_\_\_, "The Problem With the Strategy," *AIR FORCE Magazine*, July 1994.
- \_\_\_\_\_, "Roots of Failure," *AIR FORCE Magazine*, February 1994.
- \_\_\_\_\_, "Soft Power," *AIR FORCE Magazine*, May 1994.
- \_\_\_\_\_, "Tactical Warfare High and Low," *AIR FORCE Magazine*, April 1986.
- \_\_\_\_\_, "Thirty-Seven Wings of the Best," *AIR FORCE Magazine*, April 1987.
- \_\_\_\_\_, "Twenty-Six Wings," *AIR FORCE Magazine*, April 1991.
- \_\_\_\_\_, "Two at a Time," *AIR FORCE Magazine*, September 1993.

COYNE, James P. *Airpower in the Gulf*. An Air Force Association Book. Aerospace Education Foundation, 1992.

DAGGETT, Stephen, "Defense Spending: Does the Size of the Budget Fit the Size of the Force?" Congressional Research Service Report, February 28, 1994.

"Decoding the New Defense Budget," *AIR FORCE Magazine* special report, April 19, 1993.

DE LEON, Rudy, Under Secretary of the Air Force, testimony to Senate Armed Services Committee, March 25, 1994.

"Department of Defense Airlift Acquisition Strategy," Department of Defense, May 1994.

Deutch, John M., Deputy Secretary of Defense, testimony to House Armed Services Committee, May 17, 1994.

*Discriminate Deterrence*. Report of the Commission on Integrated Long-Term Strategy, January

1988.

DUDNEY, Robert S., "Another Year, Another Cut," *AIR FORCE Magazine*, May 1994.

\_\_\_\_\_, "The Bomber Roadmap," *AIR FORCE Magazine*, September 1992.

FOGLEMEN, Gen. Ronald R., Commander in Chief, US Transportation Command, remarks at Air Force Association symposium, Orlando, Fla., February 18, 1994.

\_\_\_\_\_, testimony, House Appropriations Defense Subcommittee, April 20, 1994.

\_\_\_\_\_, testimony to House Armed Services Committee, May 17, 1994.

"FY 1994 Defense Budget Begins New Era," Department of Defense news release, March 27, 1993.

"FY 1995 Defense Budget," Department of Defense news release, February 7, 1994.

GELMAN, Barton, "Defense Budget 'Treading Water'," *Washington Post*, March 28, 1993.

GERTZ, Bill, "Scud's Bigger Brothers," *AIR FORCE Magazine*, June 1994.

GLENN, Sen. John, November 17, 1993 speech, cited in "Verbatim," *AIR FORCE Magazine*, March 1994.

"Global Reach -- Global Power: the Evolving Air Force Contribution to National Security," US Air Force white paper, December 1992.

GREEN, Brian, "Montgomery Attacks the Decline," *AIR FORCE Magazine*, February 1994.  
\_\_\_\_\_, "Rock Bottom on C-17s," *AIR FORCE Magazine*, June 1994.

GRIER, Peter, "Reengineering the Industrial Base," *AIR FORCE Magazine*, August 1994.

GORDON, Michael R., "Cuts Force Review of War Strategies," *New York Times*, May 30, 1993.

"A Guide for Pentagon Budget Cuts," *New York Times* editorial, March 9, 1993.

HAMRE, John J., Department of Defense Comptroller, Briefing on the 1995 DoD Budget, February 5, 1994.

HOAR, Gen. Joseph, Commander in Chief, US Central Command, testimony to Senate Armed Services Committee, March 3, 1994.

HOUSE ARMED SERVICES COMMITTEE, statement on bomber requirements, cited in "Verbatim," *AIR FORCE Magazine*, July 1994.

"How Big An Army, and For What?" *New York Times* editorial, June 3, 1994.

JOINT STAFF. *1991 Joint Military Net Assessment*. March 1991.  
\_\_\_\_\_, *1992 Joint Military Net Assessment*. September 1992.

KAY, David L., "Bomb Building in North Korea and the Middle East," Washington Roundtable on Science & Public Policy, George C. Marshall Institute, March 12, 1994.

KITFIELD, James, "The New Way of Logistics in Europe," *AIR FORCE* Magazine, August 1994.

KREPINEVICH, Andrew F., "The Bottom-Up Review: An Assessment," Defense Budget Project, February 1994.

LAKE, Anthony, National Security Advisor, "Draft PDD on Peacekeeping," Letter to Secretary of State *et al*, September 22, 1993, quoted by Andrew J. Cowin in "Expanding the UN Security Council," Heritage Foundation Backgrounder, December 23, 1993.

\_\_\_\_\_ and Lt. Gen. Wesley Clark, Director for Strategic Plans and Policy, Joint Chiefs of Staff, White House press briefing, May 5, 1994.

LIPPMAN, Thomas W., "If Nonproliferation Fails, Pentagon Wants 'Counterproliferation' in Place," *Washington Post*, May 15, 1994.

LOH, Gen. John Michael, Commander, Air Combat Command, "Adapting US Military Organizations to the New Security Environment," *Strategic Review*, Spring 1994.

\_\_\_\_\_, remarks at Air Force Association symposium, Orlando, Fla., January 31, 1992.

\_\_\_\_\_, statement to Senate Armed Services Committee, June 29, 1993.

\_\_\_\_\_, statement to House Appropriations Committee, April 20, 1994.

\_\_\_\_\_, statement to Senate Armed Services Committee, May 5, 1994.

LOWENTHAL, Mark M., "The Clinton Foreign Policy: Emerging Themes," Congressional Research Service, November 1, 1993.

LYNCH, David J., "The C-17 on Probation," *AIR FORCE Magazine*, March 1994.

MCCAIN, Sen. John, "Beyond the Base Force and Defense Budget Cuts: Preserving International Stability in the Post Cold War Era," April 2, 1993.

MCPEAK, Gen. Merrill A., US Air Force Chief of Staff, press conference, Orlando, Fla., February 18, 1994.

MEADOWS, Sandra I., "Two-Contingency Strategy Unattainable, Says Expert," *National Defense*, April 1994.

MEHURON, Tamar A., "Aspin's Challenge," (The Chart Page), *AIR FORCE Magazine*, June 1992.

\_\_\_\_\_, "Russian Military Almanac," *AIR FORCE Magazine*, June 1994.

\_\_\_\_\_, "The US Air Force in Facts and Figures," *AIR FORCE Magazine*, May 1994.

"More is the Pity at the Pentagon," *New York Times* editorial, February 9, 1994.

MORROCCO, John, "McPeak Defends Bomber Plan," *Aviation Week & Space Technology*, March 21, 1994.

MURADIAN, Vago, "AMC Chief Regrets C-17 Statements," *Air Force Times*, May 23, 1994.

NUNN, Sen. Sam, Speeches to the Senate on March 22, March 29, April 19, and April 20, 1990.

Collected in *Nunn 1990: A New Military Strategy*. Center for Strategic and International Studies, 1990.

\_\_\_\_\_, Speech to the Senate, October 21, 1993.

\_\_\_\_\_, Speech to the Senate, November 17, 1993.

OCHMANEK, David and John Bordeaux, "The Lion's Share of Power Projection," *AIR FORCE Magazine*, June 1993.

OLIVERI, Frank, "Study Will Decide Size of Bomber Force," *Aerospace World*, *AIR FORCE Magazine*, May 1994.

PERRY, William J., Secretary of Defense, testimony, Senate Appropriations Defense Subcommittee, March 1, 1994.

\_\_\_\_\_, "United States Military Objectives," remarks to National Security Industrial Association, March 10, 1994. *Vital Speeches*, April 1, 1994.

\_\_\_\_\_, "US Objectives Are Not Secret," Letter to *Washington Post*, March 17, 1994.

PINE, Art, "US May Limit Its Wars to One at a Time," *Los Angeles Times*, May 31, 1993.

POWELL, Gen. Colin L., Chairman of the Joint Chiefs of Staff. *National Military Strategy of the United States*. Department of Defense, January 1992.

POWELL, Stewart, "American Troops -- American Command," *AIR FORCE Magazine*, January 1994.

REISCHAUER, Richard D., Director, Congressional Budget Office, testimony on "Options for Reconfiguring Service Roles and Missions," Senate Budget Committee, March 9, 1994.

RECORD, Jeffrey. *Revising US Military Strategy: Tailoring Means to Ends*. Pergamon-Brassey's, 1984.

SCHMITT, Eric, "Cost-Minded Lawmakers Are Challenging a 2-War Doctrine," *New York Times*, March 10, 1994.

SHALIKASHVILI, Gen. John M., Chairman, Joint Chiefs of staff, Statement to House Armed Services Committee, February 22, 1994.

SHAVER, Russell D., Edward R. Harshberger and Natalie W. Crawford, "The Case for Airpower Modernization," *AIR FORCE Magazine*, February 1994.

SKELTON, Rep. Ike, Chairman, Military Forces and Personnel Subcommittee, House Armed Services Committee, Letter to Secretary of Defense William J. Perry, April 14, 1994.

\_\_\_\_\_, Opening Statement at Hearing on Army Personnel Requirements, October 27, 1993.

TERRY, Sanford S., "Military Operations Other Than War: Implications for the US Air Force," Congressional Research Service, March 31, 1994.

\_\_\_\_\_, "Strategic Airlift: Military Versus Commercial Aircraft," Congressional Research Service, May 25, 1994.

TYLER, Patrick E., "Pentagon Imagines New Enemies to Fight in Post Cold War Era," *New*



York Times, February 17, 1994.

\_\_\_\_\_, "US Strategy Plan Calls for Insuring No Rivals Develop," New York Times, March 8, 1992.

WEINBERGER, Caspar W., Secretary of Defense. *Annual Report to the Congress*. February 8, 1982.

\_\_\_\_\_, "The Uses of Military Power," remarks to the National Press Club, November 28, 1984.

WIDNALL, Sheila E., Secretary of the Air Force, and Gen. Merrill A. McPeak, Air Force Chief of Staff, "A Joint Statement on Air Force Posture," March 1994.

WILLIAMS, Daniel and John M. Goshko, "Administration Rushes to 'Clarify' US Policy Statements by 'Brand X'," Washington Post, May 30, 1992.

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U.S. AIR FORCE



AIR FORCE MATERIEL COMMAND

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**On the cover** — The Air Force's only hot air balloon, assigned to the 54th Test Group, Hill AFB, Utah, prepares for lift off. The balloon provides a stable platform for measuring air quality around industrial sites and examining the atmospheric effects on laser propagation. (Photo by Chris Bojanower)

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## TOWARD NEW HORIZONS

*Mission element boards  
and strategic planning  
enable AFMC to adapt  
itself to a changing  
Air Force, while still  
maintaining the  
command's high  
standards of excellence*

In today's world of rapid change, Air Force Materiel Command looks ahead and plans for the future. Strategic planning is the process we use to assess the future and guide the command toward performing our mission as part of the Air Force vision.

Our AFMC mission, goals, and command objectives are products of our strategic planning process. They define where we are going and how we will get there. Metrics measure our progress toward our goals and objectives. We focus on managing by process and use metrics to help us continually improve the quality of our processes.

### Planning ahead

Strategic planning takes place at various levels in AFMC. At the top level, command planning sets the broad direction

for AFMC. This is where senior leaders from the field and the headquarters develop mission statements, goals, command objectives and command metrics. The principle forum for command planning is at regular HORIZONS meetings of senior leaders.

Below the command level, the AFMC mission is addressed in segments called mission elements. Mission elements represent the major things AFMC does for its customers — product management, support & industrial operations, science & technology, base operating support, and test & evaluation.

### Setting the course

Each mission element has a corporate board that sets the direction for that segment of the mission. These boards identify objectives that support the achievement of the broader AFMC command objectives. The boards develop action plans detailing how objectives will be achieved and metrics measuring continuous progress toward these objectives. Each board reports to the senior leadership of AFMC at HORIZONS.

Finally, each field command and headquarters function develops objectives and specific action plans that focus their organization toward accomplishing the objectives of the mission elements. They also develop metrics to track their progress.

### An integrated team

Taken together, the mission elements, field commands and headquarters functions constitute the AFMC Command Management Framework. Linking the framework together is the hierarchy of goals, objectives, and metrics that help make sure everyone in AFMC, at all levels, is doing his or her part, as the team moves toward the command goals.

The results of the strategic planning process are captured in the AFMC Strategic Plan. This is a living document, updated as necessary, that reflects the overall direction of the command and mission elements. Accomplishments against that plan are reported at HORIZONS by the mission element boards.

The principles of Quality Air Force drive the command's strategic planning, as they drive everything we do. They include clear direction; focus on our customers and suppliers; continuous improvement; and measurement. All are vital to our future.

Many tools are being used to guide us toward continuous improvement. The Quality Air Force assessment criteria are one tool we use to create a road map for future quality improvement. Others, such as benchmarking and the theory of constraints, also show great promise for helping us improve.

*The Command*

# Air Force Materiel Command

*One Team,  
One Mission*

**A**ir Force Materiel Command is an integrated team delivering and sustaining the best products for the world's best Air Force. AFMC researches, develops, tests, acquires, delivers and logistically supports every Air Force weapon system.

## Five goals

AFMC builds a better Air Force by achieving five goals. The goals are:

1. Satisfy our customers' needs -- in war and peace.
2. Enable our people to excel.
3. Sustain technological superiority.
4. Enhance the excellence of our business practices.
5. Operate quality installations.

## Cradle-to-grave process

The command, formally activated July 1, 1992, works closely with its customers to ensure each has the most capable aircraft, missiles and support equipment possible.

The cornerstone of this customer support commitment is a "cradle-to-grave" philosophy known as Integrated Weapon System Management.

## AFMC Mission

**Through integrated management of research, development, test, acquisition, and support, we advance and use technology to acquire and sustain superior systems in partnership with our customers and our suppliers.**

**We perform continuous product and process improvement throughout the life cycle.**

**As an integral part of the Air Force war fighting team, we contribute to affordable combat superiority, readiness and sustainability.**

AFMC is the principal organization responsible for managing every aspect of a weapon system, from its inception on the drawing board, support throughout its operational life and to its final disposition.

## Headquarters

The command's headquarters is at Wright-Patterson AFB, Ohio, where AFMC directs a highly professional and skilled work force of some 118,500 military and civilian employees, including most of the Air Force's scientists and engineers.

This work force operates major product centers, logistics centers, test centers and laboratories. The command's budget represents slightly more than 30 percent of the total Air Force budget.

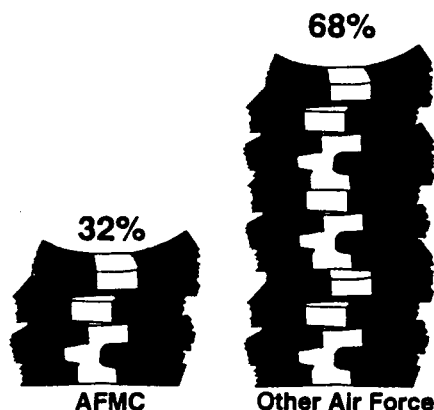
## Defense support

Also, AFMC provides support to other U.S. military forces and allies as well as handles major aerospace responsibilities for the Department of Defense.

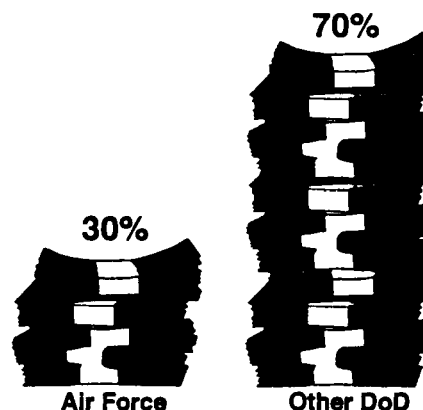
These include research, development, testing and evaluation of satellites, boosters, space probes and associated systems needed to support specific NASA projects.

# The Command

## Fiscal 95 AFMC vs Air Force Budget Total Air Force Budget: \$76.9 billion



## Fiscal 95 Air Force vs DoD Budget Total DoD Budget: \$263.4 billion



AFMC manages about 32 percent of the Air Force budget. Its budget of \$34.7 billion includes \$11 billion in Business Operating Funds that will be administered on behalf of the operational commands. In addition, AFMC manages nearly \$100 billion in open Foreign Military Sales cases.

From the fiscal 1995 president's budget as total obligation authority.

## Emphasizing quality

As U.S. military forces continue to draw down in size and defense dollars become leaner, AFMC emphasizes quality in every aspect of its day-to-day business. By instilling Quality Air Force principles in every process, AFMC works to ensure the Air Force receives the best quality products and services for every dollar spent.

## Heritage

AFMC traces its heritage to 1917 when the Equipment Division of the U.S. Army Signal Corps established a headquarters for its new Airplane Engineering Department at McCook Field, a World War I experimental engineering facility in Dayton, Ohio.

Following the creation of the U.S. Air Service in 1918, the organization became known as the Engineering Division, a designation it retained until the Air Service became the U.S. Army Air Corps in 1926.

## Largest Air Corps branch

In October 1926, the mission of the Engineering Division was expanded to include responsibility for the Air Corps logistics system, formerly vested in the Supply Division, and the organization was redesignated the Air Corps Materiel Division. As the largest branch of the Air Corps, the Materiel Division was responsible for all aircraft and equipment research, development, procurement, maintenance, supply and flight test.

Functionally divided again during World War II, research and development and logistics were reunited for several years during the late 1940s under Air Materiel Command. In 1950, the Air Research and Development Command was broken out as a separate organization devoted strictly to research and development.

In 1961, Air Materiel Command was redesignated Air Force Logistics Command, while Air

Research and Development Command, gaining responsibility for weapon system acquisition, was redesignated Air Force Systems Command.

In January 1991, the secretary of the Air Force announced the planned merger of AFLC and AFSC. The new command would be known as Air Force Materiel Command.

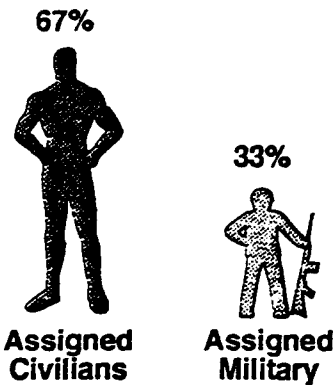
## "World class" organization

AFLC's expertise in providing worldwide logistics support, including maintenance, modification and overhaul of weapon systems, combined with AFSC's expertise in science, technology, research, development and testing make Materiel Command a world-class organization.

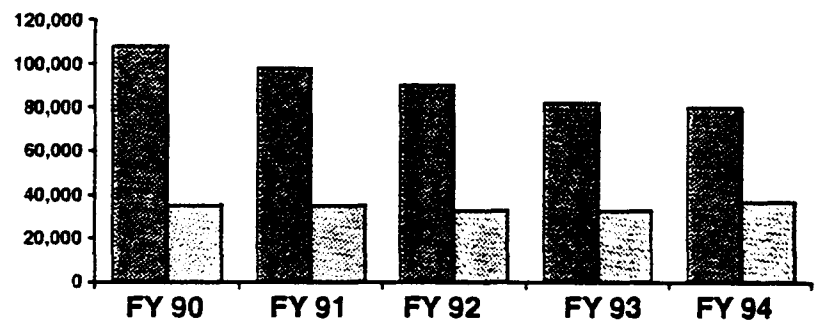
The two commands were dissolved, and Air Force Materiel Command was activated on July 1, 1992.

# Demographics

AFMC Assigned Personnel as of June 1994



AFMC Manpower Authorizations as of June 1994



AFMC	FY 90	FY 91	FY 92	FY 93	FY 94
Civilian	107,626	98,148	89,878	82,110	80,520
Military	34,937	34,745	32,912	32,698	35,672

## AFMC Assigned Personnel at Major Units as of June 1994

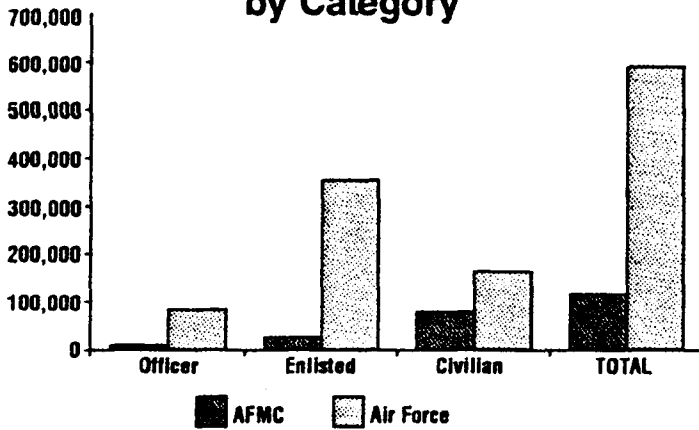
Some Major Units*	Headquarters Location	Military	Civilians	Total
Aeronautical Systems Center	Wright-Patterson AFB OH	5793	9738	15531
Electronic Systems Center	Hanscom AFB MA	5487	5001	10488
Human Systems Center	Brooks AFB TX	1781	1352	3133
Space and Missile Systems Center	Los Angeles AFB CA	4552	3708	8260
Air Force Development Test Center	Eglin AFB FL	4789	2999	7888
Air Force Flight Test Center	Edwards AFB CA	4238	3175	8159
Arnold Engineering Development Center	Arnold AFB TN	127	197	324
Oklahoma City Air Logistics Center	Tinker AFB OK	1851	10443	12294
Ogden Air Logistics Center Center	Hill AFB UT	2109	8454	10563
Sacramento Air Logistics Center	McClellan AFB CA	2153	8886	11039
San Antonio Air Logistics Center	Kelly AFB TX	1726	10632	12358
Warner Robins Air Logistics Center	Robins AFB GA	1668	10402	12070

\* All AFMC units are not shown in this chart. For example, the Air Force Office of Scientific Research, Bolling AFB, D.C., is not shown and neither is the Aerospace Guidance & Metrology Center, Newark AFB, Ohio. Also, many of the centers shown have geographically separated units whose personnel figures are rolled into the overall center figure. For example, personnel at the 377th Air Base Wing and Phillips Laboratory at Kirtland AFB, N.M., are rolled into the overall figure for Space and Missile Systems Center, Los Angeles AFB, Calif.

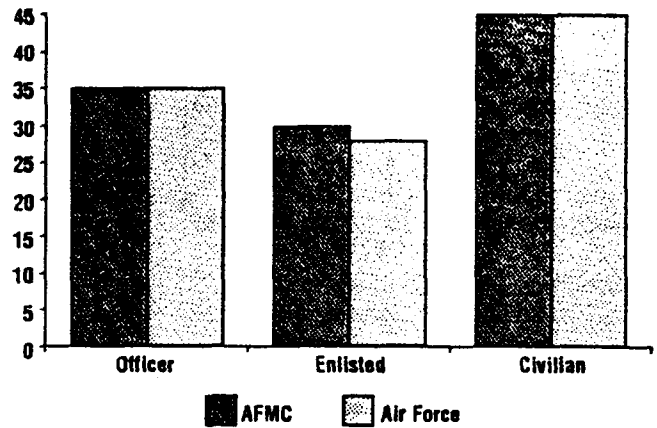


# Demographics

## AFMC Work Force Breakdown by Category



## AFMC Average Age

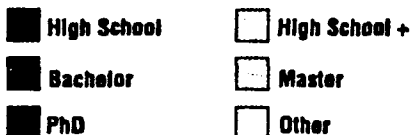
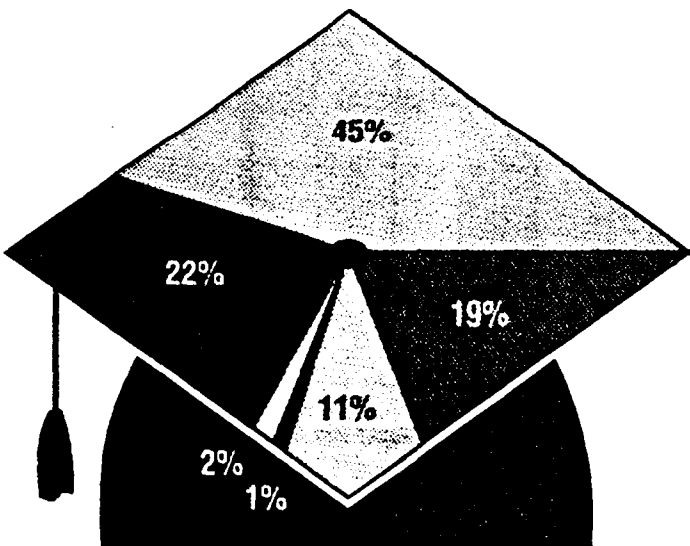


Work Force	Officer	Enlisted	Civilian	TOTAL
AFMC	11,788	26,773	79,951	118,512
Air Force*	81,000	350,000	163,792	594,792

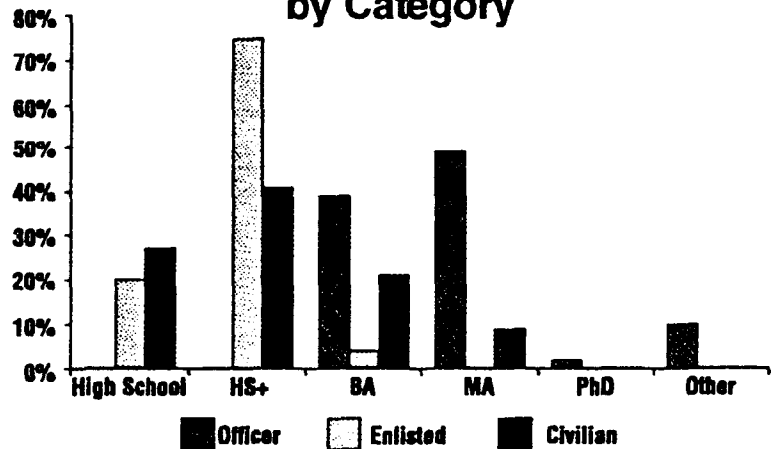
Average Age	Officer	Enlisted	Civilian
AFMC	35.0	30.0	44.6
Air Force	35.0	29.0	45.0

\* As of March 31, 1994

## AFMC Highest Education Levels

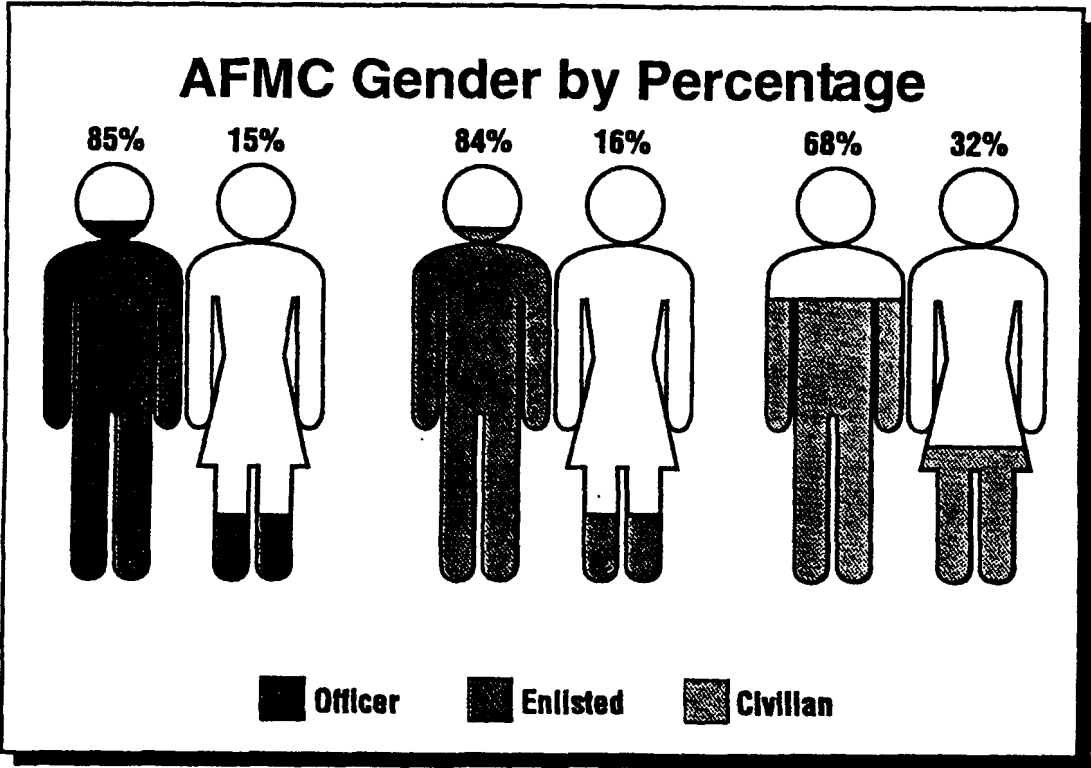
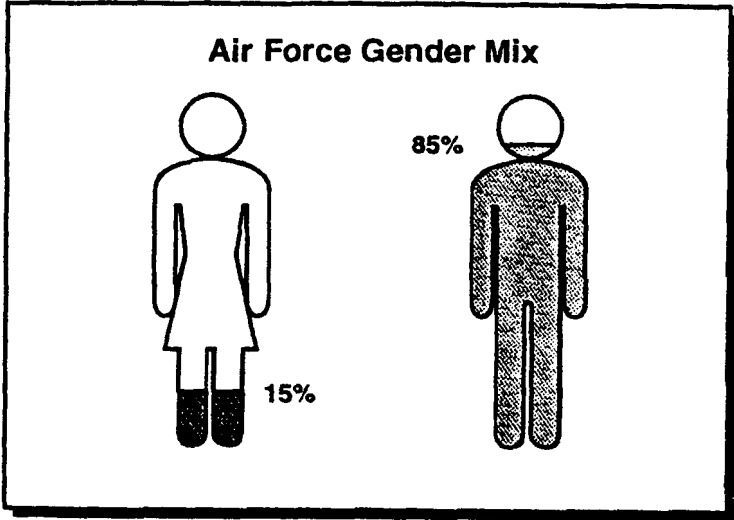
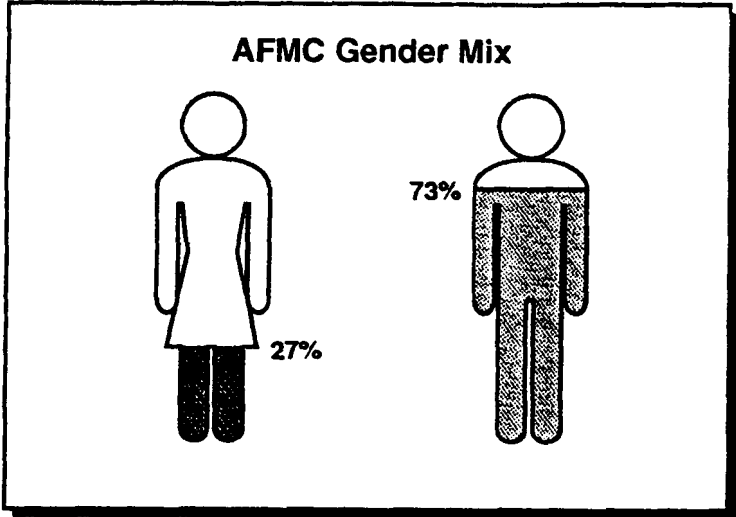


## AFMC Highest Education Levels by Category



Work Force	High School	High School +	Bachelor	Master	PhD	Other
Officer	0%	0%	38.5%	48.8%	2.0%	18.0%
Enlisted	20.0%	75.0%	4.0%	0%	0%	8%
Civilian	27.0%	41.0%	21.0%	9.0%	0.1%	0.2%

# Demographics



Gender	Officer	Enlisted	Civillan
Male	10,011	22,478	54,259
Female	1,777	4,295	25,692

# Mission Element Boards

*are changing the way Air Force Materiel Command does business. Keeping Air Force and command goals in sight, MEBs establish plans, review progress and make sure everything AFMC does supports its mission and customers.*

**D**windling resources and an ever-shrinking work force have become a daily reality for Air Force Materiel Command. It's no longer enough to just "do more with less." The command, from the highest level of management to the lowest-grade employee, must work smarter than ever before and make sure precious resources are used for the right reasons.

To accomplish this task requires a clear understanding of what is — and is not — important to the organization and the customers it serves. Mission element boards help keep the command on track by providing the necessary corporate perspective and unifying the command's management strategy.

## Five mission element boards

Mission element boards are composed of people from across the command, reaching farther down into AFMC to get ideas and opinions for policies and initiatives.

Each board focuses on one of five mission elements: Product Management, Support and Industrial Operations, Science and Technology, Test and Evaluation, and Base Operating Support.

## Making plans, checking progress

Boards establish plans and constantly review progress to make sure their elements are supporting the command's mission, goals and objectives. Corporate review is done by the command board at the quarterly HORIZONS meetings.

Mission element boards are changing the way AFMC does business. By taking an integrated point of view, these boards are helping the command remain flexible and become more responsive to customer needs. At the same time, the MEB approach helps the command make more effective use of the resources it has today while planning for tomorrow.

## Base Operating Support

**T**he Base Operating Support Mission Element Board is an integrated team of field and headquarters functional leaders responsible for overseeing and guiding the delivery of base support.

This support takes the form of services, operations and processes involving facility infrastructure: vehicles and supplies; computers and communications; legal, financial, budget, and information management; operational contracting; history and public affairs; military and civilian personnel, career development, and education and training, safety and security; child development centers; on- and off-base housing and dormitories; environmental management; and religious, recreation, and leisure time activities.

## "Stakeholders" are integral part of philosophy

Fundamental to the BOS MEB philosophy is the notion of "stakeholder" involvement. Stakeholders are viewed as everyone who spends BOS dollars, or directly or indirectly receives the benefits derived from actions of the BOS mission element. This causes BOS to examine its services and support from the perspective of economy, efficiency, quality and customer satisfaction. Competitiveness and cost efficiency are important—but, so too are proper customer service levels, motivated employees, and "good-citizen" status in the communities in which AFMC resides.

# Mission Elements

## Dual contribution

The BOS Mission Element's contribution to the command is twofold. First, it supports each of the other mission elements. It must be responsive to the direction of AFMC as a whole. As such, it must support and facilitate necessary changes in AFMC caused by the environments in which the command operates.

Second, it is responsible for delivering its own products and services. That is, in addition to supporting the mission of the command and the other mission elements, BOS products and services directly impact the living and working environments of the people performing that mission and contribute to their quality of life. Sound base operating support is a necessary condition for the success of the other mission elements, the quality of AFMC installations, and the productivity of its people.

## Three elements for effectiveness

The BOS MEB operating procedures have three elements designed to optimize its effectiveness. The first is to assess progress in supporting command mission, goals and objectives by reviewing action plans and metrics. The second is to develop continuous improvement strategies that improve service and product delivery to AFMC customers. This same approach is used to assess and improve suppliers of goods and services to the various functional areas that constitute base operating support. The third is to revise, delete or add supporting objectives, actions plans and metrics as the need for updating becomes apparent. Together, the three support the MEB strategic plan.

Since it was established, the BOS MEB has had both ownership and supporting roles in many of the command's goals and objectives. For example, BOS is the primary mission element that provides for human resources development—or put another way, ensuring our people have the knowledge, skills and abilities to accomplish the mission. Additionally, BOS provides the overall direction, planning and execution of AFMC's environmental pollution prevention, compliance and restoration programs.

## Improvement is the goal

BOS also aims to improve AFMC's facilities, infrastructure and services, along with the working and living environments for all the command's people. This is a tough task in times of declining resources — but the MEB attacks the issues by using priorities and targeting the limited funding to those needs that will yield the highest impact in all these areas.

BOS, along with all the other mission elements, also focuses on improving the quality and reducing the cost of our products and services. About 20 separate metrics show both the cost efficiency and quality aspects of BOS goods and services — the "BOS DOW Jones" average of product and services. Additionally, the MEB directs efforts toward commitment to the customers — making them and meeting them. The key to success is continuous interaction with the customer, before, during and after services are delivered.

## Playing a big role

Finally, we play a big role in the ability of AFMC to meet deployment, wartime support and base sustainment requirements. BOS active military and reserve individual mobilization augmentees play an important and continual support role in contingency situations worldwide.

The BOS MEB's philosophy embraces its mission: "Provide excellence in support operations and services..." Stakeholder involvement, thorough assessments of mission element support as well as the direct services it provides its customers, and continuous updating of MEB measurement tools, are the foundations of its success.

# Science & Technology

Technological superiority is the cornerstone of the Air Force's war fighting capability. Maintaining that edge into the future is the responsibility of the Air Force science and technology program and forms the basis for AFMC's Goal 3: Sustain Technological Superiority.

To achieve that goal, the Science and Technology Mission Element Board provides a forum for deliberating AFMC corporate issues relating to the Air Force S&T program.

Additionally, the S&T MEB functions within the framework of the AFMC strategic planning system and focuses on train/organize/equip issues, objectives, processes, and metrics in support of all aspects of the AFMC S&T mission element.

## Integrated membership

Key board members include the director and deputy director of Headquarters AFMC Directorate of Science and Technology; directors of the command's four "super" labs, the Air Force Office of Scientific Research, and the Technology Transition Office. The headquarters director of Science and Technology also serves as the Air Force technology executive officer, or TEO.

Other core members include the assistant secretary of the Air Force for acquisition's director of Science and Technology; and, the Air Force chief scientist.

Chief scientists or technology directors for the air logistics centers; product center advanced planning directors; test center chief scientists; technical directors (or the equivalent) of the other command centers, as well as directors or representatives from HQ AFMC's two-letter functions, serve as associate members and provide

important information relating to their areas of expertise.

### Operating philosophy

Like its sister MEBs, the S&T board meets quarterly at various locations throughout the command to enhance information exchange and provide board members an opportunity to see the facilities, mission and related issues first hand.

Key on the meeting agenda is a review of the overall effectiveness of the Air Force S&T program. During these meetings, board members assess the quality of support the S&T MEB provides to the command's mission, goals, and objectives as they relate to science and technology issues.

### Critical review

Based on this critical review, the board establishes and revises supporting objectives, action plans, and metrics to ensure AFMC's science and technology program remains productive and on track. The board will charter special groups to develop issues and/or options for consideration by the board at future meetings.

All proceeding are carefully recorded so no ideas, recommendations or action items are left out. The S&T MEB, like the others, report their progress to the command's senior leadership at the S&T HORIZONS on mission element planning and performance. Results from this forum are then documented in

the AFMC Strategic Plan.

### MEB initiatives

The Technology Master Process provides an end-to-end process for technology development, transition, application/insertion, and transfer. It allows for a free flow of communication with all Air Force S&T customers through AFMC Center Technology Councils and Technical Planning Integrated Product Teams.

Under this concept, the MEB defined and documented the process, produced training videos for all the centers, and completed the first cycle of collecting information on their customer's needs. The customers then provided a list of prioritized needs, and the Air Force technology executive officer and the Technology Transition Office built dollar-constrained projects to meet those needs.

The Air Force Science and Technology Report, or AFSTAR, was developed to emphasize to the public the value of the Air Force S&T program. It also serves to focus the customers' attention on the importance of science and technology to their current and future operations.

Finally, the report provides opportunities for recognition to AFMC's science and technology superstars. To achieve AFSTAR's goal, a corporate AFSTAR budget was established and an AFSTAR integrated product team was formed. The IPT's

main goal is to develop a strong and continuously improving AFSTAR program throughout AFMC to tell the Air Force science and technology story.

With this goal in mind, the IPT developed a standardized format and distribution for S&T success stories; and established criteria for and publicity of AFMC AFSTAR events.

### Big emphasis on dual-use

The S&T MEB places a great deal of emphasis on developing dual-use technologies and transferring current technology to industry. In this arena, the MEB's objective is to promote dual-use technologies through research and development partnerships and cooperative agreements with industry, and by pursuing spin-off opportunities.

As a result of the focus on dual-use technologies and technology transfer:

- Cooperative R&D agreements in the AFMC labs and centers have increased by almost 200 percent in the last 15 months, from 45 to 123.

- The AFMC Technology Transition Office opened the technology information "hotline" in June 1993. Called the Technology Connections (TECH CONNECT) Team, this special line helps the commercial sector and other government agencies learn about potential technology transfer opportunities. The hotline has handled more than 600 requests over the past nine months.

## Support and Industrial Operations

The Support and Industrial Operations Mission Element Board is responsible for the command activities that ensure the Air Force operating commands get the best support at the least cost for every system AFMC delivers.

S&IO's members come mainly from the logistics community, but also draws from a core of functional experts from throughout the command.

The S&IO MEB emphasizes close interaction with the other four MEBs on issues that cut across mission elements. The S&IO focuses on continuous improvements to customer service.

The Department of Defense can no longer afford to maintain redundant depot capabilities. Budget cuts, downsizing and the accompanying changes in defense strategies are the major challenges shaping S&IO philosophies. To meet those challenges, the board has sponsored a number of initiatives.

### Lean logistics

In an environment of dwindling resources, the S&IO MEB is steering the Air Force toward Lean Logistics — an effort to improve customer support while reducing both the levels of spares in inventory and the repair/procurement pipelines for those items necessary to accomplish the mission.

In addition, S&IO is exploring ways for the major commands and the air logistics centers to work more closely together in deciding what to repair and how to distribute assets for better weapon system support. S&IO policies are designed to provide balanced weapon system support to Air Force systems, and to respond quickly to evolving Air Force priorities.

## Two-level maintenance

All major weapons systems, and the depot processes to support them, were historically developed with a three-level maintenance concept — organizational, intermediate and depot.

However, faced with shrinking defense spending, the secretary of the Air Force and the Air Force chief of staff have directed a transition to a two-level maintenance concept.

Under the two-level concept, off-aircraft troubleshooting, repair and return to supply lines shifts from base-level shops to AFMC depots. If it can't be fixed on the aircraft, it's pulled and replaced, and the defective part is sent to the depot.

Such a concept will maximize the fighting force while also

complying with congressionally mandated military end-strength reductions. It supports the Air Force's vision of global reach/global power, because it reduces the numbers of people and equipment operational commanders must take with them when they go to war.

## Weapon system banding

In the past, AFMC didn't have an established process for allocating and spending Repairable Support Division/System Support Division "buy" obligation authority (OA) by weapon system when funding was significantly lower than the requirements.

To correct this and maximize the available OA, weapon systems were organized into six bands according to priority. Weapon systems within each band are funded to achieve a set percentage of their desired availability goal.

Using this system in times of low funding, items that are most critical to mission accomplishment can be given higher priority over other, not-so-critical items, therefore eliminating shortages that would adversely affect the mission.

# Test and Evaluation

**T**he Test and Evaluation Mission Element Board is the corporate leadership for AFMC's test community by providing guidance for T&E people who work in all phases of a weapon system's life cycle and manage the vast test infrastructure for all Air Force testers.

AFMC people in the T&E arena assist in test planning from the earliest program stages. This help can include overseeing testing performed by contractors, performing sub-system or full-system testing themselves, or working with the operational test community in a combined effort.

Once a system is fielded, developmental testing may be used again to evaluate system modifications.

The T&E MEB performs the strategic planning necessary to support these workers by contributing timely, accurate and affordable information to single managers and other decision makers to support system life-cycle decisions. This is done through disciplined application of the test management

process while supporting AFMC's goals and objectives.

## Strategic planning

A portion of each of the MEB's quarterly meetings is used for strategic planning. This planning can involve a detailed look at one or more steps in the test management process.

Progress is monitored through a set of metrics with the primary focus placed on the customer satisfaction trend. Special panels and teams evaluate sub-processes and proposed policy changes prior to an MEB vote.

The operations panel, whose membership includes the test wing and test group commanders, reviews test-execution organization inputs on policy, resources and infrastructure before these issues are submitted to the full board.

A technologies panel works with the command's laboratories to promote continued technology infusion into the test world.

Other teams are documenting test

resources within the logistics centers and addressing cost reporting and cost reduction initiatives.

The T&E MEB has taken on many initiatives to improve communication within their mission element. The quarterly meetings are rotated throughout the command to allow people in the field to view and participate in MEB activities.

In addition, a field focal point network has been established to further facilitate T&E communications between headquarters and the field. Other initiatives include:

## Test process

In conjunction with Air Force test and evaluation officials, the MEB is implementing a standardized test process across all mission areas.

This process is mandated through a new Air Force instruction and is supported by mission-area manuals. A standardized process will respond to test lessons learned by instituting greater

discipline into the test function and ensuring best use of test resources.

## Single face to the customer

Single Face to the Customer Offices have been opened for each of the five T&E mission areas: electronic combat, space, aircraft-propulsion-avionics, armament/munitions, and command, control, communications and intelligence. These offices serve as repositories of expert knowledge on the mission area's test processes,

capabilities and resources.

The focus is on supporting acquisition/modification programs in the early planning stages with recommendations on test strategy and resource use.

In addition, the offices support focused resource planning through the development and maintenance of mission area investment road maps.

## Test Investment Strategic Plan

Through the Test Investment Strategic Plan, the T&E MEB has documented long-range mission area, infrastructure investment strategies.

The plan captures the results of the test investment planning and programming process and documents the known shortfalls, resource solutions and priorities as well as implementation strategies.

# Product Management

**T**he Product Management Mission Element Board covers the full range of the single manager's responsibilities — cradle-to-grave product management. Product management activities deliver weapon systems to the warfighters and sustain them throughout their life cycle.

## Striving for efficiency

The MEB strives to provide that capability in the most effective way by providing the best-value options to meet the warfighters' needs. The PM MEB provides the resources, tools and assistance to accomplish the single manager mission.

The MEB also develops or improves processes and tools for the command's product managers. The PM MEB is responsible for prioritizing its efforts and applying resources accordingly.

## Two concepts

Two concepts, combined with participative management through the ballot process, are key to the

PM MEB in using its resources to best advantage -- Integrated Weapon System Management, or IWSM, and Integrated Product Development or IPD.

IWSM is the AFMC management philosophy for acquiring, evolving, and sustaining the command's products. It empowers a single manager with authority over the widest range of decisions and resources to satisfy customer requirements throughout the life cycle of the product.

IPD is a philosophy that systematically employs a teaming of functional disciplines to integrate and concurrently apply all necessary processes to produce an effective and efficient product that not only satisfies the customer's needs, but also focuses on the processes that make the product possible.

The board also uses product management focal points and single managers' conferences as ways to ensure full participation of headquarters and field units and single managers in deciding which issues need priority attention. In

addition to the MEB's regular meetings, the board uses the PD Infonet and the center commanders' XR Hotline for rapid communication of information on current issues.

The PM MEB is working on a number of initiatives to improve operations within the mission element.

## Integrated Product Development

This initiative supports the command's objective to successfully institutionalize the Integrated Product Development philosophy in all present and future AFMC activities.

This objective will be achieved when decisions at all levels of the command hierarchy are consistently made through application of all eight tenets of IPD.

Progress toward achieving this objective is measured against the tasks in the command implementation plan and the action plans associated with each task. A self-assessment metric is used to track progress in applying the eight tenets of

IPD in each team.

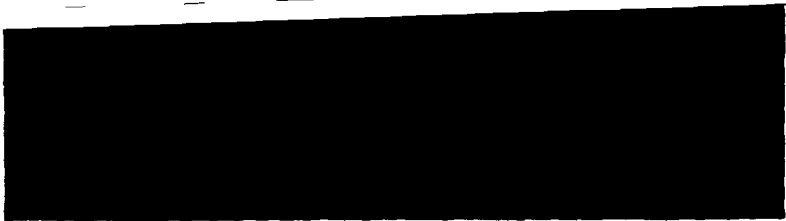
## Pollution Prevention

The board is developing an Air Force strategy to comply with federal orders to eliminate use of ozone depleting chemicals, and reduce the use of hazardous material in the production and sustainment of weapon systems.

To accomplish this goal, the PM MEB is working with representatives from program executive offices, designated acquisition commanders, the Defense Logistics Agency, and the Joint Logistics Commanders to reduce duplication and solve common problems across systems to reduce cost.

They also are working with suppliers in industry to leverage their efforts across common processes to further reduce costs.

Progress is measured by a set of metrics that shows reductions in pounds, reduction in the use of ODCs and hazardous materials, and changes to governing technical orders for weapon systems.



*The heart of Air Force Materiel Command's  
basic research efforts lies in its*

# *Laboratories*

*AFMC promotes dual-use technologies research  
and development partnerships and cooperative  
agreements with industry. As of May, cooperative  
agreements in AFMC's labs and centers have  
increased from 45 to 123.*

Armstrong Laboratory .....	15
Phillips Laboratory .....	16
Rome Laboratory .....	17
Wright Laboratory .....	18





# Armstrong Laboratory

*Ensures the Air Force's weapon systems and the people operating them are compatible. It also provides a healthier environment for Air Force members.*

**A**rmstrong Laboratory, Brooks AFB, Texas, researches and develops technology for maintaining, protecting and enhancing human capabilities during Air Force operations.

An integral part of the Human Systems Center, at Brooks, the lab's programs concentrate on the human aspects of Air Force weapon systems.

The lab's products ensure people can perform well at all system levels: individual, crew, team and force. They also enable the Air Force to meet current and future operational needs in aerospace medicine; crew systems; human resources; occupational and environmental health; and environmental restoration.

## Six Mission Directorates

**Plans and Programs** reviews existing scientific and technological capabilities, and future system needs, ensuring customers state-of-the-art technology.

**Aerospace Medicine** applies medical principles to selecting, retaining and maintaining Air Force people.

**Occupational and Environmental Health** assesses risks to people from noise, hazardous material, electromagnetic radiation and various occupational processes in Air Force operations.

**Crew Systems** researches how human operators interact with weapon systems to optimize people's performance, protection and survivability in combat.



*An F-16 pilot, outfitted with COMBAT EDGE, prepares for departure on a high-G air-to-air mission. COMBAT EDGE employs positive pressure breathing technology, developed at Armstrong Lab, to provide aircrews additional protection against high positive accelerations experienced with today's modern fighter aircraft.*

**Human Resources** researches and develops technologies to acquire, classify, train, integrate, and manage Air Force people for maximum combat effectiveness.

**Enviroics** develops low cost ways to resolve environmental problems and clean up existing facilities.

## Just the facts...

❑ The lab sponsors and conducts research and development in such disciplines as: toxic hazards, aircrew medical standards, radiation and directed energy bioeffects, human engineering, crew protection and life support, and training devices and systems.

❑ Armstrong Laboratory is named after Maj. Gen. Harry G. Armstrong, first director of the Aeromedical Research Laboratory.

❑ In December 1990, the Armstrong "super" lab was combined from the Aeromedical Research Lab, the Air Force Human Resources Laboratory, the Air Force Drug Testing Laboratory, the Air Force Occupational and Environmental Health Laboratory and the Air Force School of Aerospace Medicine.

❑ Armstrong Lab does both in-house and contracted basic, exploratory and advanced development research in 88 facilities located in Texas, Arizona, Ohio, Florida and Okinawa.

❑ Armstrong Lab employs more than 1,000 people, with scientists and engineers making up more than half that number.

❑ A majority of the lab's scientists and engineers have advanced technical degrees with about one-third holding doctoral degrees.

❑ The lab wants to expand the diets of bacteria being used to break down fuel contamination in soil so they will also dine on other harmful substances.

## Phillips Laboratory

*The Air Force's single focal point for all space- and missile-related research and technology, including geophysics, propulsion, space vehicles, survivability, and directed-energy weapons.*

**P**hillips Laboratory, Kirtland AFB, N.M., is part of AFMC's Space and Missile Systems Center, located at Los Angeles AFB, Calif.

Phillips Lab exploits technologies used to develop spacecraft, ballistic missiles, and directed-energy weapons. It integrates and transitions its research technology into military systems used by operational commands and maintained by AFMC.

### Main organizations

**Propulsion, Edwards AFB, Calif.**, focuses on advanced concepts involving motors, propellants and test techniques.

**Geophysics, Hanscom AFB, Mass.**, explores the environment between the Earth and the sun, and its effects on systems and operations.

**Space and Missiles Technology, Kirtland,** focuses on spacecraft structures, power and

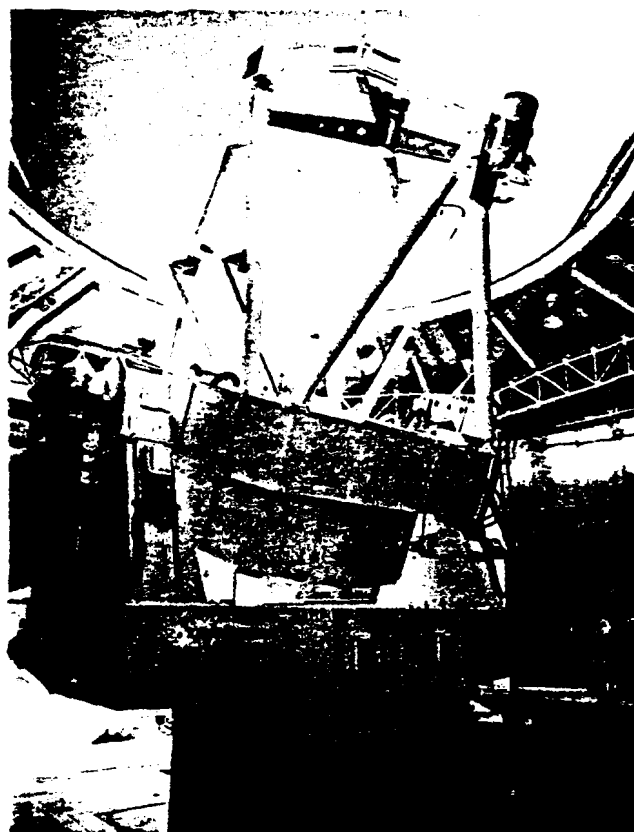
thermal management, sensors, electronics and spacecraft technologies.

**Lasers and Imaging, Kirtland,** demonstrates the technical and engineering feasibility of lasers and imaging systems.

**Advanced Weapons and Survivability, Kirtland,** develops high-energy plasma and microwave technologies, electromagnetic pulse hardening, space systems survivability, and advanced techniques and computer simulations for weapon effects.

**Space Experiments, Kirtland,** plans, manages and conducts space experiments on the ground, from balloons, in aircraft and from space orbit.

**The Airborne Laser System Program Office, Kirtland,** develop an aircraft-based technology that will acquire, track, and kill theater ballistic missiles in the boost phase.



*Starfire Optical Range's 3.5 meter telescope at Kirtland AFB, N.M., is the Department of Defense's biggest telescope. The range's primary mission is to perform field experiments and analyses on the effects of atmospheric turbulence upon propagating optical radiation. The telescope is located 6,200 feet above sea level.*

### Just the facts...

□ Phillips Lab's annual budget totals about \$700 million.

□ The laboratory's work force totals nearly 2,000 military and civilian employees at Kirtland AFB, N.M.; Hanscom AFB, Mass., and Edwards AFB, Calif.

□ Phillips Lab scientists have developed a new technology for building large, thin, lightweight mirrors for space technologies. The technology also will be

available for building astronomical space and ground telescopes.

□ The Technology for Autonomous Survivability system, or TAOS, will allow future spacecraft to navigate on their own.

This technology, developed by Phillips Lab, was launched from Vandenberg AFB, Calif., in March, and, if successful, could reduce satellite ground support costs for future systems.

# Rome Laboratory

*Air Force Materiel Command's center for Command, Control, Communications and Intelligence (C3I) research and development.*

**H**igh quality surveillance, communications and information processing are critical to effectively plan, direct, coordinate and control U.S. forces worldwide.

Rome Laboratory, Griffiss AFB, N.Y., provides the Air Force with a more effective command, control, communications and intelligence capability by developing techniques and equipment for the surveillance of ground and aerospace objects, and for inter- and intra-theater communications.

The lab also leads development of technologies for battle management systems and intelligence data handling.

Other technologies pursued by the lab are: software engineering; artificial intelligence/expert systems; solid state sciences and materials; electromagnetics; photonics; signal processing; computer architectures; and the reliability, maintainability and compatibility of electronic systems.

Rome Lab is directly responsible to the Electronic Systems Center, Hanscom AFB, Mass., in technical areas.



*Dr. Richard A. Soref, a Star Team leader and Rome Lab scientist at Hanscom AFB, Mass., sets up a silicon guided-wave device for measurements in optical components, a research area he pioneered and for which he received the Air Force Basic Research Award in 1991.*

**Just the facts...**

- Rome Lab operates four state-of-the-art technical directorates: three at Griffiss AFB, N.Y., and one at Hanscom AFB, Mass.
- It also operates off-base sites in New York and Massachusetts where research and engineering is conducted in surveillance, communications, antennas and scattering.
- Rome Lab's work force totals about 1,000, with the majority specializing in electronics, physics, computer sciences and mathematics.
- Since 1951, Rome Lab people have developed the technology incorporated into systems such as the:
  - Ballistic Missile Early Warning System
  - Distant Early Warning Line
  - Semi-Automated Ground Environment System
  - Back-Up Interceptor Control System
- Over-the-Horizon Radar
- Joint STARS
- Airborne Warning and Control System.
- Its annual budget is more than \$300 million, with ongoing contracts valued in excess of \$1.4 billion.
- In August 1960, Rome Lab scientists were the first to transmit an intercontinental voice signal via satellite using the NASA Echo I balloon satellite.

# Wright Laboratory

*Leads laboratory discovery, development and transition of aeronautical technologies that enable the Air Force to remain the best in the world.*

**W**right Laboratory, Wright-Patterson AFB, Ohio, is responsible for developing materials, solid state electronics and manufacturing technologies for the entire Air Force community. Its parent product center is the Aeronautical Systems Center, also at Wright-Patterson.

Research and development is conducted by seven technology directorates in 170 facilities located at Wright-Patterson, and, in Florida, at Eglin and Tyndall AFBs.

Except for Manufacturing, each directorate performs the full spectrum of basic research, and exploratory and advanced development.

## Seven directorates

**Materials** explores new materials and processes for advanced aerospace applications.

**Aero Propulsion and Power** focuses on air-breathing propulsion and aerospace power technology, including high-performance/high-Mach air

breathing propulsion applications.

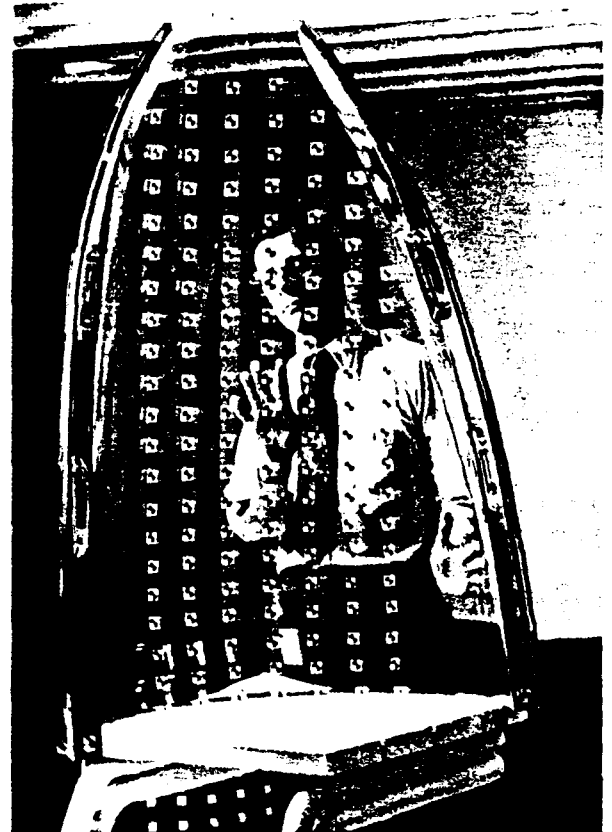
**Armament** develops conventional armament technologies and integrates those into air-vehicle and other delivery platforms.

**Avionics** conducts research and development in the fields of weapon delivery systems, reconnaissance, electronic warfare, navigation, communications, avionics integration and offensive sensors.

**Flight Dynamics** conducts the full spectrum of flight vehicle research including aircraft structures, flight control, aeromechanics, and vehicle subsystems.

**Manufacturing Technology** is the focal point for planning and executing an integrated manufacturing program across the Air Force.

**Solid State Electronics** is responsible for electronic device research and development in microelectronics, microwaves and electro-optics.



*Robert McCarty, program manager for Wright Lab's Directly Formed, Frameless Canopy Program, Wright-Patterson AFB, Ohio, checks the placement of triangulation points on an injection-molded aircraft canopy. These visual cues are vital to testing the canopy's ability to protect aircrews from potentially fatal bird strikes.*

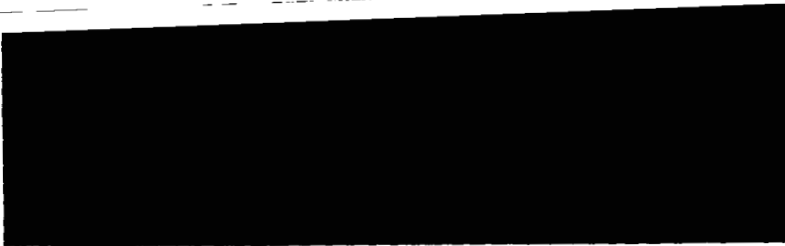
## Just the facts...

- Wright Lab is the Air Force's largest laboratory complex.
- The lab has an annual budget of about \$1 billion.
- About 2,500 military and civilian employees work in Wright Laboratory.
- Roughly two-thirds of its people have degrees in

science and engineering disciplines, with almost half that number having advanced degrees.

- Researchers at Wright Lab, working with experts from Ohio and across the United States, are exploring ways to use advanced composites to repair and reinforce bridges and roads.

Advanced composites, well known for strength and resistance to corrosion, have the potential of prolonging the service life of aging concrete structures. Composites are also useful in sporting equipment and for medical applications, such as in artificial joints.



*Using science and technology  
from their four major  
laboratories, AFMC's four*

# *Product Centers*

*develop and acquire systems,  
such as aircraft, spacecraft,  
electronics and missiles.*

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# Aeronautical Systems Center

*Researches, develops, tests, evaluates, and initially acquires aeronautical systems and related equipment for the Air Force.*

**A**eronautical Systems Center, the host unit at Wright-Patterson AFB, Ohio, is concerned primarily with strengthening strategic forces, modernizing and expanding tactical air forces, and expanding airlift capabilities.

The center's major strategic program thrusts include the B-1 and the B-2 bomber, a manned bomber for penetrating enemy air defenses through low-observable or stealth technology.

Other major programs include the C-17; the F-22; the T-1A, T-3A and Joint Primary Aircraft Trainer System; simulators; electronic warfare and reconnaissance systems; and the AC-130U and MC-130H special operations aircraft. ASC also manages the Tri-Service Standoff Attack Missile, a low-observable cruise missile capable of both air and ground launch. Under the broad heading of armament, the center oversees several non-nuclear weapon programs at Eglin AFB, Fla. ASC also manages the National Aero-Space Plane program, a joint Defense Department-NASA effort.

The center's Wright Laboratory, one of the four Air Force super laboratories, plays a vital role in providing advanced technologies critical to the development of weapon systems and other equipment. Its seven directorates perform the full spectrum of basic research and exploratory and advanced development in materials, aero propulsion and power, solid state electronics, avionics, armament, flight dynamics, and manufacturing.



The F-22 air superiority fighter

## Just the facts...

☐ ASC controls roughly one-fifth of the entire Air Force budget annually.

☐ ASC's 1993 budget was \$14.5 billion.

☐ ASC's work force totals more than 10,400 people — nearly half of all government employees working on Wright-Patterson AFB.

☐ The 645th Air Base Wing manages

1,576 buildings on Wright-Patterson.

☐ Wright-Patterson has two runways: 12,000 feet and 7,000 feet in length.

☐ Wright-Patterson covers 8,145 acres.

☐ Wright-Patterson is Ohio's largest employer at a single location, with a local area payroll exceeding \$932 million annually.

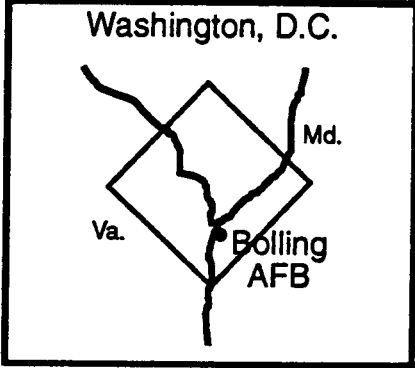
☐ Wright-Patterson's Medical Center, one of six regional Air Force medical centers, has 301 beds and serves more

than 60,000 beneficiaries within a 40-mile radius of the base.

## Attractions

☐ The U.S. Air Force Museum attracts 1.5 million visitors annually.

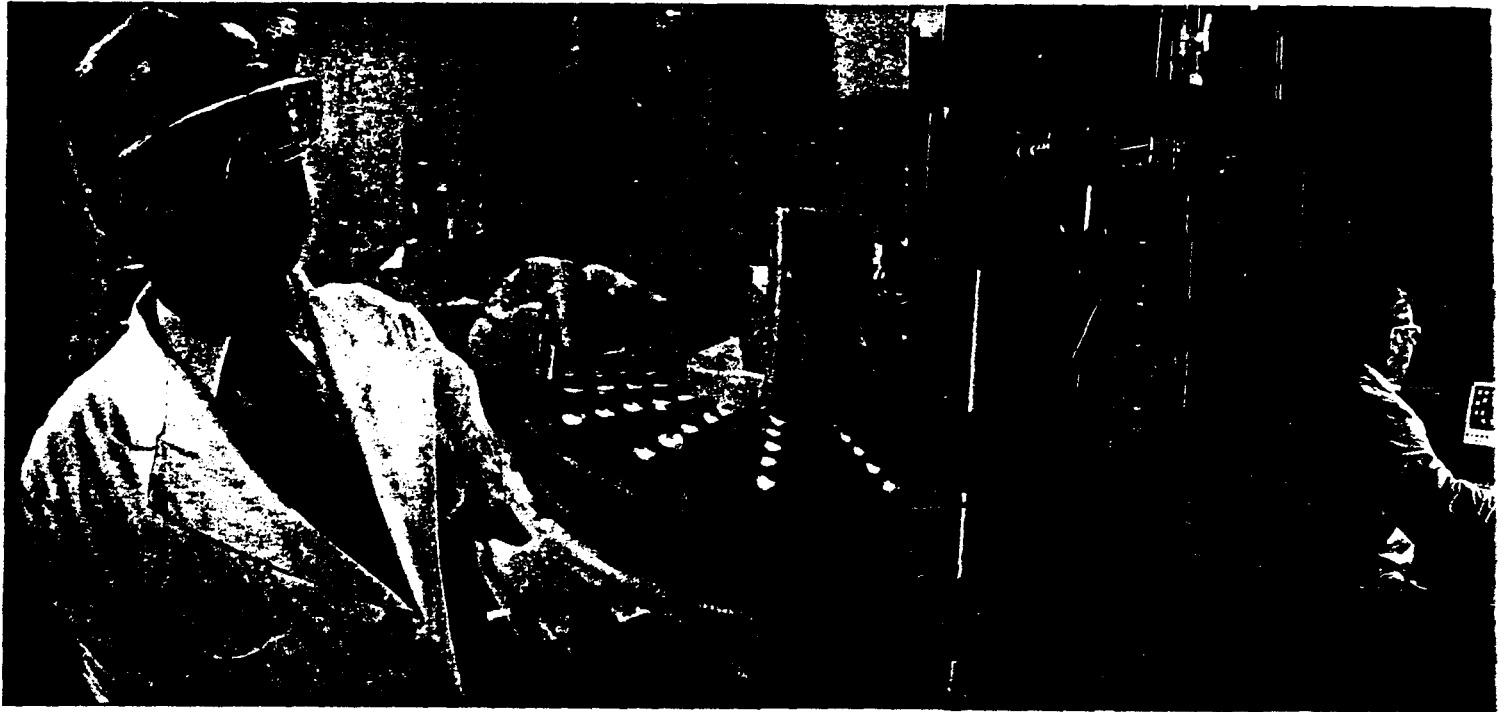
☐ Huffman Prairie Flying Field, one of four sites in a new national park, is where Orville and Wilbur Wright taught themselves and others to fly.



- Kelly AFB, Texas**  
San Antonio Air Logistics Center
- Kirtland AFB, N.M.**  
377th Air Base Wing  
Phillips Laboratory
- Los Angeles AFB, Calif.**  
Space and Missile Systems Center
- Gunter Annex, Maxwell AFB, Ala.**  
Standard Systems Center

- McClellan AFB, Calif.**  
Sacramento Air Logistics Center
- Newark AFB, Ohio**  
Aerospace Guidance and Metrology Center
- Robins AFB, Ga.**  
Warner Robins Air Logistics Center
- Tinker AFB, Okla.**  
Oklahoma City Air Logistics Center  
Communications Systems Center
- Wright-Patterson AFB, Ohio**  
AFMC Headquarters  
Aeronautical Systems Center  
Air Force Security Assistance Center  
USAF Museum  
Wright Laboratory  
Materiel Systems Center

# We Offer The Following:



Dramatic changes in the U.S. Defense environment have opened a world of exciting and profitable new opportunities for business and industry.

While the primary mission of Air Force Science and Technology continues to maintain the best Air Force in the world, a new direction is emerging – the support of a healthy economy and bolstering America's global competitiveness. By offering a wealth of research and technology, this new open-door policy can provide countless new opportunities for your company.

# OPEN

*Our sign is out...we're open for your business!*

## **Technology Transfer – Open Access for Business**

Our new Air Force mission encourages the offering of technology developed through Air Force facilities for commercial applications. We call it Technology Transfer.

Through these transfers, the Air Force is making its research laboratories, test centers and depots available to business and industry like never before, creating partnerships in "dual-use" technologies. Considered the most promising of all the research endeavors underway by the Air Force, dual-use technologies both meet the needs of our military forces and offer significant potential for commercial application.

Consider just a few of these Technology Transfer Partnerships ongoing today:

- Computer innovations used in "Smart Weapons" are being explored to help radiologists detect and pinpoint breast cancer much earlier than before.
- A type of Phased Array radar system is being placed on school buses to warn drivers that children are close by.
- Self-lubrication ball bearings – used in the space shuttle – are being looked at for use in several commercial manufacturing situations.
- Imagine a pedestrian footbridge that never wears out, never rusts, never needs painting and requires virtually no maintenance. Now being tested, this bridge is so lightweight it can be lifted into place by a few workers using a small hoist.



*Technology from war-related research is being utilized in the fields of medicine, education and countless other peacetime applications.*

There are many other success stories where dual-use technologies have been quickly and effectively transferred from Air Force Laboratories to the commercial marketplace. Many more opportunities are waiting for you. Can your organization get involved in Technology Transfer? The answer is Yes! We work through simple agreements with



# ..Right Here On Earth.



individual companies, alliances and partnerships. Call us today to discover the possibilities.

## **New Technology – New Opportunities**

Imagine the opportunities – open access for your business or industry group to proven, world-class technology and thousands of skilled and experienced Air Force scientists and engineers. One-of-a-kind test facilities and sophisticated scientific research facilities, coupled with nearly 90 years of aerospace research and development, give you access to the best technology in the world.

Air Force Laboratories create technology solutions that are fully transferable to the commercial marketplace. Many are already on the shelf and waiting to be used.

These laboratories also have a reputation for solving some very tough technical problems. Laboratory expertise is available in a broad array of technical areas, including:

- Electronics
- Communications
- Education/Instruction
- Environmental Sciences
- Industrial Design
- Public Safety
- Engines and Power Sources
- Health Care
- Transportation
- Energy
- Materials and Structures
- Human Factors
- Manufacturing

## **Products, Solutions, Partnering**

Technology Transfer offers a winning combination of scientific expertise, unique facilities and highly sophisticated equipment, all focused on helping your business create new products, solve tough technical problems and become more competitive in the global marketplace through partnering. Already, companies from the fields of automobile design, aviation and medical research are lining up to take advantage of the awesome capabilities that the Air Force Laboratories have to offer. To enhance your company's position in the new global arena, give us a call at our "Tech Connect" Hotline and discover how we can bring new signs of life to your project.

Air Force Science and Technology. Offering business new possibilities.



*Infrared night vision research may someday aid the visually impaired.*



## **Air Force SCIENCE & TECHNOLOGY**

*Air Force & Industry – Today's Partnership for Tomorrow's Technology.*

Talk to us. Call Air Force "Tech Connect."  
(800) 203-6451

# Map of major facilities and installations

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**Arnold AFB, Tenn.**  
Arnold Engineering Development Center

**Battle Creek, Mich**  
Cataloging and Standardization Center

**Bolling AFB, D.C.**  
Air Force Office of Scientific Research

**Brooks AFB, Texas**  
Armstrong Laboratory  
Human Systems Center

**Davis-Monthan AFB, Ariz.**  
Aerospace Maintenance and Regeneration Center

**Edwards AFB, Calif.**  
Air Force Flight Test Center

**Eglin AFB, Fla.**  
Air Force Development Test Center

**Griffiss AFB, N.Y.**  
Rome Laboratory

**Hanscom AFB, Mass.**  
Electronic Systems Center

**Hill AFB, Utah**  
Ogden Air Logistics Center

**Kelly AFB**  
**Brooks AFB**

# Electronic Systems Center

*Develops and acquires command, control, communications, computer and intelligence systems.*

**S**ystems developed and acquired by the Electronic Systems Center, Hanscom AFB, Mass., monitor enemy forces and allow U.S. commanders to make quick decisions based on the latest information, and to quickly transmit those decisions to the troops in the field.

These systems include: mission planning systems, the Airborne Warning and Control System, the Ballistic Missile Early Warning System, the Joint Surveillance Target Attack Radar System, and the North American Aerospace Defense Command center in Cheyenne Mountain, Colo.

Although civilian contractors perform the actual design and manufacturing, ESC manages the process from



*Crewmembers operate consoles inside an Airborne Battlefield and Control III capsule. The program is managed by ESC.*

start to finish, making the customer's operational needs the number one priority.

ESC personnel begin by finding out just what the customer needs and defines systems best able to meet those needs.

After soliciting bids, ESC people select the best contractor to do the work

and monitor the process. They then test the final product to make sure it meets customer needs.

Technology for these advanced systems is developed by the Rome Laboratory at Griffiss AFB, N.Y., one of the Air Force's four super laboratories. One Rome Lab organization, the Electromagnetics and

Reliability directorate, is located at Hanscom.

ESC recently took control of three former Air Force Communications Command units. These organizations make ESC the Air Force center for research, development and acquisition of command, control, communications, computers and intelligence systems.

## Just the facts...

- The center's annual budget is nearly \$3.1 billion.
- The center is ranked as the fourth largest industrial organization in Massachusetts.
- ESC employs more than 4,490 people and has an annual payroll of \$653 million.

## Newly gained units

- Standard Systems Center, located at the Gunter Annex, Maxwell AFB, Ala., provides cradle-to-grave

support for all Air Force standard computer and communications systems needed by wing and warfighting commanders.

- Communications Systems Center, Tinker AFB, Okla., provides integrated communications-computer systems and services both before and during war and in peacetime for Air Force and specified DOD agencies.

- Materiel Systems Center, located at Wright-Patterson AFB, Ohio, provides critical information systems, giving the necessary logistics support to keep Air Force units and weapon systems ready in peace and war.

## Human Systems Center

*Prepares, maintains, protects and enhances human capabilities and human-system performance.*



**Armstrong Laboratory scientist man-rates the F-15E onboard oxygen generating system.**

**H**uman Systems Center, Brooks AFB, Texas, is the Air Force agent for human-centered research, development, acquisition and specialized operational support at both the individual and total force levels. The center works in four functional areas to meet current and future human-centered operational requirements: crew-system integration, crew protection, environmental protection and force readiness.

HSC's Armstrong Laboratory conducts research and support activities in aerospace medicine, occupational and environmental health, human systems technology, environmental remediation and compliance, and human resources development.

The Human Systems Program Office, the U.S. Air Force School of Aerospace Medicine and the 648th Air Base Group are also major center units.

The School of Aerospace Medicine trains all aerospace medical people in the Air Force, including doctors, nurses and technicians.

The Human Systems Program Office develops, acquires and sustains systems that touch almost everyone in the Air Force. These endeavors include aircraft life support, Air Force uniforms, chemical defense equipment, computer training aeromedical and environmental systems and the automation of administrative functions.

The 648th Air Base Group maintains the base. Associate units include the NASA Lunar Depository, the Air Force Center for Environmental Excellence, the Air Force Medical Support Agency, the 615th School Squadron, 6906th Electronics Squadron and the U.S. Army Medical Research Detachment.

### Just the facts...

- HSC's work force totals 3,218 military and civilian employees.
- HSC's annual payroll is more than \$100 million.
- About 5,000 students attend courses at the U.S. Air Force School of Aerospace Medicine every year.
- The NASA Lunar Depository, an associate unit located at Brooks, houses 50 kilograms of lunar material.

### History

HSC traces its origins back to 1918 when the Medical Research Laboratory was formed at Hazelhurst Field, N.Y.

Brooks became the Aerospace Medical Center headquarters in October 1959. This was the first step in placing management for aerospace medical research, education and clinical medicine under one command.

On Nov. 21, 1963, President John F. Kennedy dedicated four buildings housing the Aerospace Medical Division headquarters and the Air Force School of Aerospace Medicine. It was his last official act before his assassination the next day.

## Space and Missile Systems Center

*Designs and acquires space and missile systems, and completes satellite on-orbit checkouts after launch before turning systems over to other federal agencies.*

**T**he Space and Missile Systems Center, Los Angeles AFB, Calif., has operating sites throughout the country, including the operating location detachment at NASA's Johnson Spaceflight Center, Houston, Texas; Detachment 2 at Onizuka AFB, Calif.; and Detachment 9, Vandenberg AFB, Calif.

SMC is also the parent center of the host unit at Kirtland, AFB, N.M. -- the 377th Air Base Wing.

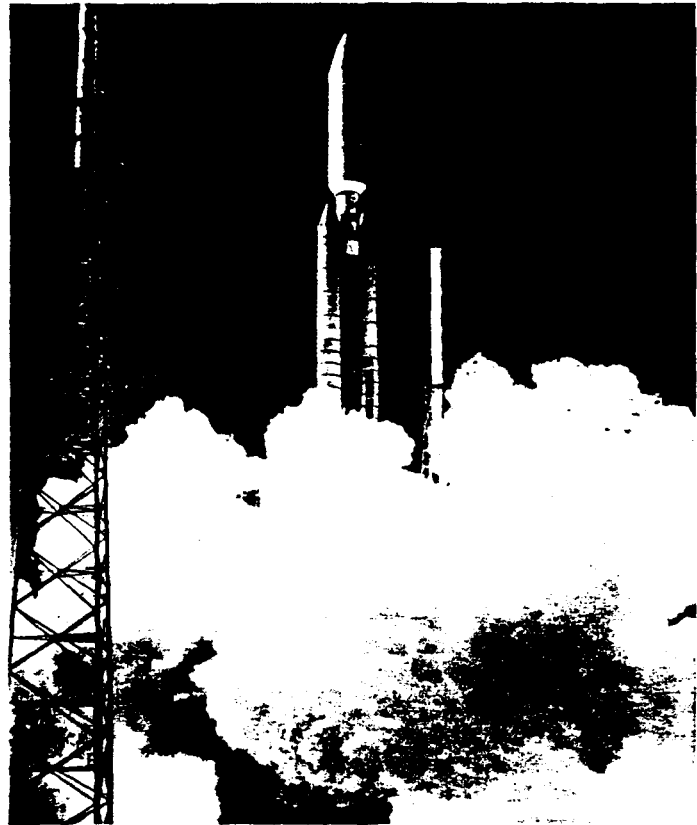
The 377th ABW supports Kirtland's more than 150 organizations, including the Phillips Lab, another of the Space and Missile Systems Center's operating sites.

SMC's Detachment 10, Norton AFB, Calif., supports the Peacekeeper in Minuteman silos. The center also manages the Advanced Strategic Missile Systems program that does advanced development of ICBM subsystems.

The center manages several Ballistic Missile Defense Organization programs designed to detect and destroy enemy missiles. Additionally, it works closely with the Air Force Space Command, Peterson AFB, Colo., the prime user of military space systems.

The center maintains communications and data handling operations with the Air Force Satellite Control Network at Space Command's Falcon AFB, Colo., and Onizuka AFB.

Launch programs SMC supports and manages include rocket boosters: Atlas II, Titan II and Titan IV. It also supports military missions on the space shuttle and assists Space Command in satellite tracking, data acquisition, and command and control.



*A Titan IV/Centaur space launch vehicle successfully lifts the first Milstar communications satellite from Cape Canaveral AFS, Fla. Milstar is one of SMC's major space programs.*

### Just the facts...

SMC's work force totals 8,700 employees worldwide.

The center has an annual budget of more than \$5 billion.

The center supports the following space programs:

- Navstar Global Positioning System
- Defense Satellite Communications System

- Milstar Satellite
- Defense Support Program
- Titan IV Launch Vehicle
- Defense Meteorological Satellite Program
- Peacekeeper

Aerospace Corporation, a non-profit and federally funded organization, provides continuity to the center's programs through its technical expertise in space systems.



*Weapon systems are tested and  
evaluated in AFMC's three*

# *Test Centers*

*Each test center has world-class  
facilities not found elsewhere in the  
Defense Department, and  
sometimes nowhere else in the  
world.*

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Arnold Development Engineering Center .....	27



# Air Force Development Test Center

*Tests and evaluates non-nuclear munitions, electronic combat systems and navigation/guidance systems.*

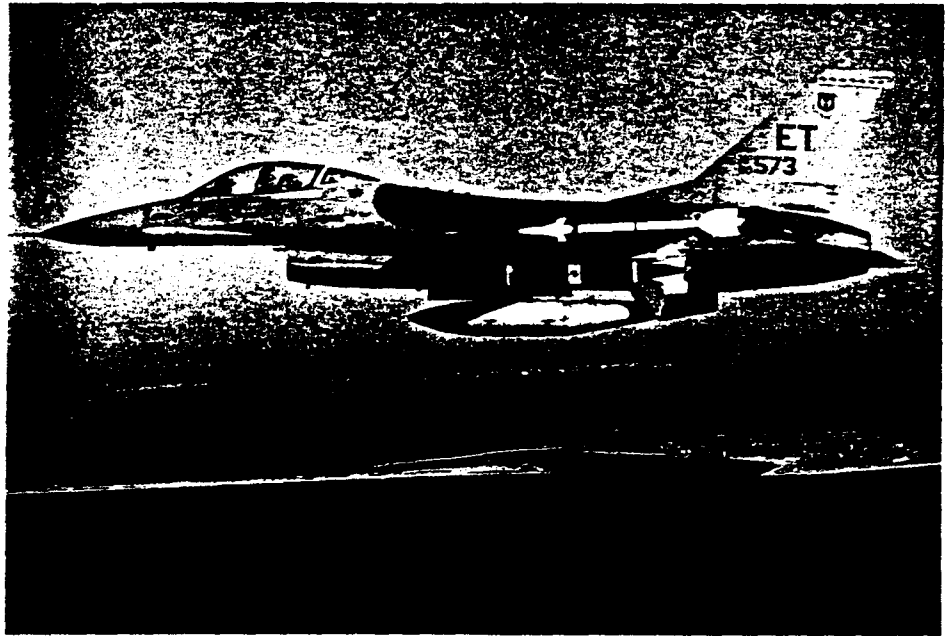
**T**he Air Force Development Test Center, Eglin AFB, Fla., is the heart of a team comprising the complete munitions life cycle -- from initial concept through development, acquisition, experimental testing, procurement, operational testing and, finally, combat.

"Team Eglin" is a partnership between AFDTC, Air Force Materiel Command's Wright Laboratory and Aeronautical Systems Center, and Air Combat Command's U.S. Air Force Air Warfare Center and 33rd Fighter Wing.

The center's 46th Test Wing manages the overall test and evaluation program. Eglin has extensive ground facilities and about 30 aircraft of various types. The test wing controls all of the land test ranges throughout the 724-square-mile base complex.

Major tests on or above the AFDTC's ranges involve all types of equipment, including aircraft systems and subsystems, missiles, guns, bombs, rockets, targets and drones, high-powered radar and airborne electronic countermeasures equipment.

These systems are tested in a variety of environments and simulated combat conditions. The wing's 46th Test Group at Holloman AFB, N.M.,



*An F-16 soars over Eglin AFB carrying the Dispenser Weapon System, DWS-24. The system is being flight tested at Eglin for a commercial company under a new DOD program. The DWS-24 is an advanced "fire and forget" munitions dispenser system planned for use on the F-16 and other aircraft. As the DWS-24 approaches its target, submunitions are ejected from each side of the unit and form a precise pattern on the ground that covers an area up to 1,000 feet wide and 3,000 feet long.*

operates a rocket-sled test track.

Among the group's unique facilities are the 10-mile, high-speed test track; two radar target scatter measuring facilities; and the Defense Department's

Central Inertial Guidance Test Facility.

The quality of Eglin's infrastructure and services helped the base win the Air Force 1992 Installation Excellence Award.

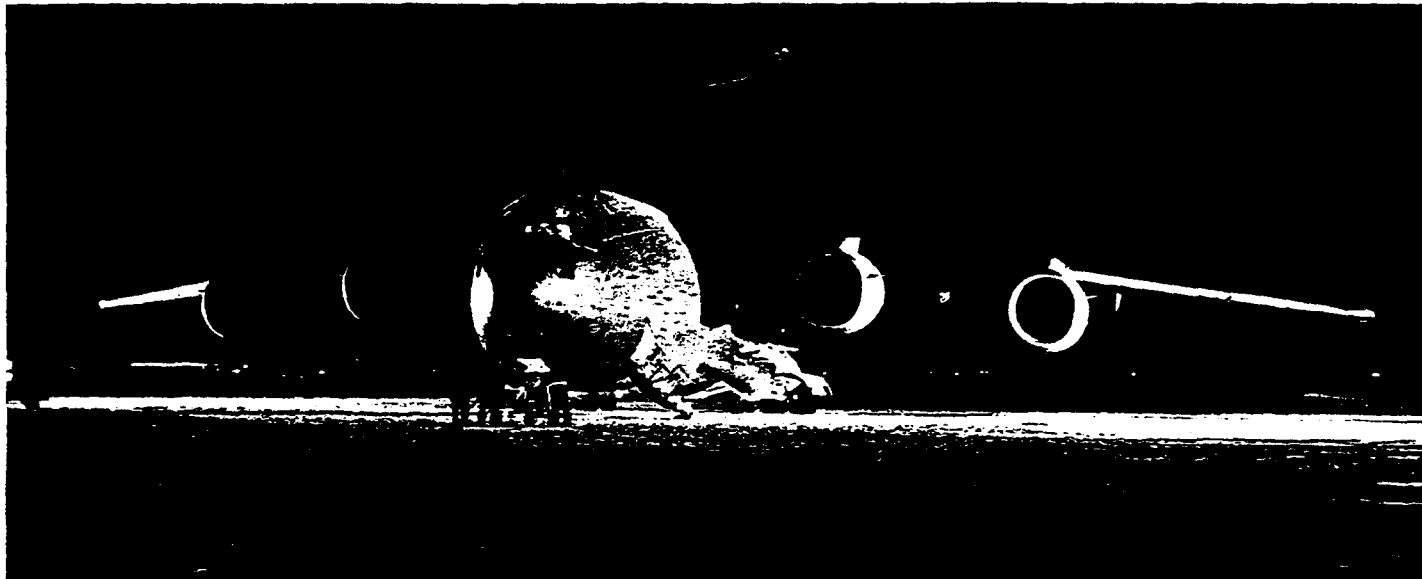
## Just the facts...

- Eglin's annual payroll is more than \$494 million.
- Eglin controls 86,500 square miles of water ranges in the adjacent Gulf of Mexico.
- The base is two-thirds the size of Rhode Island.
- The center's 96th Air Base Wing supports services the center and more than 50 associate units, including more than 70,000 active duty members, civilians, retirees and dependents in the local area.

- Its regional hospital serves more than 77,000 beneficiaries.
- Eglin's transportation squadron is the largest in the Air Force, with more than 2,700 vehicles.
- Eglin also runs one of the largest mobility centers in the Air Force. It is responsible for mobilizing more than 5,400 people and 22,000 tons of cargo in support of wartime taskings.
- Eglin earned the Gen. Thomas D. White Natural Resources Conservation Award, part of the 1993 Air Force Environmental Awards.

## Air Force Flight Test Center

*Tested all the aircraft in the Air Force inventory and is currently testing the B-2, F-22 and C-17.*



*C-17 Globemaster III before an arctic mission.*

**T**he Air Force Flight Test Center is the host unit at Edwards AFB, Calif.

The center's work force -- civilian, military and contractor -- work together to flight test and evaluate new aircraft and upgrades to aircraft already in inventory for Air Force units, the Department of Defense, NASA and other government agencies.

These include improvements to radar weapons delivery and navigation systems, and a system to give tactical pilots the ability to strike ground targets from low altitudes at night and in adverse weather.

The center develops, operates and maintains the Edwards Flight Test Range and Utah Test and Training Range. It also operates the U.S. Air Force Test Pilot School.

AFFTC resources include the test and evaluation mission simulator, the Benefield Anechoic

Chamber, Ridley Mission Control, and the integration facility for avionics systems testing.

### Historical perspective

In February 1948, the Air Force Flight Test Center was activated at Edwards, originally called the Muroc Bombing and Gunnery Range, and later Muroc AFB.

The base played an important role in training fighter and bomber crews throughout World War II.

Muroc, with its excellent weather and dry lake bed (an immense natural runway for emergency landings) was ideally suited for year-round flight testing. Over the years, the lake bed has saved countless lives and aircraft.

Muroc was renamed Edwards AFB in December 1949 in honor of Capt. Glen W. Edwards, a test pilot killed in the crash of an experimental YB-49 Flying Wing.

### Just the facts...

- Edwards sits on 301,000 acres on the western edge of the Mojave Desert.
- The base's population is composed of 4,400 military, 10,800 civilians and 6,420 dependents.
- The nation's first jet- and rocket-powered aircraft made their first flights at Edwards.
- Men and aircraft first exceeded Mach 1 through 6 and first flew above 100,000, 200,000 and 300,000 feet at Edwards.
- In 1977, the space shuttle's approach and landing tests were conducted at Edwards.
- The first shuttle landings from space began in April 1981.
- The B-2 bomber made its maiden flight at Edwards in 1989, the F-22 in 1990 and the C-17 in 1991.



# Arnold Engineering Development Center

*Possesses the most advanced and largest complex of flight simulation test facilities in the world.*

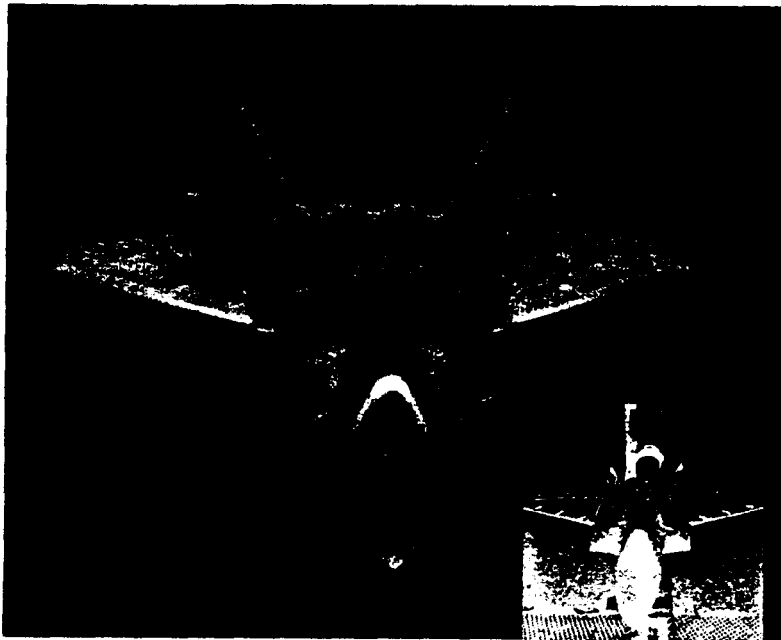
**T**he Arnold Engineering Development Center at Arnold AFB, Tenn., is a vital national asset, serving America's flight-simulation test needs for more than 43 years.

The center's diverse collection of test assets includes more than 50 aerodynamic and propulsion wind tunnels, rocket and turbine engine test cells and space environmental chambers.

Its customers include the Air Force, Army and Navy; private industry; NASA, FAA, allied foreign agencies and academic institutions.

Engineers and scientists at the center test aircraft, missile, and space systems and subsystems at the conditions they will experience in actual flight.

They frequently use models of weapon systems during testing, many of which are created by the center's craftspeople.



*An F-22 fighter as shown on a computer model using Computational Fluid Dynamics, a relatively new discipline being used as a tool to complement wind tunnel tests. The modeling shortens the time needed to get complex information on aerodynamic effects. INSET: A model of the F-22 is being prepared for testing in the center's 16-foot transonic wind tunnel.*

A research and technology program is conducted at the center to develop advanced testing techniques and instrumentation, and to support the design of new test facilities.

The center identifies long-range testing requirements, conducts facility concept studies and technology projects supporting facility planning efforts.

The program focuses on many areas, such as hypersonics, turbine engine testing and space testing.

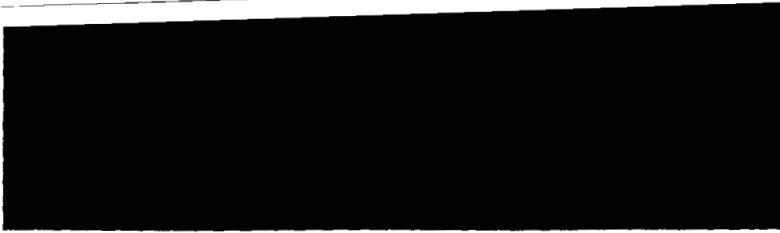
The program's results ultimately translate into specifications for new or improved facilities, improved instrumentation, procedures and computational tools.

## Just the facts...

- ❑ AEDC engineers have contributed to the development of many of the nation's top priority aerospace programs, such as the F-22, the F-117A, F/A-18E/F, B-2 and the space shuttle.
- ❑ AEDC support to operational systems also includes store separation testing for the F-15 and B-1B, engine testing for the T-37 and F-5, and rocket-motor testing for Minuteman and Peacekeeper missiles.
- ❑ The center has opened its doors to commercial testing, a win-win relationship for the Department of Defense and the private sector. Public-private

partnering most recently helped Pratt & Whitney achieve FAA certification for its 4084 engine. This engine will power the new Boeing 777 airliner in upcoming flight tests.

- ❑ Of the center's test units, 27 have capabilities unmatched anywhere in the world. They can simulate flight conditions from sea level to outer space, and from subsonic to Mach 20 velocities.
- ❑ Four high-vacuum space chambers simulate space conditions in the altitude range of 200 miles.
- ❑ Only 10 percent of the center's 3,500 employees are government workers. The remainder are employed by one of the center's three support contractors or their subcontractors.




*Weapon systems receive depot-level maintenance and overhaul during their life cycles at the command's five*

# *Air Logistics Centers*

*Their customers include many foreign countries in addition to Defense Department organizations.*

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# Ogden Air Logistics Center

*Provides worldwide logistics support for the entire Air Force inventory of intercontinental ballistic missiles and F-16 Fighting Falcons.*



Ogden ALC workers perform maintenance on a Navy F/A-18 Hornet.

The Ogden Air Logistics Center, Hill AFB, Utah, provides worldwide engineering and logistics management for the F-16 Fighting Falcon, the world's largest fleet of fighter aircraft.

Ogden also maintains the C-130 Hercules and the Navy/Marine F/A-18 Hornet.

In 1993, the center performed 2.25 million manhours of maintenance and modifications on more than 300 F-16s, 29 F-4s and 50 C-130s, while beginning interservicing work on 36 Navy F/A-18s.

The center also provides logistics support to 21 countries flying more than 3,000 F-16 aircraft.

Ogden ALC has worldwide logistics management and maintenance responsibilities for the nation's fleet of intercontinental ballistic missiles, including Minuteman and Peacekeeper.

The center operates the Air Force's worldwide overhaul and repair facility for all aircraft landing gear, brakes, struts and wheels.

Ogden is the Air Force's leading provider of rocket motors, small missiles, air munitions and guided bombs, photonics imaging and reconnaissance equipment, simulators and training devices, avionics, hydraulics and pneudraulics instruments, and computer software.

## Just the facts...

- Hill provides support for the 900,000-acre Utah Test and Training Range, DOD's largest over-land special use airspace within the continental United States.
- More than 22,000 training sorties and 1,000 test sorties are flown on the range each year by all military services.
- The UTTR is used for testing munitions and propellants up to the

most powerful ICBM rocket motors and explosive components.

- As Utah's largest employer, Hill has some 16,000 employees.
- Of Hill's total work force, approximately 8,500 civilians and 1,900 military are assigned to Ogden ALC.
- The annual base payroll totals approximately \$570 million.
- Hill employees contribute roughly

\$550,000 each year to the Combined Federal Campaign.

- Hill's overall economic impact in Utah is estimated to be \$1.9 billion annually.
- Hill provides the logistics support for the entire Air Force inventory of intercontinental ballistic missiles.
- Hill is the logistics manager for all landing gear, air munitions, solid propellants and explosive devices used throughout the Air Force.

## Oklahoma City Air Logistics Center

*Provides specialized logistics support -- management, maintenance and distribution -- to defense weapon systems across the globe.*

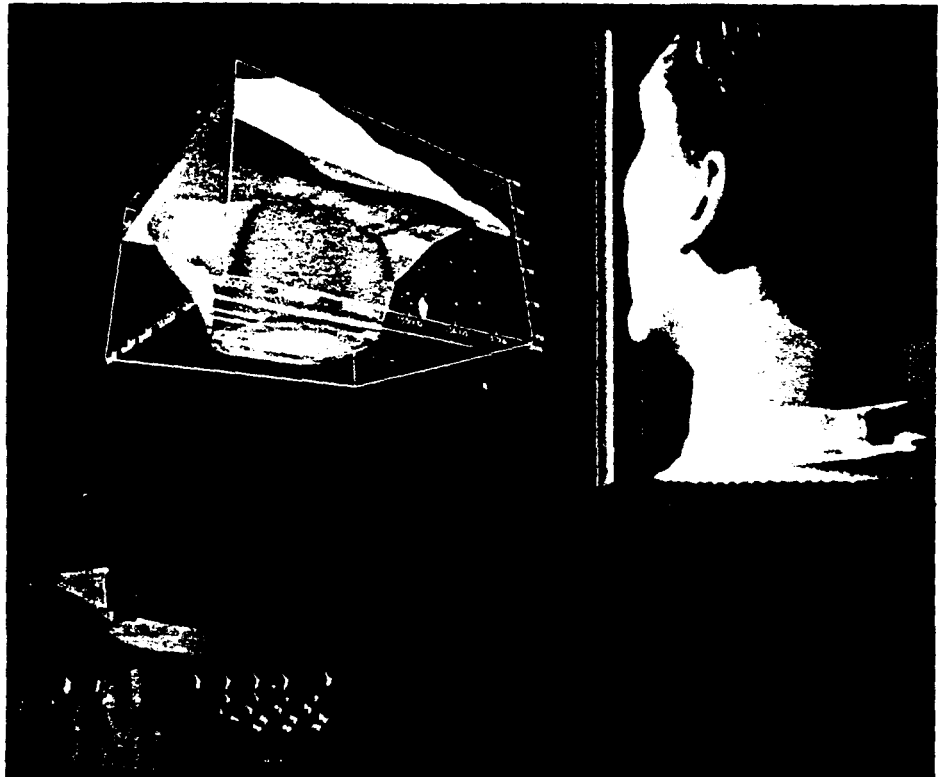
**T**he Oklahoma Air Logistics Center, Tinker AFB, Okla., manages or provides comprehensive depot maintenance on 1,416 aircraft, including the B-1B, B-2, B-52 and KC-135.

The center also manages logistics support done by contractors for the E-3, KC-10, VC-25, VC-136 and 25 other aircraft that transport high-ranking government officials across the globe.

In 6 million square feet of indoor maintenance area, the center manages more than 17,000 jet engines ranging from Korean War-vintage J-33s (for the T-33) to state-of-the-art B-2 engines such as the F118.

The center manages the Air Launched Cruise Missile, Short Range Attack Missile, Harpoon and Advanced Cruise Missile.

The center's Commodities Directorate tracks more than 70,000 parts used on defense weapon systems



*An environmental engineer views a three-dimensional model to see levels of contamination below the Earth's surface. This cutting edge software lets Tinker engineers select the best methods to clean up restoration sites and monitor progress.*

### Just the facts...

Tinker blazed a trail in alternative fuel use by adapting some 551 vehicles to run on propane, compressed natural gas and electric battery power.

Nearly 300 fleet vehicles have been converted to dual-fuel CNG, giving Tinker the distinction of having the largest dual-fuel armada in Oklahoma — and one of the largest in the nation.

Tinker is the only AFMC base whose gates now enclose the Navy. Fleet Air Reconnaissance Squadron Three and Four, both located at Tinker, conduct the Navy's "Take Charge and Move Out" mission -- providing a survivable strategic communication link between national leaders and the country's arsenal of strategic nuclear weapons.

The joint Air Force and Navy physical security program, first of its kind in the Department of Defense, is located at Tinker and serves as a model for other installations.

Tinker is Oklahoma's largest single-site employer with more than 21,000 employees.

Tinker's total economic impact is \$2.8 billion.

In 1993, the base payroll topped \$785 million.

Tinker has formed a number of technology advancement coalitions to address a wide spectrum of environmental issues. One such venture will join all Department of Defense installations in Oklahoma as a coalition to crossfeed information on compliance actions and improve the partnership between the EPA and federal facilities.

## Sacramento Air Logistics Center

*The Air Force's high technology center for communications-electronics, space-based ground systems, manufacturing and aircraft systems.*

**T**he Sacramento Air Logistics Center, located at McClellan AFB, Calif., is known throughout the Department of Defense as a high technology industrial center.

It has advanced capabilities in composites, microelectronics, electro-optics, software, hydraulics/pneudraulics, system engineering, flexible manufacturing, and environmental technologies — products of a \$400-million investment over the past decade.

The center manages communications-electronics systems, aircraft, and, as the predominant space logistics support facility, the ground control equipment that monitors space vehicles.

In the spirit of dual use, the center is offering McClellan's capabilities, facilities, and technologies and experience for interservicing, and supporting commercial applications. McClellan's nondestructive inspection workloads are expanding to include other DOD services.

The center hosted the Navy's F-14 in its unique full-aircraft nondestructive inspection facility, and the Army's Apache helicopter in both the full-aircraft facility as well as in the Nuclear Radiation center for blade inspection.

The center also is deeply concerned for the environment. Since 1980, the Sacramento ALC has spent more than \$160 million to clean up areas damaged by past waste management practices. In addition, the center is continually searching for ways to prevent future contamination.



*With McClellan's Hufford Stretch Wrap machine, Ron Shore can stretch and form up to 15-foot lengths of steel.*

### **Just the facts...**

- SM-ALC houses the only industrial nuclear reactor in DOD.
- In an agreement with the University of California, Davis Medical Center, the university will use the McClellan's nuclear reactor to study neutron boron capture therapy. This effort could result in a regional treatment center for previously inoperable brain tumors.
- SM-ALC is the largest industrial employer in Northern California.
- McClellan's work force totals more than 14,100 people.
- The base's annual payroll is \$583 million.
- The base's economic impact on the 10-county area surrounding McClellan is \$2.2 billion.
- The base's groundwater treatment plants typically remove as much as 3,000 pounds of contaminants from the groundwater each day.
- McClellan and a local utility company are developing advanced technologies for zero-pollution electric vehicles. This cooperative agreement will create civilian jobs and help establish an electric vehicle industry in Sacramento.
- Under a cooperative research and development agreement between the center and Ford, Chrysler and General Motors, an environmentally compliant casting facility will be developed for the domestic automobile industry and DOD.
- Since 1985, the center has cut hazardous waste generation by more than 70 percent and reduced volatile compounds emissions by 64 percent.

## San Antonio Air Logistics Center

*Provides worldwide logistics support for weapon systems including the C-5, T-37, T-38 and the new C-17.*

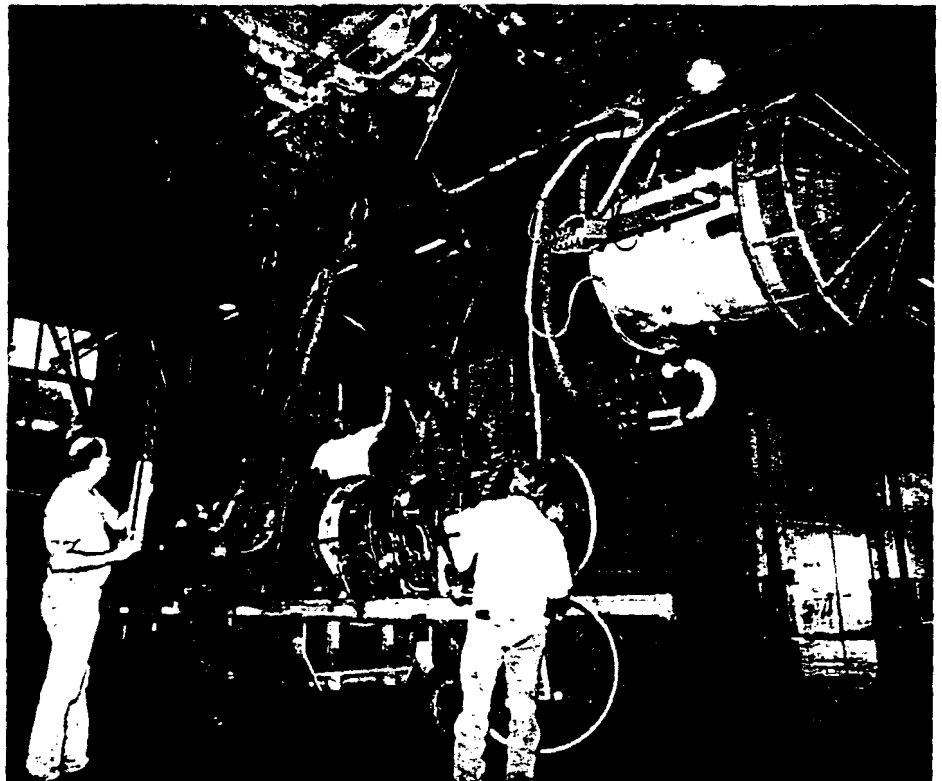
**T**he San Antonio Air Logistics Center, located at Kelly AFB, Texas, manages, repairs and ships engines, engine modules and other components for a variety of aircraft, ranging from the massive C-5 cargo and troop transport to the F-16 fighter. The center is also a depot repair facility for C-5 and T-38 trainer aircraft. Funding has been approved for a new facility to handle repair of the C-17, the Air Force's newest jet transport aircraft.

In addition to engine and aircraft work, the center also manages and maintains a wide variety of electronic, aerospace ground, electro-mechanical and nuclear component support equipment.

The center manufactures and machines parts for engines and fuel control systems with a unique stereo lithography system, one of the few of its kind in the world.

The center also manages the Air Force nuclear ordinance inventory, determines requirements for fuels and lubricants used by the Air Force, and supports all liquid missile propellants used by the Air Force and NASA.

Also managed by the center is the Air Force's fleet of boats and ships, and the 51st Munitions Squadron, Lackland AFB, Texas. The squadron supports the standard air munitions package, and the standard tank, rack, adaptors and



*An F100 engine is readied for testing at one of the center's test cells following maintenance. San Antonio ALC is one of two AFMC centers with engine overhaul capability. Two-level maintenance, currently underway at Kelly, has helped improve the management process.*

pylon package program.

In 1992 the center won a major three-year contract worth an estimated \$34.8 million. The contract calls for modification and inspection of the giant C-5A and C-5B transport aircraft.

In 1991 the center dedicated a new bead-blasting corrosion control facility for stripping paint from aircraft. Not only is it the largest in the Air Force, it also incorporates the latest technology and will accommodate the C-5 and C-17 aircraft.

### Just the facts...

❑ The center manages more than 19,000 aircraft engines.

❑ The ALC also manages the Air Force inventory of some 50,000 non-aircraft engines –

more than 75 percent of the Air Force's total engine inventory.

❑ During fiscal 1993, 35 aircraft underwent periodic depot maintenance at the center: eight B-52s, 24 C-5s, and three T-38s. Two C-5A aircraft underwent

Speedline modifications.

❑ The combined payroll at the center is \$656 million.

❑ Some 248 aircraft engines and 2,708 modules were overhauled or repaired.

❑ The fiscal 1993 budget

for the center was \$7.1 billion.

❑ The center employs 11,676 civilians and 1,367 military people.

❑ Another 3,750 full-time civilians and 3,640 military people work in associated organizations.

## Warner Robins Air Logistics Center

*Provides worldwide logistics management for the F-15 Eagle, the C-141 Starlifter, the C-130 Hercules, utility aircraft, helicopters, missiles, and other vehicles.*

**T**he Warner Robins Air Logistics Center, located at Robins AFB, Ga., manages more than 200,000 items that represent the full range of avionic functions and technology, including aerospace communications and navigation equipment; airborne bomb and gun-directing systems; target acquisition systems; and most Air Force airborne electronic warfare equipment.

The center provides cradle-to-grave logistics management support and depot-level maintenance for the F-15, C-141 and C-130 aircraft.

The center also provides cradle-to-grave management support for the Low-Altitude Navigational Targeting Infrared for Night System, the Joint Tactical Information Distribution System, the Worldwide Military Command and Control System, and supports firefighting equipment and vehicles of all types.

The center is also the technology repair center for life support equipment, instruments (gyroscopes), airborne electronics and aircraft propellers.

Warner Robins is responsible for procurement, supply and maintenance functions for most Air Force bases along the East Coast, as well as the Atlantic Missile Test Range, Newfoundland, Labrador, Greenland, Iceland, Bermuda, the Azores and all Air Force and Security Assistance Program activities in Europe, Africa and the Middle East.



*Workers perform a center wing box replacement, a process, designed by Warner-Robins ALC engineers. It's the largest structural repair ever accomplished by an organic depot.*

### **Just the facts...**

- Warner Robins ALC is the host unit at Robins.
- The base has 40 tenant organizations.
- Robins will become the main operating base for the E-8 Joint Surveillance and Target Attack Radar System aircraft as it enters the

### **Air Force inventory.**

- Robins is Georgia's largest industrial complex, covering more than 8,790 acres.
- At the end of fiscal 1993, Robins employed 13,380 civilians and 4,547 military.
- In fiscal 1993, military and civilian salaries totaled \$686.3 million.



*Many development  
and logistics functions  
are handled  
in AFMC's*

# *Specialized Centers*

*These centers focus on critical  
areas such as basic research,  
cataloging and standardization, metrology,  
security assistance and "retired"  
weapon systems.*

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## Aerospace Guidance and Metrology Center

*The single Air Force center for repairing inertial guidance and navigation systems for missiles and aircraft, and for certain aircraft displacement gyroscopes.*

**T**he Aerospace Guidance and Metrology Center, located at Newark AFB, Ohio, provides a full range of engineering and consultation services on inertial systems to the Air Force and other Defense Department agencies.

The center establishes, maintains and performs overall technical direction and management of the Air Force Metrology and Calibration Program.

AGMC operates the Air Force Measurement Standards Laboratory. It provides technical and procedural direction for operation of a single, integrated measurement system. The center also designs and performs periodic calibration and certification of measurement standards used in all precision measurement equipment laboratories.

The center repairs guidance and navigation systems for:

A-7D/E	F-16
AC-130	F-111
B-1B	KC-135
B-52G/H	Minuteman I, II, III
C-5A	Peacekeeper
F-4	RF-4
F-15	SRAM



*Technicians at the Aerospace Guidance and Metrology Center, Newark AFB, Ohio, assemble the stable member of a Peacekeeper missile.*

### Just the facts...

- Newark AFB covers about 70 acres.
- The base's capital assets and equipment are valued at more than \$300 million.
- It employs more than 1,500 people
- Newark's annual payroll totals approximately \$70 million.
- AGMC is the only center in the Air Force where

inertial guidance and navigation for missiles and aircraft, as well as certain aircraft displacement gyroscopes, are repaired.

Through interservice agreements, AGMC also repairs inertial guidance and navigation systems components on the Navy's A-7E, RF-4, and Class 688 Attack Sub and the Army's OV-1D and Position and Azimuth Determining System.

The center is pursuing privatization since Newark was selected for closure by the 1993 Base Closure and Realignment Commission.

# Aerospace Maintenance & Regeneration Center

*Stores preserved aircraft indefinitely with a minimum of deterioration and corrosion because of the meager rainfall, low humidity and alkaline soil near Tucson, Ariz.*

**T**he Aerospace Maintenance and Regeneration Center, located at Davis-Monthan AFB, Ariz., is a service organization that provides for the storage, regeneration, reclamation, and disposal of aircraft and related aerospace items as well as selected non-aerospace, out-sized, and specialized items.

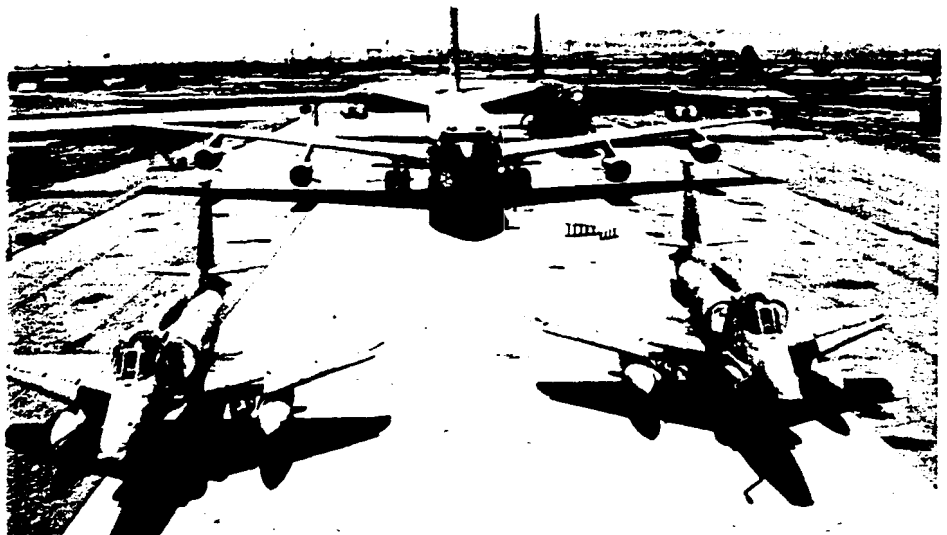
Related aerospace items in storage include production tooling, engines, pylons, pylon load adapters and airframe components.

AMARC's 750 employees maintain the specialized skills and knowledge necessary to work on more than 50 different types of aircraft.

The center's primary customers include the Air Force, Army, Navy, Coast Guard, foreign military sales countries, and other non-Department of Defense agencies. AMARC provides services tailored to each customer.

The center is much more than a storage facility. Historically, about one-fourth of the aircraft received for storage are eventually prepared for flight or ground shipment to support its customers' needs.

AMARC is also the elimination site for heavy bombers under the terms of



**Aircraft stored at the Aerospace Maintenance and Regeneration Center.**

the Strategic Arms Reduction Treaty (START).

The center also supports specialized training efforts of the FBI, FAA, Federal Law Enforcement Training Center, aircraft battle damage repair school, and other DOD agencies.

AMARC is organized with three key processes:

**Process-In** puts aircraft into storage and maintains them while they're in storage.

**Process-Out** removes aircraft from storage and prepares them for flight.

**Reclamation** removes parts and assemblies from stored aircraft in support of customer requirements.

## Just the facts...

In fiscal 1993, AMARC received 671 aircraft and processed 911 aircraft into storage.

AMARC returned 165 aircraft and 27,056 parts to the government in 1993 for a total of \$734 million.

As the center's budget was \$50 million, the amount represents a \$14.65 return for each dollar the center spent.

AMARC will eliminate about 350 B-52 aircraft over a three-and-a-half-year period to comply with conditions of the Strategic Arms Reduction Treaty.

As of Sept. 30, 1993, the center had 4,527 aircraft in storage from the Air Force, Army, Navy and Coast Guard.

Also in storage are 41 Titan missiles, 48 communications-electromagnetic-meteorological units, and 180 photo-reconnaissance shelters.

# Air Force Office of Scientific Research

*Directs the basic science and engineering research program for the Air Force.*

The Air Force Office of Scientific Research, Bolling AFB, D.C., sponsors basic research programs in Air Force laboratories, academia, U.S. industry and other government agencies.

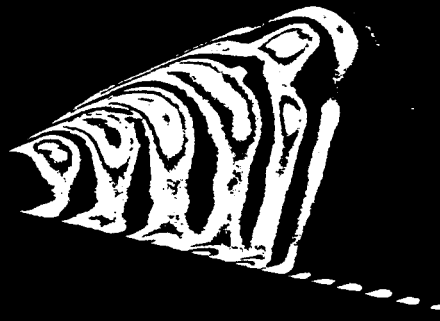
The office reports significant technology transfers, transitions and product applications to more than 200 customers annually -- half to U.S. industry and the other half to Air Force organizations -- for advanced research, test, logistics or systems applications.

AFOSR's \$300 million investment consists of roughly 1,600 grants and contracts to 375 academic institutions and industrial firms, and more than 100 intramural research efforts performed by the four major Air Force laboratories.

AFOSR investment strategy exploits scientific opportunities deemed relevant to Air Force research, by balancing "technology pull" -- what customers need -- with "research push" -- scientific achievements showing promise for new technologies.

## Radar wave fringes on X24C-10D

TE excitation  $L/\lambda = 9.3$



The figure demonstrates the newly-acquired computational electromagnetic simulation capability for the radar cross section of an aircraft. The invisible radar wave fringe pattern on the X24C-10D reentry vehicle is made visible by this computational technique. To make this high-performance computation technique possible, a large system of equations must be solved describing the scattering electromagnetic wave phenomena around any object in the free space. Since the electromagnetic wave is generated at the speed of light and with a very short wavelength, the required computing speed to mimic the physics must also be very high. In fact, the computation has reached a rate of nearly 10 billion calculations per second on a parallel computer.

### Just the facts...

- ❑ AFOSR programs support 40 major research areas in four major scientific areas:
  - 1 Aerospace and materials sciences
  - 2 Chemistry and life science
  - 3 Physics and electronics
  - 4 Mathematical and geosciences
- ❑ AFOSR also manages educational and scientific exchange programs, bringing research talent to the Air Force labs and allowing Air Force laboratory researchers to work at renowned university,

industry and government labs.

- ❑ To foster international cooperation, AFOSR operates the European Office of Aerospace Research and Development, London, and the Asian Office of Aerospace Research and Development, Tokyo.
- ❑ The Frank J. Seiler Research Laboratory, Colorado Springs, Colo., offers Air Force Academy faculty and cadets access to a first-class research environment and performs basic research to support both academy research interests and Air Force technology objectives.

## Cataloging and Standardization Center

*Prevents costly entry of duplicate items into the DOD inventory and ensures accurate logistics data exist for the 2.3 million items used by the Air Force.*

**T**he Cataloging and Standardization Center in Battle Creek, Mich., is the focal point for getting accurate logistical data or help in locating hard-to-find parts.

This centralized agency provides a single face to the customer, performing functions previously done as separate functions at the five air logistics centers.

CASC's 400 employees use their technical expertise in more than 500 federal supply classes to serve customers in AFMC, other Air Force commands, other military services and civilian agencies.

### Core services

**Item Entry Control** compares new items proposed for weapon systems to currently cataloged items, prevents duplicate items from

entering the inventory and technically assesses new items for performance and cost.

**Logistics Data Management** maintains the catalog data once an item is assigned a national stock number. CASC is directly or indirectly responsible for 2.3 million supply items and provides tailored service to meet unique customer requirements.

**Program/Data System Management** supports the infrastructure -- data systems, policy, procedures, and programs -- in addition to performing cataloging and standardization work on individual items.

**Specifications and Standards** protects Air Force interests by identifying critical performance requirements for reliability and maintainability, while promoting

conversion of DOD documents into more simplified commercial specifications and standards.

**Customer Assistance** operates a worldwide, 24-hour customer helpline that receives nearly 500 calls per week. CASC answers 78 percent of these calls within one duty day and all others within 48 hours.

### HELPLINE

**Phone:** DSN 932-HELP  
COMM (616) 961-HELP

**Fax:** DSN 932-7252  
COMM (616) 961-7252

**Email case:**  
911@cadis01.casc.dlsc.dla.mil

**Electronic bulletin board:**  
DSN 932-4340  
COMM (616) 961-4340

## Air Force Security Assistance Center

*Establishes, implements and manages the Air Force security assistance programs assigned to the command.*

**T**he Air Force Security Assistance Center, Wright Patterson AFB, Ohio, ensures that the U.S. Air Force meets commitments to its foreign customers.

The center's country managers negotiate foreign military sales cases directly with foreign countries to provide a wide variety of materiel and services to support their weapon systems.

AFSAC also helps prepare cases managed by the secretary of the Air Force, and supports more than 80 foreign governments, allies and international organizations.

AFMC currently manages more than 4,000 foreign

military sales cases totaling nearly \$100 billion.

The center's Logistics Support Group, headquartered in Riyadh, Saudi Arabia, is responsible for the in-kingdom program management of U.S. Air Force security assistance programs with Saudi Arabia totaling more than \$15 billion.

The center maintains several unique programs including military assistance programs authorized by the president of the United States to provide specified materiel and services without cost to designated friendly foreign governments during emergencies, and support to drug enforcement efforts by providing military articles and training free of charge to governments fighting drug trafficking.

# Marketing Contacts

## Depot Maintenance

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### AFMC Logistics Directorate 513-257-4307

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### Oklahoma City Air Logistics Center 405-739-2836

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### Ogden Air Logistics Center 801-777-5851

Vacant  
OO-ALC/FMPM  
6009 Wardleigh Rd  
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### San Antonio Air Logistics Center 201-925-6726

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SA-ALC/FMPF  
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### Warner Robins Air Logistics Center 912-926-3202

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## Technology Transition

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### AFMC Technology Transition Office 513-255-7900

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## AFSTAR

*(Air Force Science & Technology Report)*

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### Air Force Office of Scientific Research 202-767-6010

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### Phillips Laboratory

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### Rome Laboratory

315-330-3415  
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### Wright Laboratory

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Mr. Rick Bissailon  
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## Research & Development

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### Human Systems Center

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### Space and Missile Systems Center

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### Aeronautical Systems Center

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### Electronic Systems Center

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## Test & Evaluation

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### Air Force Development Test Center

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Mr. Bob Burns  
AFDTC/XRP  
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### Arnold Engineering Development Center

615-454-6508  
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### Air Force Flight Test Center

805-277-3837  
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1 South Rosemont Boulevard  
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## Specialized Centers

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### Cataloging and Standardization Center

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74 N Washington Ave  
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### Air Force Security Assistance Center

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*Forward section of a B-1 is being prepared for testing at Rome Lab's Newport, N.Y., site.*

