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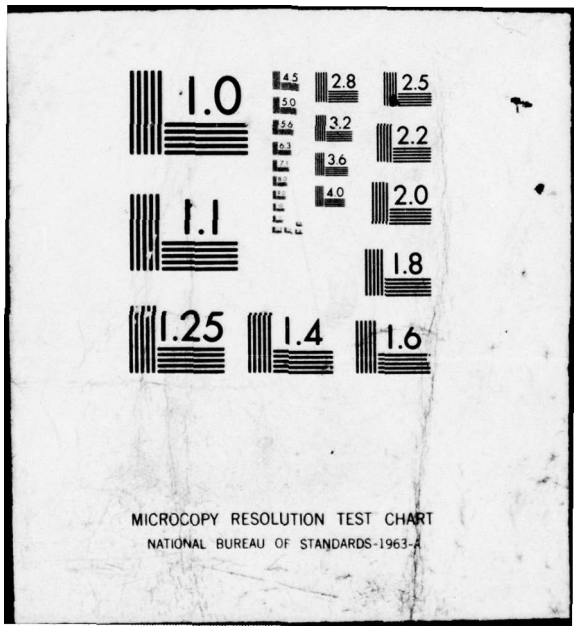
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AN ANALYSIS OF CONFIGURATION MANAGEMENT OF AIRCRAFT ENGINES DELIVERED TO FOREIGN GOVERNMENTS UNDER FMS

STUDY PROJECT REPORT
PMC 76-1

JOHN GRUSHA
GS-13 DNC

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SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

STUDY TITLE: An Analysis of Configuration Management of Aircraft Engines Delivered to Foreign Governments Under FMS.

STUDY PROJECT GOALS:

To study the procedures described in documentation and to analyze actual practices in processing engineering changes that relate to FMS Cases as they impact on engine configuration.

STUDY REPORT ABSTRACT:

This study ~~project provides a summary of the~~ summarizes: (1) procedures used by the Naval Air Systems Command in establishing the product configuration identification baseline for an aircraft engine, (2) how changes are controlled during production, and (3) how the configuration is accounted for once the engine is delivered. The Technical Directive system ~~provides a means for~~ identifying the configuration of an engine once it departs from its initial product baseline. The same system is used by foreign countries that have purchased Navy engines under FMS Programs.

An overview of the engineering change proposal approved procedures as they relate to FMS are presented ~~herein.~~ ~~Included in the overview are the~~ responsibilities of the various offices in coordinating engineering change proposals with FMS customers. are discussed.

This study reviews how configuration management of aircraft engines is carried out by a number of Program Managers with their FMS customers and ~~provides an~~ analysis ~~of the~~ current practices.

Finally, the conclusions call for new guidelines and standardization in ~~the~~ procedures for processing engineering changes ~~that~~ related to FMS and more standardization in maintaining a common configuration for engines under FMS, especially when the engines are overhauled or repaired at Depot level by Naval Activities for FMS customers.

KEY WORDS: Configuration Management
Aircraft Engines
Foreign Military Sales
ENGINEERING CHANGE PROPOSALS
PROGRAM MANAGEMENT
MATERIEL DESIGN AND DEVELOPMENT

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AN ANALYSIS OF CONFIGURATION MANAGEMENT OF AIRCRAFT ENGINES DELIVERED TO FOREIGN GOVERNMENTS UNDER FMS

Study Project Report

Individual Study Program

Defense Systems Management School

Program Management Course

Class 76-1

by

John Grusha
GS-13 DNC

MAY 1976

Study Project Advisor
Mr. Wayne Schmidt

This study project report represents the views, conclusions and recommendations of the author and does not necessarily reflect the official opinion of the Defense Systems Management School or the Department of Defense.

AN ANALYSIS OF CONFIGURATION MANAGEMENT OF AIRCRAFT ENGINES DELIVERED TO FOREIGN GOVERNMENTS UNDER FMS

An Executive Summary
of a
Study Report

by

JOHN GRUSHA
GS-13 DNC

MAY 1976

Defense Systems Management School
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Fort Belvoir, Virginia

EXECUTIVE SUMMARY

The purpose of this report is to analyze the procedures and practices used in managing and controlling the configuration of aircraft engines prior to and after delivery to foreign governments under FMS cases. This report describes the procedures used in establishing the product configuration identification baseline, the introduction of changes during production, and the maintenance of configuration identification through the use of Technical Directives. This report discusses the regulations and practices within the Navy for controlling and maintaining configurations of engines prior to and after delivery to foreign governments under FMS. This report is the result of a research effort to expand the author's knowledge in the area of configuration control and management of aircraft engines under FMS and to expose problem areas that require management attention.

The actual procedures for the control of engine configuration under FMS is handled on a project by project basis by each Program Manager. The actual Naval Air Systems Command documentation for the processing of engineering changes relating to FMS is not current and should be updated. There has been an informal shifting of responsibilities between offices that are responsible for dealing with FMS Customers. This presents the engine Project Coordinator with a difficult problem in processing an engineering change that is applicable to an engine delivered to an FMS customer. In some cases, the FMS customer is overlooked and not given proper consideration. This is because a standardized procedure does not exist for the processing of FMS related engineering changes, and in many cases, FMS requirements are not given the same consideration as Navy requirements.

A number of recommendations are made that require management attention to improve configuration management of aircraft engines under FMS that will be beneficial to both the foreign customer and the U.S. Navy.

ACKNOWLEDGEMENTS

My associates at the Naval Air Systems Command were most responsive and courteous to my inquiries about their operations with foreign customers under FMS and the way configuration management was carried out. Mr. Joe Jennings of the Naval Air Systems Command, Defense Security Assistance Office, was particularly generous with his time and expertise in providing advise on the foreign military sales process. The faculty and staff of the Defense Systems Management School provided a great deal of assistance in the review effort.

A special thanks to my wife and children for their patience and understanding.

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AN ANALYSIS OF CONFIGURATION MANAGEMENT OF AIRCRAFT ENGINES DELIVERED TO FOREIGN GOVERNMENTS UNDER FMS

1. INTRODUCTION

1.1 Purpose.

The purpose of this report is to examine in detail the procedures, regulations and practices within the Navy for controlling and maintaining configuration of aircraft engines prior to and after delivery to foreign countries under the FMS cases. This project was initiated to increase my knowledge with regard to my responsibilities in the area of configuration control and management of an aircraft engine installed in an aircraft sold to a foreign Government under FMS.

1.2 Scope.

This report contains a summary of the procedures used by the Naval Air Systems Command in establishing the production baseline of an engine, how changes are controlled during production, how the engine configuration is accounted for once the engine is delivered, and how changes are introduced into an engine after it is delivered. Agreements between the U.S. Government and a foreign country are addressed in an FMS case and how the impact of these agreements pass down through the system to impact on the Project Engineer who is primarily responsible for the technical evaluation and approval of an engineering change and the other personnel he must interface with in processing an engineering change proposal (ECP) for approval. A number of examples are cited on how configuration management is carried out with certain foreign customers and exposes problem areas that need to be addressed and corrected. The latter part of this report contains conclusions and specific recommendations. Configuration management

of aircraft engine delivered to foreign Government is not a new problem, but one that has been with us for many years, mostly neglected, but now with the increased emphasis on FMS within the Military Services, it is time to examine our procedures and practices. Where deficiencies exist, clear procedures should be established and responsibilities defined for the controlling of configuration of engines delivered to foreign countries under FMS.

1.3 Limitations.

I regret that time restricted me from examining more FMS cases in detail and the specific problems that relate to the configuration management of engines by foreign governments and their interface with the U.S. Government. It would have been interesting to investigate the approaches taken by the U.S. Air Force in the area of configuration management of engines under FMS with the overall objective of establishing a common U.S. military approach. It was found in the case studies covered in this report that configuration management was handled in a different manner by each Navy Program Manager.

2. PROCEDURES USED BY THE NAVAL AIR SYSTEMS COMMAND IN ESTABLISHING PRODUCT BASELINE, CONTROL OF CONFIGURATION DURING PRODUCTION, AND AFTER DELIVERY TO THE GOVERNMENT.

2.1 Product Baseline.

An engine product baseline is established when an engine completes a series of tests commonly referred to as Qualification Tests (QT). These series of tests are normally concluded by a 150-hour endurance test where the engine is operated at its maximum allowable limits to a prescribed schedule for the duration of the test. Upon completion of this test, the engine is disassembled, components are bench tested, and all parts are visually inspected, dimensionally checked for any abnormal wear, and certain critical components/parts are subjected to various types of non-destructive testing. With the approval of the Government, or at the direction of the Government, certain selected parts may be subjected to destructive testing. This inspection is performed by the engine development contractor and a Government Inspection Team. Prior to the start of the inspection, the contractor provides to the Government Plant Representative a certified parts list with all the revision letters for the engine tested.

Upon completion of the inspection, the contractor will provide to the Government a detailed test and inspection report. Government approval of the test report will conclude qualification of the engine and a product baseline is established with the detailed parts that depicted the endurance test engine. All changes to the engine from this point on will be handled in accordance with MIL-STD-480.

2.2 Production Incorporation of Changes.

All changes classified as Class I are forwarded to the Naval Air Systems Command for approval, and are not incorporated by the contractor

into any engine until he receives a properly executed modification to his contract authorizing the incorporation of said change. Normally, all Class II changes are approved by the contractor, but are first submitted to the Cognizant Plant Representative for review of classification. If the Plant Representative disagrees with the Contractor's classification, the change will be submitted to the Naval Air Systems Command as a Class I change.

All Class I changes can be broken down into four basic categories:

a. Those that are introduced at some point in production on a parts supersedure basis and there is no intent to make this change mandatory for incorporation in prior delivered engines of the same engine model;

b. Those changes that are mandatory for incorporation into all engines of the same engine model, but will be incorporated into all of these engines during production;

c. Those changes that are mandatory for incorporation into all engines, but will only be incorporated into some of the engines of a particular model during production, and will be retrofitted into the balance of the engines at some point after their initial delivery to the Government;

d. Those changes that are mandatory for incorporation into all engines, but the production effectivity is subsequent to delivery of the last engine on existing contracts, and will be retrofitted into all engines delivered to the Government.

All Class I changes that are incorporated into production engines are listed on OPNAV Form 4790/24A which is a part of the Aeronautical

Equipment Service record (1:6-11)[1] commonly referred to as the Engine Log Book. Those changes that fall into categories (c) or (d), above, are assigned a Power Plant Change (PPC) number. The PPC number will be recorded in the Engine Log Book at the time the change is incorporated into the engine. The Engine Log Book stays with the engine throughout its service life.

2.3 Technical Directives as a Means of Identifying Engine Configuration.

> The Technical Directive System encompasses two types of TDs (Technical Directives) differentiated by their methods of dissemination: (1) formal (letter type) and (2) interim (message type).... formal TDs are used to direct the accomplishment and recording of modifications to weapons, weapon systems, support equipment, trainers, and related equipments procured by or for the Naval Air Systems Command. (2:1)

This introductive statement sets forth the scope of Aeronautical Requirement (AR)-22, Format and Content of Formal Technical Directives. AR-22 assigns specific titles to Technical Directives depending upon the equipment they are associated with. It states that,

> Each TD shall be assigned one of the following titles:
>
> Power Plant - TDs shall be titled "Power Plant" when the action required affects an integral part of the engine. A power plant directive shall not be written for accessory items which are subject to removal. Power Plant TDs will be further subdivided into specific type/model breakouts, i.e., "TF-30 Power Plant Change", "J79 Power Plant Change", etc. (2:5)

[1]This notation will be used throughout the report for sources of quotations and major references. The first number is the source listed in the bibliography. The second number is the page in the reference.

Power Plant TDs are commonly called PPCs (Power Plant Changes). AR-22 provides detailed instructions and format to be used for the preparation of PPCs. A PPC provides the user with detail instructions necessary for the incorporation of an approved engineering change as a retrofit kit and sets forth the mandatory requirements for its incorporation whether it be at Organizational, Intermediate or Depot level maintenance.

Upon approval of an Engineering Change Proposal (ECP) by the Component Configuration Control Board (CCCB), and if the ECP requires retrofit, the contractor is directed by a contract modification to develop a Technical Directive (Power Plant Change). The proposed TD is prepared in accordance with AR-22, utilizing the information provided in the authorization correspondence and developing all remaining elements of data unilaterally.

> The TD preparing activity shall no later than 105 days prior to the projected issue date, forward two copies of the proposed TD and the related kit to the designated verification activity. One installation tool kit, if applicable, shall be forwarded. (3:6)

Specific instructions for TD processing and approval, and kit verification are specified in AR-41. Production incorporation of an engineering change is independent of TD development or verification. When a change is incorporated during production, the change incorporation is entered into the Engine Log Book at time of hardware incorporation. PPC numbers are assigned at time of ECP approval. Engineering changes to an engine already delivered are incorporated at the appropriate maintenance level with "kits" that contain all the parts necessary to incorporate the change and a TD which contains the necessary instructions. A typical flow cycle illustrating the implementation of change hardware and technical documentation is shown in Figure 1 from NAVMATINST 4130.1.

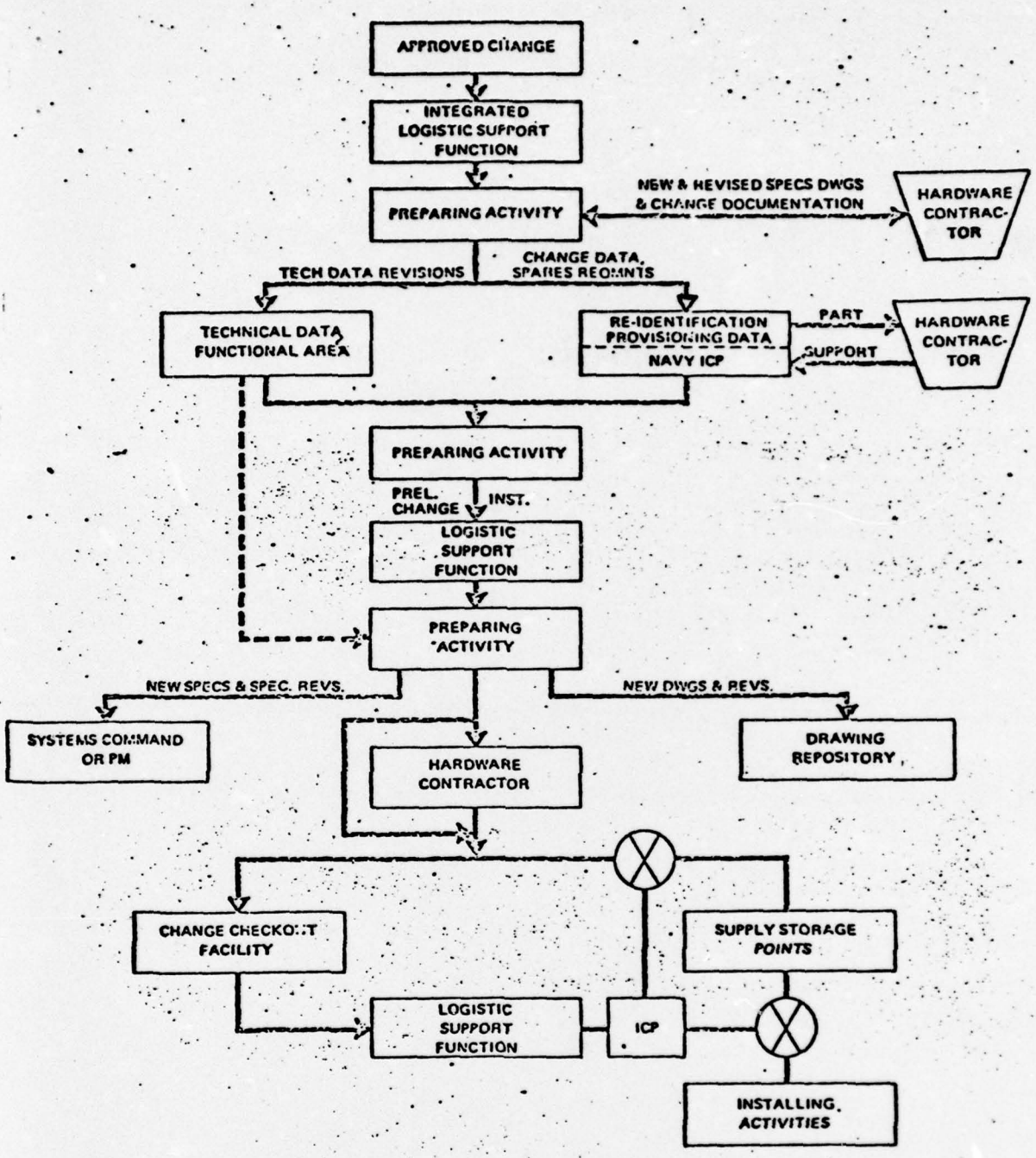

APPROVED CHANGE
INTEGRATED LOGISTIC SUPPORT FUNCTION
PREPARING ACTIVITY
NEW & REVISED SPECS DWGS & CHANGE DOCUMENTATION
HARDWARE CONTRAC-TOR
TECH DATA REVISIONS
CHANGE DATA, SPARES REQMNTS
TECHNICAL DATA FUNCTIONAL AREA
RE-IDENTIFICATION PROVISIONING DATA
NAVY ICP
PART
SUPPORT
HARDWARE CONTRAC-TOR
PREPARING ACTIVITY
PREL. CHANGE
INST.
LOGISTIC SUPPORT FUNCTION
PREPARING ACTIVITY
NEW SPECS & SPEC. REVS.
NEW DWGS & REVS.
SYSTEMS COMMAND OR PM
HARDWARE CONTRACTOR
DRAWING REPOSITORY
CHANGE CHECKOUT FACILITY
SUPPLY STORAGE POINTS
LOGISTIC SUPPORT FUNCTION
ICP
INSTALLING ACTIVITIES

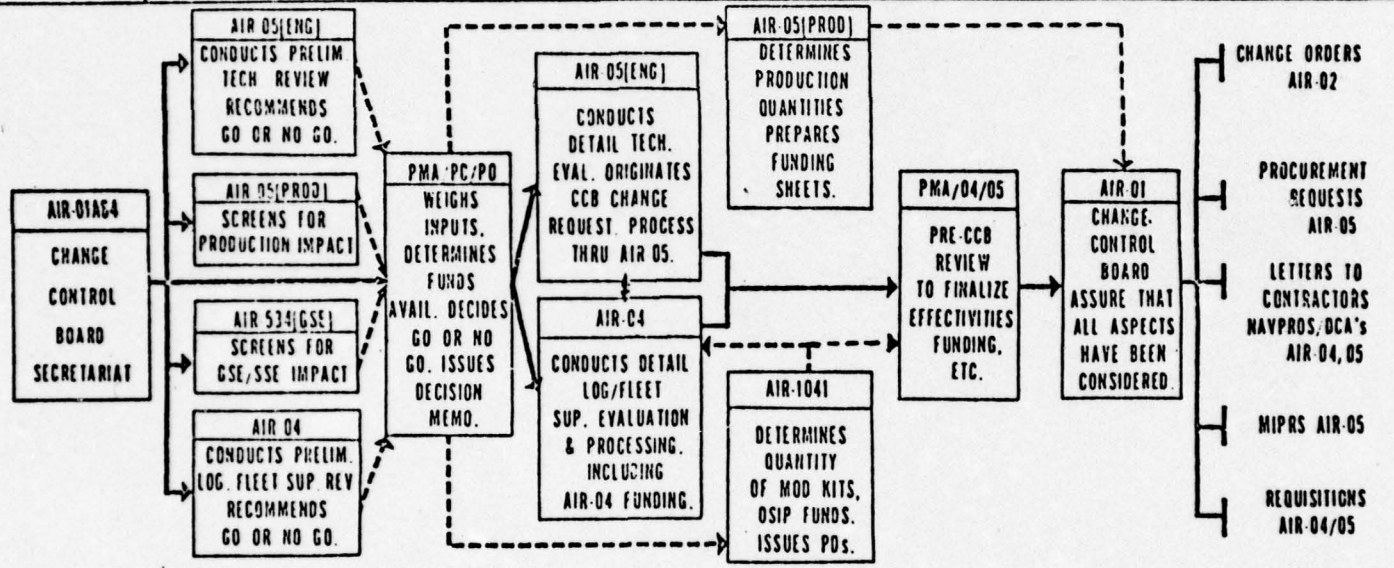
FIGURE 1

2.4 Processing of Engine ECPs Within the Naval Air Systems Command.

All ECPs submitted to the Naval Air Systems Command (NAVAIR) are directed to the Change Control Board (CCB) Secretariat. The Secretariat will forward the ECPs to the Propulsion Division Engine Project Coordinator for evaluation and processing. Concurrent copies of the ECP are forwarded to the Logistics Fleet Support Office, Support Equipment Office, Acquisition Production Office and to the Weapons System Program Management Office. Figure 2 from NAVAIRINST 4130.1 shows the flow processing within NAVAIR for an ECP. Detailed instruction for ECP processing are contained in NAVAIRINST 4130.1, including Change 1 through 9.

ENGINEERING CHANGE PROPOSAL FLOW PROCESSING WITHIN NAVAIR

* 1 DAY	2 DAYS	5 DAYS	1 DAY	3 DAYS	3 DAYS
** 2 DAYS	5 DAYS	25 DAYS	3 DAYS	3 DAYS	7 DAYS
LOGS & DISTRIBUTES ECPS	PRELIMINARY REVIEW TO DETERMINE IF ECP IS STILL REQUIRED & ACCEPTABLE. PMA/PC /PO DECIDES GO,NO GO. IF GO, ISSUES DECISION MEMO. ESTABLISH CCB DATE.	AIR-05 TECHNICAL & AIR 04 LOGISTICS FLEET SUPPORT EVALUATION, COORDINATION AND FUNDING CERTIFICATIONS CONCURRENT PROCESSING.	TEAM REVIEW WITHIN 5 DAYS OF CCB.	CCB FORM REPRODUCTION DISTRIBUTION & CCB MEETING	IMPLEMENTING ACTIONS INITIATED



TARGET FOR DECISION EMERGENCY ECPs 24 HOURS
* TARGET FOR DECISION URGENT ECPs 15 CALENDAR DAYS
** TARGET FOR DECISION ROUTINE ECPs 45 CALENDAR DAYS

NOTE: COMPLETED CCB CHANGE REQUEST TO BE SUBMITTED TO CCB SECRETARIAT BY 1100 HOURS ON FRIDAY PRECEDING CCB MEETING.

FIGURE III-2

Figure 2

3. CONFIGURATION OF ENGINES DELIVERED TO FOREIGN GOVERNMENTS UNDER FOREIGN MILITARY SALES PROGRAMS.

> A baseline configuration should have been established by the customer prior to the LOA (Letter of Offer and Acceptance). Variations from standard U.S. Government Configurations will be noted together with any risks which may be assumed as a result of the variance. Highlight any equipment of a configuration contrary to that recommended by the USG, and deviations or substitutions to quantities or equipment which was included in the country request for LOA, with explanation for the deviation or substitution. (5:3-8)

An engine installed in aircraft delivered to foreign Governments under the FMS program is of the same configuration as used by the Navy. The engine will contain all approved engineering changes that were approved for production incorporation prior to its delivery to the U.S. Government as GFE (Government Furnished Equipment). These changes are not normally offered to a foreign Government for their comment or approval. In the event the aircraft is from Navy inventories, the engine will be of the same configuration as all other engines of the same model. The Engine Log Book will list all Power Plant Changes (PPCs) that were installed in that engine. The Engine Log Book is delivered with the aircraft as part of the Aircraft Log Book.

3.1 Engineering Change Proposals Applicable to Foreign Government Engines Procured Under Foreign Military Sales Programs.

Appendix D to the Naval Air Systems Command Configuration Management Manual establishes policy, procedures and responsibilities for processing and reviewing ECPs applicable to foreign government equipment and components procured under FMS programs. It is NAVAIRs objective that interested foreign governments are given an opportunity to review pertinent ECPs

and to provide adequate advance funding for ECPs applicable to aircraft and related equipment procured by NAVAIR for their use. (6:D-1). Normally, the Letter of Offer and Acceptance (LOA), DD Form 1513, which is the agreement between the U.S. Government and the foreign government, provides for a spare/repair parts line item that is to provide for eighteen months in-country support for the aircraft system. (5:3-17). Engine retrofit kits are usually funded from the spares/repair parts line item of the LOA where such agreements exists. Appendix D contains the following policy statement:

> Foreign Governments shall be given an opportunity to review ECPs applicable to aircraft, equipment, and components procured for their use by NAVAIR. It is necessary that reviews be conducted at the same time that ECPs are being considered by NAVAIR for U.S. Navy applications. (6:D-2)

Appendix D to the Configuration Management Manual calls out the procedures and responsibilities of the various offices in processing ECPs applicable to foreign government aircraft procured under FMS programs. These responsibilities by office are as follows:

a. Project/Program Manager/Coordinator.

(1) Determine which ECPs must be brought to the attention of foreign governments.

(2) Obtain and attach estimates of foreign governments GFE costs, including GFE support equipment cost, if applicable, and fleet support costs.

(3) Route a copy of applicable ECPs to the International Logistics Office (AIR-01A4) for transmittal to interested foreign governments.

b. International Logistics Office (AIR-01A4).

(1) Be the focal point for coordinating ECPs with foreign governments under FMS programs.

(2) Forward the ECP to foreign governments for consideration with a request that the foreign government respond within 30 days direct to AIR-01A4.

(3) Upon receipt of foreign government inputs, provide such information to the office processing the ECP for inclusion on CCB change request form (NAVAIR Form 13050/2).

(4) Certify availability of foreign funds on CCB Change Request Forms.

(5) Is responsible for liaison with the Navy International Logistics Control Office (NAVILCO) , Bayonne, N.J., regarding foreign government funds for changes.

c. Technical Desks.

(1) Upon receipt of ECP, proceed to evaluate and process ECP to meet Navy requirements and priorities.

(2) Initiate CCB Change Request, and include FMS requirements, if determinable.

(3) Enter applicable FMS case numbers in the "Description" section of the CCB Change Request Form.

Although responsibilities of the various offices are called out for handling ECPs applicable to foreign government aircraft/components, input from the foreign governments is de-emphasized with the following note under the Technical desk's responsibilities:

> If no reply has been received from foreign government(s) by date of CCB action, the FMS requirements shall be deleted and the Navy portion expedited. (6:D-3)

No guidance is provided for handling foreign government input if received after the change has been processed through the CCB for Navy requirements. Appendix D to NAVAIR INST 4130.1 CH-6 is attached hereto as Appendix 1.

The above guidance is not consistent with a subsequently issued Naval Air Systems Command instruction which defines responsibilities of the various offices in support of the Defense Security Assistance program. The policy statement in this instruction states:

> It is the policy of the Chief of Naval Operations, and the Chief of Naval Material that Defense Security Assistance requirements be integrated to the extent practicable with normal U.S. Navy program acquisition procedures and systems. It is the policy of the Commander, Naval Air Systems Command that items for foreign programs will be considered the same as U.S. items with respect to Command actions required to supply and support them. This does not mean that FMS requirements lose their identify within the Command. It does mean that foreign requirements will receive equal priority with U.S. requirements and, on occasion when so directed, by the Chief of Naval Operations or higher authority, may receive higher priority than U.S. requirements. (7:2)

Prior to the issuance of Appendix D to the NAVAIR Configuration Maintenance Manual, the International Logistics Office (AIR-01A4), in 1971, issued memorandums to a number of Program Managers/Project Coordinators

directing that the Program Manager forward to all foreign countries copies of proposed ECPs. These guidance memorandum provided a sample letter of transmittal, a list of foreign countries, their mailing addresses, model aircraft, and the applicable FMS ECP case for each country. A typical memorandum with its enclosures is attached hereto as Appendix 2. No evidence was found to show that any of these memorandums have been updated since their initial issue in 1971.

Subsequent to the issue of Change 6 to the NAVAIR Configuration Management Manual on 24 April 1973, the International Logistics Office (AIR 01A4) has been renamed as the Defense Security Assistance Division (PMOA-11) effective 25 April 1975. (9:1)

It was found that PMOA-11 does not forward ECPs to foreign governments for coordination under FMS cases, but has delegated these responsibilities to the respective Program Managers. No documentation was found implementating these changes in responsibilities. PMOA-11's position is that their office is not staffed to perform detailed coordination with foreign governments on ECPs, and that this function can best be performed by the PMs. PMOA-11 will continue to perform a monitoring function.

As ECPs are received in NAVAIR, the CCB Secretariat (AIR-01A64) receives, records and distributes ECPs within NAVAIR. Distribution within NAVAIR is made in accordance with a distribution list that is maintained by AIR 01A64. (A copy of the distribution list is attached hereto as Appendix 3). This list is updated for distribution upon request from a Program Manager's office or a functional group. Tracking distribution

of engine ECPs made to PMOA-11, showed that PMOA-11 takes no action on the ECPs other than to forward them to the appropriate aircraft PM without comments or other guidance.

Another problem that should be considered but was not addressed in any of the instructions reviewed is on how to handle a change that a foreign government elects to disapprove but the Navy approves for a given engine model in production. It is common practice for the U.S. Military Services to initially use the same model engine. When one Service elects to introduce changes into the engine that the other Service does not want, it is common practice to assign a different model designator to each of the services. This results in additional cost to the Contractor that is normally passed on to the Government in that the contractor must maintain a second parts list throughout his organization. However, it was learned that most foreign governments strive to maintain the same configuration with the U.S. Military Services.

3.2 Technical Directive Distribution to FMS Customers.

The Technical Directives, i.e., Power Plant Changes, provides a means for identifying the exact configuration of an engine once it departs from its product baseline that was established at the conclusion of engine qualification. Normally, authorization for the preparation of a PPC is given at the same time an ECP is approved. A PPC is not disseminated until it has been verified against a retrofit kit. In some cases this can be as long as 18 months after ECP approval depending upon the availability of the retrofit kit. Printing and distribution of Power Plant

Changes are performed by the Naval Air Technical Service Facility. (3:8) A copy of the PPC is included with each retrofit kit. In addition, copies are sent to activities reflected in the current "Mailing List Request for Aeronautical Technical Publications" (NAVWEPS Form 5605/2).

It is the policy of the Naval Air Systems Command to provide technical directive information, both formal and interim TDs, and including RAMECs (Rapid Action Minor Engineering Changes) to those foreign governments that are procuring or have procured USN developed aircraft weapons systems and related components. (8:3). NAVAIRINST 5605.3A states:

> The NAVAIR technical directive system including RAMECs is an authorized medium for conveying technical as well as logistic support information on weapons, weapon systems, ground support equipment, and related equipment procured by a foreign government from the USN. (8:3).

The Naval Air Technical Services Facility is responsible for the dissemination of formal technical directives to 31 foreign governments listed in an enclosure to NAVAIRINST 5605.3A. The functional organizations within NAVAIR are responsible for the promulgation of Message Technical Directives (Interim changes, bulletins and RAMECs) to foreign governments. However, it was found that this requirement is frequently overlooked on message type TDs. This can be attributed to the fact that most NAVAIR technical personnel who on an occasion may have to prepare an interim TD, are not cognizant of this requirement. Also, the message release system for interim TDs does not assure that all foreign governments using the affected piece of equipment are included on the distribution list.

A NAVAIR Notice provides an updated index of Address Indicator Groups (AIGs) by aircraft type solely for use in the dissemination of Interim changes and Bulletin Technical Directives. (10:1). A sampling of some of these AIG lists showed that these lists are not current when compared against known FMS cases.

4. CASE STUDIES

4.1 F402-RR-402 Engine.

This engine is installed in the AV-8A, Harrier Aircraft. The Government of Spain has procured eight AV-8A aircraft and 14 spare engines under an FMS Case. This engine is manufactured by Rolls Royce, Bristol Engine Division, United Kingdom. The aircraft system Program Manager (PMA-257) maintains a Liaison Office in London (PMA-257B). All Class I engine ECPs are submitted to PMA-257B at their London Office. PMA-275B forwards the ECPs to the Naval Air Systems Command for review and approval, and also forwards a copy of the ECP to a representative of the Spanish Navy located at the McDonnell-Douglas Aircraft plant. The Spanish Navy Project Officer will advise the Program Manager (PMA-257) of their approval of the ECP. (See Appendix 4). The Program Manager advises the Engine Project Coordinator (AIR-53612D) of the Spanish Government's requirements. These requirements are added to the CCB Change Request with the Navy's requirements and processed through the CCCB. Upon approval by the CCCB, PMA-257 directs FMS funds to the ASO (Aviation Supply Office) for the procurement of kits for the Spanish Government concurrent with the buy for the US Navy.

It is the objective of the Spanish Government to maintain the same identical configuration as the US Navy. They will accept an ECP only if it is approved by the Navy for Navy engines.

4.2 T56 Series Engines.

Various models of the T56 series turboshaft engines are installed in the P-3 aircraft. These aircraft have been delivered to Spain, Australia, New Zealand, Iran and Norway under FMS sales. No ECPs are forwarded to

any of these countries by NAVAIR. It was also found that none of these countries are listed on the CCB Change Request when a change is processed through the Change Control Board.

One specific case of a foreign country buying a retrofit kit was tracked through the system. ECP #1972 for the T56-A-14/16 engines, titled "T56 Increased Thickness Second Stage Turbine Blade Cover Plate Seal" was approved by the Change Control Board on 28 May 1975. Records showed that this ECP was not coordinated with AIR01A4 (the Foreign Liaison Office), or the Program Manager's Office. This change was considered "Safety of Flight". To accomplish this change on an engine, three kits were required, Kit A, Kit B and Kit C. These kits were procured for Navy application in the ratios of 1:8:1. The Government of New Zealand made inquiries to PMA-240 requesting retrofit kits as indicated by the references in Appendix 5, Part 1. PMA-240 requested NAVILCO, Bayonne to change the funding requirements on New Zealand's FMS Case NZ-LAC-P2 (See Appendix 5, Part 2). PMA-240 forwarded a Memorandum to the Naval Weapons Engineering Support Activity (ESA-2050) requesting that ESA-2050 procure for the Government of New Zealand 56 each of Kit A, B, and C. Shipping and Special Instructions were attached to the Memorandum (See Appendix 5, Part 1). Concurrently, a Project Directive was issued by PMA-240 authorizing additional funding for the requested retrofit kits. Upon receipt of the instructions and a project directive, ESA-2050 forwarded New Zealand's requirements to the USAF Aeronautical Systems Division (ASD) at Wright-Patterson Air Force Base by MIPR (military Interdepartmental Purchase Request). ASD is the Procuring Agency for the T56 series engines with Allison, Division of Detroit Diesel. It is to be noted that ASD's

production contracts provide a line item for the procurement of retrofit kits. This is not normally done on NAVAIR contracts. ASD proceeded to place New Zealand's requirements for 56 each of Kit A, B and C with Allison. Since these kits are not used in a 1:1:1 ratio, Allison advised ASD that the order should be changed to read 10 of Kit A, 45 of Kit B, and 10 of Kit C to retrofit the 10 T56 engines that belong to New Zealand. This information was forwarded by ASD to ESA-2050, who in turn passed it on to PMA-240. PMA-240 advised the customer (New Zealand) of their error in ordering. New Zealand set out to correct their ordering quantities by revising their quantities to 10 of Kit A, 45 of Kit B, and 45 of Kit C. (See Part 3 of Appendix 5). This time the error was picked up in the Program Managers Office, and three days later the customer issued another message correcting the quantities of kits required to 10:45:10. The corrected instructions were passed on to ESA-2050, who in turn issued a MIPR Amendment to ASD.

The above simplified description of an actual case for an order in the amount of less than $17,000 is used to illustrate some of the complexities that can be encountered in handling small FMS buys. Coordination between at least five different Navy organizations/offices were required in this case. It was also noted that this buy for New Zealand was processed without the approval/concurrence of the Change Control Board. It was not determined what information was available to New Zealand when they decided to buy the "Safety of Flight" retrofit kits for their engine, but it is obvious that complete information was not utilized. It is believed that at least 10 months in lead time could have been saved if proper coordination

had taken place between New Zealand and NAVAIR at the time the change was processed for Navy requirements. Records showed that a copy of the ECP was provided to New Zealand by Allison through the AFPRO (Air Force Plant Representative Office). The ASD contract with Allison has a requirement for the distribution of applicable Class I ECPs to New Zealand. Requirements of this type are not normally placed on Navy engine contracts.

4.3 TF30-P-412A Engine.

This engine is installed in the F-14 Aircraft. The Government of Iran (GOI) has purchased a significant number of F-14 model aircraft from the Navy. PMA-241 has an agreement with the GOI to maintain common configuration on the aircraft and engines as long as the aircraft is in production. No engine ECPs are forwarded to the GOI, nor does any coordination take place with the GOI prior to ECP approval. The GOI has given PMA-241 authority to buy changes and retrofit kits for them. When a CCB Change Request Form is prepared by the Engine Project Coordinator, the GOI requirements and the applicable FMS case numbers are cited on the CCB Change Form. The Change Request Form is coordinated with PMA-241 prior to CCCB approval. (A copy of the approved CCB Change Request Form is attached hereto as Appendix 6). Upon CCCB approval, ESA-2050 issued a Purchase Requisition to ASO for the purchase of retrofit kits for both the Navy and the GOI. PMA-241 has issued a Program Directive with a dollar ceiling for the purchase of engine retrofit kits for the GOI under an FMS case. A new Program Directive is not required for each new ECP requiring retrofit as long as the cumulative retrofit costs are within the initially established ceiling.

ASO's orders with Pratt and Whitney Aircraft provides for the delivery of retrofit kits to Iran. Those kits that are to be installed at Depot level maintenance will be returned with the engine at the time the engine is shipped to a Depot for maintenance. Currently, depot level maintenance is performed at the Naval Air Rework Facility (NARF), Norfolk for the GOI, until such time that the GOI develops an in-country capability to do their own depot level maintenance.

4.4 TF41-A-400 Engine.

This engine is installed in the A-7 Aircraft. The Government of Greece (GOG) has purchased a number of A-7 Aircraft with the TF41-A-400 engine installed. This engine model design is peculiar to the GOG, however, the engine is identical to other U.S. Military Model TF41 engines. The GOG Air Force maintains a Liaison Officer co-located with PMA-235, Program Manager for the A-7. A copy of all TF41 engine ECPs are sent to PMA-235. The PM reviews each ECP with the GOG Liaison Officer and a decision is made for ECP incorporation. The GOG requirements are included on the CCB Change Form and are approved concurrent with Navy requirements. Upon CCCB approval, and if retrofit kits are required, ESA-2050 will MIPR both Navy and the GOG requirement to USAF, ASD. ASD will modify their contract with Allison-Division of Detroit Diesel.

The letter of Offer and Acceptance (LOA) with Greece contained a separate line item for change allowances and covered all changes to production hardware and retrofit until the last aircraft was delivered to GOG. Upon delivery of the last aircraft to Greece, a new FMS case was set up to take care of ECP support for the A-7H aircraft (including the TF41-A-400 engine).

This case was set up for a 5-year period. (A copy of the LOA is attached hereto as Appendix 7).

4.5 J52 Series Engines.

These engines are installed in the A-4 and A-6 type aircraft. The J52 series of turbo-jet engines installed in the A-4 type aircraft have been delivered to five (5) different countries under FMS programs. No engine ECPs are provided to any of the foreign government prior to ECP approval by the CCB. The Program Manager receives copies of the ECP from the CCB Secretariat at the time the ECPs are received in NAVAIR. The PM monitors the CCB agendas each week. Whenever an engine change appears on the agenda that is applicable to an engine under an FMS Case, the PM will contact the Engine Project Coordinator to verify CCCB approval of the change. Upon verification of change approval, the PM office forwards copies of the ECP to the foreign governments with recommendations and a statement that the change has been approved by the CCB. (A copy of a typical letter is attached hereto as Appendix 8). In the meantime, ESA-2050 is proceeding at the Board's directions to place the Navy retrofit kit requirements on order through the Aviation Supply Office. Should a foreign government decide to buy a number of retrofit kits, they will advise the PM of their requirement. The PM will forward these requirements to ESA-2050 with FMS case and funding information. ESA-2050 will forward an additional Purchase Requisition to ASO, who in turn will place an order on a Basic Ordering Agreement with the engine contractor.

4.6 Overhaul of Engines Under FMS Cases.

Once an aircraft/engine has been delivered to a foreign government, NAVAIR continues to perform depot level maintenance and engine overhaul for many of these Governments. A typical case for the overhaul of an R1820-82 engine for the Government of Thailand (GOT) was tracked through the system.

First of all, the GOT submitted a request to the Chief of Naval Operations (OP-633) on 25 April 1975 expressing their desires for the Navy to overhaul a Model R1820-82 engine, and requested a Letter of Offer and Acceptance. OP-633 forwarded the GOT letter to the Naval Material Command (See Part 1 of Appendix 9), who in turn passed the letter to NAVAIR, Code AIR 01A4. AIR 01A4 passed the requirement to the Depot Maintenance Division (AIR 414) for action. (See Part 2 of Appendix 9). AIR-414 advised OP-633 of the cost required to overhaul the GOT engine and also provided a list of Power Plant Changes that would be incorporated into the engines at overhaul. (See Part 3 of Appendix 9). The LOA was prepared by OP-633, sent to the GOT, and was accepted by the GOT on 10 September 1975. A copy of the executed LOA was forwarded by the Department of the Navy Security Assistance Project Office to the Naval Air Systems Command. (See Part 4 of Appendix 9). NAVAIR requested NAVILCO, Bayonne, N.J. to provide NAVAIR accounting data and MILSTRIPS in Work Request format. (See Part 5 of Appendix 9). Upon receipt of the accounting data from NAVILCO (See Part 6 of Appendix 9), NAVAIR (AIR 414) issued a work request on 6 January 1976 to the Naval Air Rework Facility, Jacksonville for the overhaul of three R1820 engines for the GOT. (See Part 7 of Appendix 9). The overhaul of

the three R1820 engines for the GOT is scheduled to be completed by 30 September 1976.

The engine retrofit kits that will be incorporated into the GOT R1820 engines will be taken from Navy stock. In this case, these retrofit kits are surplus to Navy requirements. In cases where retrofit kits may not be in surplus, the overhaul of an engine may be delayed while additional kits are ordered from the engine manufacturer. In these cases, time required for the overhaul of an engine could be reduced if the FMS Customers would procure their retrofit kits in advance.

5. ANALYSIS OF CONFIGURATION MANAGEMENT OF ENGINES UNDER FMS

The current procedures in the Naval Air Systems Command do not provide clear guidance to the Engine Project Coordinator in processing an ECP that relates to an engine delivered to a foreign country under FMS. A number of procedures have been instituted over a period of time, along with a change in responsibilities between various offices that are not reflected in current instructions. The analysis showed that the interface between the Navy and the foreign countries in the areas of configuration management is through the individual Program Manager's office. Responsibilities and interface between the Program Manager's office and the functional technical groups are not adequately defined. In many instances, the Program Manager has established an agreement with a foreign country on an individual case-by-case basis on the method of handling engineering changes and the procurement of retrofit kits. These procedures are usually not known to many of the people involved in the processing and approval of an ECP.

Not all of the foreign governments that have purchased aircraft/engines under FMS are provided with copies of ECPs, or are afforded an opportunity to purchase retrofit kits at the time a change is processed for approval. It is suspected that many FMS customers learn about a change through their own intelligence or upon receipt of a copy of the Technical Directive. Many of the countries that do a substantial FMS business maintain a representative at the Aviation Supply Office. This can be a source of information to them on approved engineering changes.

The procedures established between PMA-235 and the Government of Greece is considered to be an excellent method of handling ECPs. First of all, the Greek Government has a peculiar engine model designation. There is no concern in maintaining a common engine configuration between all the users, although Greece expressed a desire to maintain the same configuration as the Navy and their approval of a change is contingent upon the Navy approving the same change. The Greek Liaison Officer in the Program Manager's office has authority to approve ECPs for Greece. This approval authority allows their changes to be processed concurrently with Navy requirements with a minimum of additional effort on the part of all personnel associated with the approval and implementation of the change. This concurrent approval of the change allows for a larger quantity buy of kits resulting in a lower unit cost to both Greece and the Navy. In addition, this system permits the Government of Greece to take delivery of any retrofit kits (Power Plant Change kits) at the earliest possible time.

In the F-14/TF30 case with Iran, the Navy maintains complete control of the engine configuration until the last aircraft is delivered to Iran under the FMS case. This control by the Navy assures that the engine configuration remains identical for both Iran and the Navy, and also permits the earliest delivery of retrofit kits to the customer. Complete control of the engine configuration by the Navy is particularly important in a "safety-of-flight" type change that requires the earliest possible incorporation.

In the AV-8A/F402 case with Spain, the changes for Spain are processed concurrently with Navy changes. The Spanish Navy Project Officer provides

token approval of engine ECPs since it is his government's objective to maintain the same configuration on the engine as the Navy.

Since the A-4 Program Office does not forward any ECPs to an FMS customer until after the change has been approved by the Navy, it is not possible to process FMS requirements concurrent with Navy requirements for CCB approval. Should an FMS customer subsequently desire to purchase a number of retrofit kits, additional procurement actions must be initiated within NAVAIR, creating an additional workload on Navy Personnel, resulting in higher unit cost due to smaller quantity buys, and delaying delivery of kits to the customer.

The P-3 Program Office does not forward any ECPs to FMS customers. Their participation is the result of inquiries received from a foreign government.

My analysis showed that not all CCB Change Request Forms for ECP approval are processed through the respective Program Office prior to CCB approval. This complaint was expressed by some of the Program Offices.

When an engine is overhauled or repaired at depot level for an FMS customer, the Letter of Offer and Acceptance (LOA) specifies the PPCs that will be incorporated. The customer pays for these PPC kits. If an adequate number of kits exist in Navy inventory, kits may be borrowed from the Navy, to be repaid in kind, to fulfill an FMS order. In cases where there is an insufficient number of kits, overhauling of an FMS engine may be delayed while additional PPC kits are being procured.

The NAVAIR Depot Maintenance Office (AIR-414E) maintains a projected 5-year estimate of engines that the Navy expects to overhaul for foreign

customers. This estimate could be used as a basis to buy additional PPC kits in anticipation of this projected work. It would appear reasonable for the Navy to adopt a policy, that when an engine is overhauled for an FMS customer, all outstanding depot level PPCs will be incorporated as is currently accomplished for any Navy owned engine. In order to accomplish this policy, additional funding would be required for the procurement of additional PPC kits. Such a pool of funds could be established in AIR-414. The funds would be repaid as PPC kits are installed during depot level maintenance from FMS cases.

6. CONCLUSIONS

It was found that the documentation within the Naval Air Systems Command for the processing of ECPs that are applicable to FMS delivered engines is not current and needs updating. There is evidence of informal transferring of responsibilities between offices for dealing with FMS customers. In some cases, the FMS customer is overlooked and not given proper consideration.

Many Program Managers have established excellent relationships with the foreign customers in the management of the engine configuration. A good example is the F-14/TF30, A-7/TF41 and AV8A/F402 programs.

a. In the F-14/TF30 program, an agreement was made with Iran to maintain the same configuration as the Navy, and NAVAIR approves all engine changes and procures retrofit kits for Iran until the last aircraft is delivered. No ECP coordination is required with Iran prior to approval.

b. In the AV-8A/F402 program, a copy of all engine ECPs are forwarded to the Spanish Project Officer located at the aircraft manufacturer's plant. Spanish objectives are to maintain the same engine configuration as the U.S. Navy. The Spanish Project Officer normally approves all ECPs for the Spanish engines contingent upon the U.S. Navy approval of the same change. The Spanish ECPs are normally processed concurrently with Navy ECPs.

c. In the A-7/TF41 program, the Government of Greece maintains a Liaison Officer co-located in the same office as the A-7 Program Manager. The Liaison Officer approves all ECPs for Greece, and their changes are processed concurrent with Navy requirements.

It was found that other programs do not operate as effectively as those mentioned above.

Another point worth noting herein is that all engine ECPs are the result of U.S. Government funded PSP (Product Support Programs) or CIP (Component Improvement Programs). All engine changes (ECPs) have been developed, tested and qualified under these PSP/CIP programs prior to their submittal for government approval. When a foreign government elects to buy an ECP, they do not pay for any of the non-recurring cost for the development and qualification of the change. In the case of an airframe ECP, the ECP usually has a significant non-recurring charge for the design, development and qualification testing of the change. It is believed that these charges are normally shared with foreign governments. It only seems reasonable that the foreign government should pay a pro-rated share of the cost for the development and qualification of an engineering change applicable to their engines. Current regulations and procedures are not readily adaptable for assessing a foreign government their fair share of the developmental cost at the time they elect to purchase a change. It is believed that the fair cost for the development of the change can best be shared by having the foreign government become an active participant in the PSP/CIP programs. This fair share could be based on the number of engines owned by each participant, notwithstanding the fact that most engines were initially developed and qualified for U.S. Military use and at U.S. Government expense.

7. RECOMMENDATIONS

The following recommendations are offered for consideration as a result of the author's investigation of configuration management of aircraft engines delivered under Foreign Military Sales programs:

a. Procedures be established within the Propulsion Division that will provide guidance to the Engine Project Coordinator in processing ECPs that are applicable to engines delivered under FMS. These procedures would list all the engines by model number, aircraft model and the applicable FMS cases. Specific agreements between the Program Managers and the FMS customers would be documented.

b. All Change Request forms for ECPs that relate to engines delivered under FMS be routed through the cognizant Program Manager prior to CCB action.

c. Procedures be established for the forwarding of applicable ECPs to foreign governments through the Program Manager's office. The foreign government should establish liaison with the Engine Project Coordinator for technical coordination of the ECP.

d. Program Managers advise the Propulsion Division of their requirements for copies of Class I ECPs for distribution to foreign governments so that the required number of additional copies of ECPs can be ordered from the engine contractors. These requirements should also be passed on to the CCB Secretariat.

e. ECPs forwarded to foreign governments be limited to only those ECPs that will require retrofit. (ECPs for changes that will be introduced by attrition or on a parts supersedure basis should not be forwarded to foreign governments.)

f. The Program Manager coordinate with the Engine Project Coordinator in AIR 536 prior to forwarding an ECP to a foreign government for consideration to establish if approval of the change is recommended and if retrofit is anticipated. This coordination should take place upon receipt of the ECP, so that a foreign government's requirements can be considered concurrent with Navy requirements.

g. ECP distribution by the CCB Secretariat (AIR-01A64) to the Security Assistance Office (PMOA-11) should be discontinued since this office no longer takes any action on ECPs other than to forward the ECPs to the cognizant Program Manager. The CCB Secretariat should forward the ECPs direct to the Program Manager.

h. NAVAIR Configuration Management Manual be revised in the areas of FMS to reflect current practices and responsibilities.

i. The Technical Directive distribution list be reviewed periodically by NAVAIR and the Program Managers to assure that all FMS customers are covered.

j. The AIG (Address Indicator Groups) list for the distribution of Interim Changes and Bulletin Technical Directives be reviewed and updated to include all FMS customers.

k. FMS case agreements require the foreign countries to maintain the same identical engine configuration as the U.S. Navy especially if the engine is to be supported by Naval activities for depot level maintenance.

l. The foreign governments provide financial support to the engine PSP/CIP programs. This could be included as a part of an FMS case to provide support for delivered engines.

m. The Propulsion Division develop a "fair share" criteria to determine the level of funding for PSP/CIP that should be provided by foreign governments.

APPENDIX 1. APPENDIX D FROM NAVAIRINST 4130.1, CH-6

APPENDIX D

Engineering Change Proposals Applicable To Foreign Government Aircraft, Equipment And Components Procured Under Foreign Military Sales Programs

101. Purpose. This Appendix establishes policy, procedures and responsibilities for processing and reviewing Class I (as defined in MIL-STD-480) Engineering Change Proposals (ECPs) applicable to foreign government aircraft, equipment and components procured under Foreign Military Sales (FMS) Programs.

102. Applicability. The provisions of this Appendix apply to NAVAIR organizations, contract administration offices, certain NAVAIR project/program managers/coordinators, and certain CNM designated project managers supported by NAVAIR. Where government-to-government agreements set forth specific ECP procedures and funding arrangements, such procedures apply; however, approved foreign applications and FMS case numbers where applicable, shall be cited in implementing instructions as specified herein. Existing aircraft project management procedures which meet the requirements of this Appendix may be continued.

103. Background. There have been occasions where NAVAIR has procured changes only for U.S. Navy applications when it would have been more beneficial to have procured changes for FMS programs concurrently. Chapter III of this instruction provides general guidance for routing and reviewing ECPs. However, supplemental procedures are needed to assure that FMS requirements are considered concurrently.

104. Objectives. To assure that:

a. Interested foreign governments are given an opportunity to (1) review pertinent ECPs and (2) provide adequate advance funding for ECPs applicable to aircraft, equipment and components procured by NAVAIR for their use.

b. NAVAIR considers such ECPs as "packages", whenever practical, so that efficient procurement, cost benefits and uniform support may be attained.

c. NAVAIR change orders and implementing letters to contractors reflect the approved foreign government applications and require that contractor(s) show these applications on all Design Change Notices (DCNs) and Supply Item Change Records (SICRs) to be submitted to the Aviation Supply Office (ASO).

105. Policy. Foreign governments shall be given an opportunity to review ECPs applicable to aircraft, equipment and components procured for their use by NAVAIR. It is necessary that reviews be conducted at the same time that ECPs are being considered by NAVAIR for U.S. Navy applications.

106. Procedures and Responsibilities.

a. General. Applicable ECPs shall be forwarded promptly to interested foreign governments for review.

b. Project/Program Managers/Coordinators, in collaboration with Assistant Program Managers, Project Officers and technical desks, shall be responsible for:

(1) Determining which ECPs must be brought to the attention of foreign governments. (See NAVAIRINST 5605.3, Enclosure (1), "Foreign Government Aircraft Inventory").

(2) Obtaining and attaching estimates of foreign government GFE costs, including GFE support equipment costs if applicable, and fleet support costs.

(3) Routing a copy of applicable ECPs to the International Logistics Office (AIR-01A4) for transmittal to interested foreign governments.

NOTE: For those areas where no project/program managers/coordinators exist, the cognizant technical desk shall perform the above functions.

c. The International Logistics Office (AIR-01A4) shall

(1) be the focal point for coordination of ECPs with foreign governments under FMS programs,

(2) prepare ECP forwarding letters which will clearly state that the ECP is being forwarded for consideration by the foreign government on the basis that the Navy plans to accept the change, and request that the foreign government respond within 30 days directly to AIR-01A4,

(3) upon receipt of foreign government inputs and applicable FMS case numbers, provide such information to the cognizant project/program manager/coordinator or technical desk for inclusion on CCB (Change Control Board) Change Request (NAVAIR Form 13050/2),

(4) certify availability of foreign funds on CCB Change Request forms when applicable, and

(5) be responsible for liaison with the Navy International Logistics Control Office, Bayonne, N.J., regarding MILSTRIP matters and foreign government funds for changes.

d. Technical desks shall

(1) upon receipt of ECPs, proceed to evaluate and process them to meet Navy requirements and priorities,

(2) initiate CCB Change Request - NAVAIR Form 13050/2 and applicable supplements, and include FMS requirements if determinable, and

(3) enter applicable FMS case numbers in the "DESCRIPTION" section of the CCB Change Request.

NOTE: If no reply has been received from the foreign government(s) by date of CCB action, the FMS requirements shall be deleted and the Navy portion expedited.

e. The Foreign Liaison Branch (AIR-01A44) shall be responsible for determining foreign disclosure clearance and approving release of ECPs to interested foreign government(s).

f. Contracting Officers and persons issuing change orders or other implementing instructions shall

(1) reflect approved foreign government applications,

(2) cite applicable FMS case numbers, and

(3) require that contractors include FMS case numbers in the "REMARKS" Section (Block 31) of all DCNs and SICRs to be submitted to ASO.

APPENDIX 2. MEMORANDUM ON AIRCRAFT CHANGE PROPOSALS/MODIFICATION PROGRAMS WITH ENCL (1) and (2)

AIR-01A42:EWS

10 MAY 1971

MEMORANDUM

From: AIR-01A4
To: APC 237

Subj: Aircraft Change Proposals/Modification Programs

Ref: (a) Australian Naval Attache ltr 5/22/14 of 18 Sep 1968
(b) Australian Naval Attache ltr 48/5/1 of 13 Apr 1971

Encl: (1) Sample letter of transmittal
(2) List of Country addresses, aircraft, and FMS ECP cases

1. References (a) and (b) highlight our continuing problem related to providing detailed information on Engineering Change Proposals to foreign countries.

2. As the result of our discussions on this subject on 6 May 1971, the following assignments for continuing action are hereby proposed:

a. AIR-01A42 will continue to prepare, up-date, and administer the FMS ECP cases for all foreign countries operating the A-4 aircraft.

b. APC-237 will promptly forward to all foreign countries operating the A-4, three copies of each ECP (includes airframe, engines, and components) accompanied by a copy of APC-237's Project Decision Memorandum. Enclosure (1) provides a sample letter that may be addressed to the appropriate foreign country and contains information on the ECP, its costs and instructions on the procedure to be followed if the ECP kit is required. Enclosure (2) provides the current mailing address, the aircraft model, and the appropriate FMS case designation.

c. Upon receipt of a formal request for a specific ECP kit from a foreign country, AIR-01A42 will initiate action to procure the required material, allocate funds, and assign a MILSTRIP Requisition for identification.

R. W. RADDATZ

APC-237:
Date

SAMPLE LETTER OF TRANSMITTAL

From: Commander, Naval Air Systems Command
To:

Subj: ECP (Engineering Change Proposal) FMS Case _____

Encl: (1) Three (3) copies of ECP _____,
"Improved, etc, etc."
(2) NAVAIR Project Decision Memorandum

1. Enclosure (1) which is applicable to the (A-4G/H/K) (J-52-P8/8A Engine installed in the _____ A-4 _____.) (Specific component of A-4____) is forwarded for approval and acceptance. Enclosure (2) provides the A-4 Project Office comments on the subject ECP. The ECP will be furnished as a retrofit kit and is recommended to be accomplished at a (organizational, intermediate, depot) maintenance level activity. The kit cost for ECP _____ is $_____ each.

2. ECP _____ is (being considered, being recommeded for approval, has been accepted) by the U.S. Navy. It is requested that the Naval Air Systems Command (AIR-01A42) be advised at the earliest opportunity if the ECP is accepted by the _____ government.

Copy to:
AIR-01A42 (on internal copies only)

FMS Case _____ (on internal copies only)

Encl (1)

Country/Address	Aircraft	FMS ECP Case
ARGENTINA		
Embassy of the Argentine Republic Office of Naval Attache 1816 Corcoran Street, N. W. Washington, D. C. 20009	A-4B	AR-LAD
Embassy of the Argentine Republic Office of Air Attache 2034 20th Street, N. W. Washington, D. C. 20009	A-4B	AR-LAC
AUSTRALIA		
Embassy of Australia Office of Naval Attache 1601 Massachusetts Avenue, N. W. Washington, D. C. 20036	A-4G/TA-4G	AT-CCW
ISRAEL		
Government of Israel Ministry of Defence Suite 607 850 Third Avenue New York, New York 10022	A-4H/TA-4Hq	IS-RAC
NEW ZEALAND		
New Zealand Defence Staff 2019 "R" Street, N. W. Washington, D. C. 20009	A-4K/TA-4K	NZ-LAA
SWITZERLAND		
Embassy of Switzerland Armed Forces Attache 2900 Cathedral Avenue, N. W. Washington, D. C. 20008	A-4S/TA-4S	Not Assigned

Encl (2)

APPENDIX 3. CODE LIST FOR DISTRIBUTION OF COMPONENT ECPs - CLASS I ONLY

CODE LIST FOR DISTRIBUTION OF COMPONENT ECPs
CLASS I ONLY

TECHNICAL DESK - Original and 4 copies
ESA-2031 - 1 copy
AIR-534B - 1 copy
AIR-4148 - 7 copies plus all extras (1 copy if J79 (F4, A5) or J57 (F8))
AIR-52014 - 1 copy if VECP
PMOA-11 - J52-P8/408, J65, J85, T56, T58, T76G-410/411/412/413, R1820-82A/84D

#copies	1	1	3	8	8	2	3

AIR-5330 - 1 copy if ASW, ASQ, Jezebel, etc.
APC-237 - 10 copies if J52 or J65
AIR-532 - if CADS (cartridge actuator devices) (Martin Baker 7 Rocket catapults)

All engines to AIR-536

AIR-410G - 1 copy if J79 or J57

OLD	ENGINES	NEW
- 1 Odd	USAF	-100 Series USA
-2 Even	USN	-400 Series USN
		-700 Series Arm

Support Equipment ECPs: (includes Test Sets)

AIR-534B - Original and 1 plus drawings
AIR-417 - 4 copies
NATSF - 1 copy (Hold)
PMA241 - 1 copy if on PHOENIX Missile (AWG-9/AWM-23/AIM54/DSM-130)

VAST ECPS (AN/USM-247(V))
AIR-53424C - original
AIR-4148 - 3 copies
AIR-417 - 2 copies

CAINS (AN/ASN-92)
AIR-53354E for action

Destroy all ECPs received on TPX 42 for AIL

All Avionics ECPs [illegible] Seal Beach
to be forwarded to 53354 with the
exception of those assigned to
A-53354 Unit
11-4-75

NAVAIRTESTCEN Patuxent River
Paper Dy - 53354A
NAVAIRTESTCEN Pt Mugu
Paper Dy - 53354A

APPENDIX 4. LETTER FROM THE SPANISH NAVY AV/MAV-8A PROJECT OFFICER APPROVING AN ECP

S/Rf.ª	Núm.	Fecha	N/Rf.ª	Nº
			6637-18/76	54

Copy for Charlie Taylor ATR 538

ASUNTO:

From: Spanish Navy AV/MAV-8A Project Officer

To: Commander, Naval Air Systems Command
Attn: PMA 257-5 (P. Bordas)
Washington, D.C. 20360

Subject: AV/TAV-8A PEGASUS ENGINE MOD CHANGES; ECP-2765/2, 2775/1, 2803, and 2842.

1. We are acknowledging receipt of the above ECPs. After evaluation and study of Pegasus Engine Mod Changes, the Spanish Navy approves except for the tooling purchases. No tooling purchases are approved.

Sincerely yours,

Manuel de la Puente
LCDR Spanish Navy

APPENDIX 5 - CORRESPONDENCE RELATING TO RETROFIT KITS FOR NEW ZEALAND

PART 1. Memorandum from PMA-240 to AIR 05P/ESA-2050

PART 2. Message from NAVAIRSYSCOM to NAVILCO, Bayonne, N.J.

PART 3. Project Directive

PART 4. Message 301542Z Mar 76 fm NZDEF

PART 5. Message 012532Z Apr 76 fm NZDEF

PPC 87

DEPARTMENT OF THE NAVY
NAVAL AIR SYSTEMS COMMAND
WASHINGTON, D.C. 20361

IN REPLY REFER TO
PMA-240D1;DDF

19 February 1976

MEMORANDUM

From: PMA-240
To: AIR-05P/ESA-2050

Subj: FMS Case NZ-LAC-P2, ECP-1972

Ref: (a) NZDEF Washington DC Msg 081733Z October 1975
(b) NZDEF Washington DC Msg 1011837Z November 1975
(c) NZDEF Washington DC Msg 241845Z November 1975
(d) Telecon between D. Fleagle, NAVAIR (PMA-240D1)/R. Hense, NAVWPNENG SUPPACT (ESA-2050) of 4 February 1976

Encl: (1) Shipping and Special Instructions

1. Per references (a), (b) and (c) and in accordance with reference (d), it is requested that ESA-2050 procure for the Government of New Zealand the below listed ECP Kits:

Kit	P/N	Qty.	Estimated Total Cost
ECP-1972 Kit A	6892320	56	$ 22,400
ECP-1972 Kit B	6892321	56	$ 22,400
ECP-1972 Kit C	6892322	56	$ 22,400

2. The following accounting data applies:

Appn. Symbol and Subhead	17-11X8242	.2885
Object Class	000	
Bureau Control No.	74852	
Auth'n. Acctg. No.	65916	
Trans. Type	2D	
Prop. Acctg. Act.	PNZF44	
Cost Code (Kit A)	202500110LAC	
(Kit B)	202500120LAC	
(Kit C)	202500130LAC	

3. The following MILSTRIP information also applies:

Kit A - PNZF44/2025/0011
Kit B - PNZF44/2025/0012
Kit C - PNZF44/2025/0013

PART 1

PMA-240D1:DDF

Subj: FMS Case NZ-LAC-P2, ECP-1972

4. The shipping data is provided as enclosure (1).

5. It is requested that NAVILCO (Navy International Logistics Control Office), Codes 12 and 213, and NAVAIR Codes PMA-240, PMOA-11D, and AIR-41251A, be advised of the estimated delivery date.

M.O. Paul

M.O. PAUL
PROJECT MANAGER P-3

Copy to:
PMOA-11D
41251Z

SHIPPING AND SPECIAL INSTRUCTIONS FOR
FMS CASE NZ-LAC-P2, MILSTRIP REQNS
PNZF44/2025/0011
PNZF44/2025/0012
PNZF44/2025/0013

1. Shipping Instructions:

a. Shipping. All material will be shipped to New Zealand by the Government of New Zealand freight forwarder. The contractor is to apply for shipping instructions from:

Government of New Zealand
P & O Lines North American Incorporated
155 Post Street
San Francisco, California 94108
Attn: Mr. McGuire

If shipping instructions are not received within 15 days mark all material as shown below and ship via collect Commercial Bill of Laden to:

Emery Air Freight, Inc.
Los Angeles International Airport
Los Angeles, California

b. Marking. All material is to be marked for:

Government of New Zealand
FMS Case NZ-LAC-P2
MILSTRIP Reqn PNZF44/2025/00011 or /0012 or /0013
No. 1 Stores Depot
c/o RNZAF Base Terara
Hamilton, New Zealand

2. Special Instructions:

FMS Case NZ-LAC-P2 and MILSTRIP Req. No. PNZF44/2025/00011 or /0012 or /0013 must be readily visible on all contractual documents, shipping documents, invoices, etc., associated with New Zealand requirements.

NAVAL MESSAGE***** OUTGOING *** ** NAVY DEPARTMENT

*******U N C L A S S I F I E D*******

PRIORITY
P 052242Z FEB 76
FM COMNAVAIRSYSCOM WASHINGTON DC

TO NAVILCO BAYONNE NJ

UNCLAS //N04920//

NAVILCO (12, 41, 213)
FMS CASE NEW ZEALAND NZ-LAC-P2; FUND CHG REQUIREMENT
A. FONECON BTWN D. JACKSON NAVAIR (PMDA-11)/ E. FURCE NAVILCO (213)
OF 4 FEB 76
B. NAVAIR PD 31164

1. FROM PMA-240-2. ADDITIONAL FUNDS IN THE AMT OF $65,000 ARE REQ'D FOR URGENT PROCUREMENT OF KITS FOR NEW ZEALAND. IAW REF (A) NAVILCO IS REQUESTED TO CHG FUNDS AS FOL.

PD ITEM	JUL/SER	CURRENT	CHG	AMT	NEW TOTAL
1	2027/0000	$95,000	DECR	$65,000	$ 30,000
2	2025/0000	80,000	INCR	65,000	145,000

2. REF (B) WILL BE REVISED UPON RECEIPT OF CONFIRMING MSG.

AIR PMA-240-2(1)...ORG
RELEASER PMA-240A(1) FC(1) PMDA-11(1) 8023(1) ESA-205(1)
41251Z(1) D 007

TOTAL COPIES ... 007 ...

PART 2

MAT 0804

CONTROL NO	PAGE	OF	PAGE		TIME OF RECEIPT	DATE TIME GROUP
220061/037	1	OF	1	ATT 4575	037/00:44Z	052242Z FEB 76

*******U N C L A S S I F I E D*******

FUNDING AND QUANTITY DIRECTION

ARD TYPE (cc 1) 3 DOCUMENT TYPE (cc 2-4) 020 PD NO. 31164 (cc 5-12) REVISION NO. 2 (cc 13-15)

UNCLASSIFIED DATE (cc 16-21) FEB 13 1976

ITEM NO. cc 22-24	APPN 25-26	SUBHEAD 27-30	PROGRAM ACCOUNT 31-32	COST CAT. CODE 33-34	ALLOT. NO. 35	ITEM DESCRIPTION	CURRENT DIRECTION QTY	CURRENT DIRECTION DOLLARS	CHANGE TO PREVIOUS DIRECTION QTY cc 36-43	CHANGE TO PREVIOUS DIRECTION DOLLARS cc 44-52
7-11X	8242	2885	74852	63916	2D					
ACA00	FMS Case	NZ - LAC - P2								
Ilstrip Reqn										
						NAVAIR COG				
NZF44	2025/0000					Acft Chgs		145,000	1/	(+) 65,000
						TOTAL NAVAIR Directed		145,000		(+) 65,000
						NAVILCO Bayonne COG				
NZF44	2027/0000					Acft Chgs		30,000	1/	(-) 65,000
						TOTAL NAVILCO Directed		30,000		(-) 65,000
						TOTAL Directed		175,000		- 0 -

/ NAVAIR Msg. 042306 Feb 76
/ NAVILCO Msg. 102155Z Feb 76

ACTION ADDRESSEES

INFORMATION ADDRESSEES
See Distribution List

SUBJECT
ECP Kits for New Zealand
P3B Orion Aircraft
FMS Case NZ-LAC-P2

SIGNATURE (when issued separate from Part I)
M. O. FAUL
PROJECT MANAGER P-3

NAVAIR FORM 5200/12 (8-73) PART 3 Pg. 1 of 2.

NAVAL MESSAGE*** **U N C L A S S I F I E D **** NAVY DEPARTMENT

ACTION ROUTINE
R 301542Z MAR 76
FM NZDEF WASHINGTON

TO NAVAIRSYSCOM WASHINGTON

INFO NAVILCO BAYONNE CNO WASHINGTON DC

UNCLAS ODH/DFB 670

NAVAIR FOR CODE PMA-240DI. NAVILCO FOR CODES 13 AND 213. CNO FOR CODE OP-633.
SUBJECT ECP-1972 (PPC-87) KITS. T56 BLADE COVER PLATES.
FMS CASE NZ-LAC
1. REFER YOUR MESSAGES 240007Z MAR 1976 AND 042306Z FEB 1976.
KIT (A) DOC NUMBER PNZF4420250011 EA 56
KIT (B) DOC NUMBER PNZF4420250012 EA 56
KIT (C) DOC NUMBER PNZF4420250013 EA 56
RE PARA 4 OF YOUR MESSAGE 240007Z MAR 76. IT WOULD BE APPRECIATED IF THE QUANTITIES OF KITS AS LISTED ABOVE COULD BE AMENDED AS FOLLOWS:
KIT (A) EACH 10
KIT (B) EACH 45
KIT (C) EACH ~~45~~ 10
2. ADVISE IF (A) ABOVE NOTED DOCUMENT NUMBERS WILL BE USED FOR THE REVISED DESIRED QUANTITIES AND (B) PROCUREMENT LEAD TIME FOR THE KITS
3. IN VIEW OF ACCEPTANCE OF THE ABOVE KITS, PLEASE DISREGARD OUR REQUEST FOR BLADE COVERS AS LISTED IN OUR MESSAGE 291530Z OCT 1975

AIR PMDA-11(3)...ACT
410(1) 412(1) 414(1) 417(1) FC(1) 05P(2) 01(2) ~~APC2 (2)~~
PMA2Y0(2)

0458 0 016

TOTAL COPIES ... ~~016~~ ...

14

PART 4

MAT 5496

CONTROL NO	PAGE	OF	PAGE		TIME OF RECEIPT	DATE TIME GROUP
352864/090	1	OF	1	BTR 5462	090/20:27Z	301542Z MAR 76

*******U N C L A S S I F I E D*******

*******U N C L A S S I F I E D*******

ACTION ROUTINE
R 021532Z APR 76
FM NZDEF WASHINGTON

TO NAVAIRSYSCOM

INFO NAVILCO BAYONNE CNO WASHINGTON

UNCLAS ODH/DFB 765

NAVAIR FOR CODE PMA-240D1. NAVILCO FOR CODES 13
AND 213. CNO FOR CODE OP-633
SUBJECT: ECP-1972 (PPC-87) KITS. T56 BLADE
COVER PLATES. FMS CASE NZ-LAC
REFER OUR 301542Z MAR 76
PARA 1 KIT (C) REQUIREMENT SHOULD READ 10 KITS REPEAT
10 KITS IN LIEU OF 45 KITS. PLEASE AMEND

AIR PMOA-11(3)...ACT
410(1) 412(1) 414(1) 417(1) FC(1) 05P(2) 01(2) ~~APC2 (2)~~
PMA240(2)

0458 O ~~016~~ 14

TOTAL COPIES ... ~~016~~ 14 ...

PART 5

MAT 3967

53

363468/093 1 OF 1 ATR 3236 093/22:57Z 021532Z APR 7

*******U N C L A S S I F I E D*******

APPENDIX 6. CCB CHANGE REQUEST FOR THE TF30-P-412A ENGINE

CCB CHANGE REQUEST
NAVAIR FORM 13000/2 (Rev 11-71)

(SEE NAVAIRINST 4130.1)

1 CLASSIFICATION: UNCLASSIFIED

2 CONTRACTOR/NAVAL ACTIVITY: Pratt & Whitney Aircraft, East Hartford

3 EXPEDITE/WAIVER NO: 286886

4 CCB NUMBER: 752-225 (B) F-141

5 SUBJECT OF CHANGE AND CLASSIFICATION OF SUBJECT (Indicate equipment/end item affected): A/B Liner Assembly Secured Directly to the A/B Combustion Chamber Duct Assembly

6 ORIGINATOR	7 CODE	8 EXTENSION	9 DATE PREPARED	10 NATURE OF CHANGE (Safety, Commonality, Reliability, Maintainability, etc.)
B.K. BOROWSKI	53611B	22659	3/21/75	Maintenance Improvement

11 REFERENCES

(a) TF30 ECP 286886 fwd by PWA letter HTE:TC:jd of 21 January 1975

12 CONTRACT NUMBERS (Incl PR's, MIPR's, Grants) (Incorp. etc.)	13 ARTICLES AFFECTED (Type, Model, Series, Include Engineers)	14 QUANTITIES OF ARTICLES: TOTAL ON CONTRACT	TO BE CHANGED: PROD	TO BE CHANGED: RETROFIT
N00019-75-C-0038	TF30-P-412A	260	0	0
N00019-74-C-0085	TF30-P-412A	159	0	159
Previous Contract	TF30-P-412A			373
Navy & FMS			260	534
FMS			172	44
Navy			88	490

15 PRODUCTION EFFECTIVITY (Acft/Engr Serial Nos/Block): [X] ESTIMATED [ ] FIRM P-687232

16 PRIORITY FOR PRODUCTION: [ ] A [ ] B [ ] C

17 STATUS OF CHANGE: [X] NOT STARTED [ ] STARTED [ ] COMPLETED

18 RETROFIT INSTALLATION: MAINT. LEVEL: Depot; UNIT OR SIC: 6.2

19 RETROFIT DATA/CODE: [ ] HAMED [ ] URGENT [X] ROUTINE [ ] RECORD

20 TYPE & NO. OF TECHNICAL DIRECTIVE (Not to be obtained by AIR 4105 after CCB Approval): [ ] AFC [X] PPC 442 [ ] OTHER (Specify)

21 KIT DELIVERY LEAD TIME (LST A/T): 8 MONTHS AFTER AUTHORIZATION TO PROCEED

22 EFFECT ON WEIGHT AND PERFORMANCE GUARANTEES: A [ ] REQUEST FOR FIRM QUOTATION; B [ ] ADJUST AS FOLLOWS: WT EMPTY, USEFUL LOAD; C [ ] DEFECTS IN MATERIAL, WORKMANSHIP OR FAILURE TO MEET CONTRACT REQUIREMENTS: CG N/A, PERFORMANCE

23 COST SAVINGS: [X] NO [ ] YES (Complete Remainder of Block) HARD SAVINGS $ [ ] INTANGIBLE

24 MANDATORY CONSIDERATIONS	NO	YES	ACTION REQUIRED
a. GFE Affected (See NAVAIRINST 4340.2)	X		Attach Revised GFE and NAV AIR Form 13000/2A and/or /2B
b. Support Equipment Affected	X		Coordinate each ECP with AIR 5401E (Attach NAVAIR Form 13030/2)
c. Computer Programs Affected	X		If "Yes" Coordinate with AIR 514/534
d. Ship Compatibility Affected	X		If "Yes" Coordinate with AIR 517
e. Nuclear Safety Affected	X		If "Yes" Coordinate with AIR 5202
f. Human Factors Affected (See MIL-STD-721)	X		If "Yes" Coordinate with AIR 5313
g. HERO Affected	X		If "Yes" Coordinate with AIR-5202G
h. Foreign Military Sales Affected		X	If "Yes" Coordinate with AIR 01A9
i. Item Approved for Service Use		X	If "No" Coordinate with AIR 1012
j. Release for Production Required	X		See NAVAIRINST 4200.12
k. Change Planned for Other Items	X		List Other Items in Justification
l. Can the Change be Priced Prior to Being Ordered		X	If "No" Explain in Justification

25 INTERFACE (Id only Other Systems, Sub Systems or Equipments that must be changed): NONE

26 JUSTIFICATION (Include Requirement Source, Set Data, CDRL Impact Requirements):

NARF NORVA and service activities reported several incidences of A/B liner damage during installation of A/B on to the engine. Investigation revealed that prior to installation of the A/B on to the engine the A/B Liner moved forward sufficiently in the A/B Combustion Chamber Duct causing the aft end of liner to drop off the rear liner support and resulted in an interference between the liner and liner support and subsequent damage during assembly. Subject ECP provides Socket Head Cap Screws for securing the Afterburner Liner Assembly directly to the Afterburner Combustion Chamber Duct thereby precluding the possibility of handling damage at assembly or disassembly. Substantiation test data is considered unnecessary since this ECP affects assembly procedures only.

apps. 4/9/75

27 DESCRIPTION (Provide current & future interfaces for Contract Change Order):

1. In accordance with reference (a) provide Socket Head Cap Screws for securing the Afterburner Liner Assembly directly to the Afterburner Combustion Chamber Assembly.
2. After parts become available retrofit at first overhaul by reoperation of the duct assembly P/N 706355 (NOTE: Total No. of Ducts 490)
3. Procure 463 kits of PWA P/N 754487 (NOTE: Total No. of A/B's 463)
4. NATSF procure related publication revisions.

FOREIGN MILITARY SALES AFFECTED: 216 engines 82
FMS CASES: DN-1R-SAT-P4 (44 engs) Prod. 38 Retrofit 44
DN-1R-SBY-P4 (134 engs) Prod. 134 Retrofit 0

28 PROPOSED ACTION (Check under Letter and Complete Block):

A AMEND: [ ] DETAIL SPEC [ ] GFEL [ ] MIL SPEC [ ]
B SUBMIT ENGINEERING DATA FOR APPROVAL BY: [ ] FIELD OFFICE [ ] NAVAIR
C PREPARE: [ ] MOCK UP [ ] PROTOTYPE OR BAILED GOVT FURNISHED ARTICLE; [ ] PROTOTYPE FOR INSPECTION BY [ ] IN PRODUCTION ARTICLE
D CONDUCT: [ ] GROUND TEST [ ] FLIGHT TEST [ ] TRIAL KIT INSTALLATION
E [X] INCORPORATE IN PRODUCTION
F TECHNICAL DIRECTIVE TO BE PREPARED BY: [X] NAVY [X] CONTRACTOR [ ] NAVAIR [ ]
G [X] PROVIDE [ ] TURN AROUND PROGRAM [ ] INSTALL KITS FOR ACCEPTED ARTICLES/SPARES
1 (MODELS): TF30-P-412A
2 ARTICLES ON ABOVE CONTRACT(S) LESS QUANTITY CHANGED IN PRODUCTION LESS ATTRITION (MODELS)
3 ARTICLES DELIVERED ON PREVIOUS CONTRACTS (CONTRACTS)
4 LESS ATTRITION
5 MAINT TRAINERS / REPAIR TRAINERS — USN / USN — USAF / USAF

29 AUTHORIZED ACTION:
(A) 1 PROCEED IMMEDIATELY WITH AND SUBMIT PROPOSAL FOR EFFECT ON CONTRACT TERMS FOR: A B C D E F G — X X X
2 AFTER APPROVAL BY
(B) PROCEED IMMEDIATELY WITH AND SUBMIT PROPOSAL FOR EFFECT ON CONTRACT TERMS FOR: A B C D E F G

PREVIOUS ISSUES OF THIS FORM ARE OBSOLETE (See Reverse)

CLASSIFICATION: UNCLASSIFIED

NAVAIR FORM 13050/2 (Rev. 11-71) (Back)

CCB NO. 152-225

CLASSIFICATION: UNCLASSIFIED

X. PRICE INFORMATION AND FUNDING SOURCES (Price quoted good until)

ACT KEY	ITEM	PRODUCTION NAVY	PRODUCTION [illegible]	RETROFIT NAVY	RETROFIT [illegible]	TOTAL	FUNDS REQUIRED AND AVAILABLE (Insert Name and Code Below for Each Item) PRODUCTION	FUNDS REQUIRED AND AVAILABLE (Insert Name and Code Below for Each Item) RETROFIT
A	Non Recurring							
	Recurring	0		1,991	190			AIR-10411 [illegible]
B	Govt Furnished Equipment							
C	Ground Support Equipment	0						
D	Special Tools	0						
E	In House Test							
F	Tech Directive			0				
G	Tech Directive Validation							AIR-4168
H	Tech Directive Print and Dist							NATSF
I	Publications	0						
J	Publications Print and Dist						NATSF	
K	Airborne Tapes							
L	Airborne Tapes Print and Dist							
M	Trainers							
N	Training							
O	Repair Parts							
P	New Spares							
Q	Kits for Mod of Spares							
R	Contractor Mod of Spares							
S	NARF Mod of Spares							
T	Contractor Installation of Kits							
U	NARF Installation of Kits							
V	Other Material (MSA)							
W								
	TOTALS							

CODE	31 CONCURRENCES (Initial)	32 CCB MEMBERS	33 APPROVED	DISAPPROVED
AIR-53582	DIVISION DIRECTOR [illegible] 1-26	MATERIAL ACQUISITION		
AIR-5361	SUPPORT EQUIPMENT DIVISION [illegible]	MATERIAL ACQUISITION		
AIR-5361	DESIGN DIVISION [illegible]	COGNIZANT FLEET ENGINEER		
	AIRCRAFT MODIFICATION SYSTEMS DIRECTOR [illegible]	DATA MANAGER COORDINATOR		
[illegible]	PROJECT MANAGER COORDINATOR [illegible]	CCB CHAIRMAN		
AIR-10411	AIRCRAFT MODIFICATION COORDINATOR [illegible]			
AIR-5015/BEACH	[illegible]	DATE		

34. IMPLEMENTING ACTIONS

ACTION	ACTION KEY (S)	ACTION CODE	ACTION/CLOSED OUT DATE	OTHER INFORMATION
Change Order		AIR-2150	5/2/75	
Order for Correction of Defect				
Kit Change				
AIR 5361 EP 19		5361	4/23/75	
AA 4113 EP 19		4113	4/23/75	
Procurement Action Request				
Military Interdepartmental Purchase Request				
Spare Part on Change				
Government Furnished Equipment List Change	56			
AIR Task Project Order				
Requisition to NAVPRO	A	AIR-5015/BEACH 5/2/75		

APPENDIX 7. LOA, DD Form 1513, with the GOVERNMENT OF GREECE.

UNITED STATES DEPARTMENT OF DEFENSE
OFFER AND ACCEPTANCE

Government of Greece
Embassy of Greece
Office of the Air Attache
2228 Massachusetts Avenue, N.W.
Washington, D. C. 20008

(2) PURCHASER'S REFERENCE: HAFC F.H. 405/111
(3) CASE DESIGNATOR: GR-GCU-P5

526633 of 26 Mar 1975 OFFER

The Government of the United States hereby offers to sell to the above purchaser the defense article(s) and defense service(s) listed below, subject to the terms contained herein and conditions cited on the reverse.

Ser 632E/138843

(4) THIS OFFER EXPIRES: 15 Jul 19 75.

(5) SIGNATURE OF US REPRESENTATIVE: Ann Hunt
A. M. HUNT, TYPED NAME AND TITLE OF US REPRESENTATIVE
29 APR 1975 Captain, U.S. Navy
(6) DATE Deputy Director, Security Assistance Division
By direction of the Chief of Naval Operations
(7) AUTHORIZED FOR LOCAL REPRODUCTION

(8) ITEM OR REP. NO.	(9) ITEM DESCRIPTION (Including stock number, if applicable)	(10) QUANTITY	(11) UNIT ISSUE	(12) UNIT COST	ESTIMATED (13) TOTAL COST	ESTIMATED (14) AVAILABILITY AND REMARKS
1.	ECP (Engineering Change Proposal) support for A-7H Aircraft and T-2 Aircraft Note 1: Item one is estimated to cost $100,000 per year for five years. However, it is an estimate only the Government of Greece will be billed for only the actual costs incurred. IF ECP costs are more than the total cost this case will be amended accordingly. Twelve (12) copies of the signed acceptance of the offer should be forwarded to the Director, Security Assistance Division, OP-63, Office of the Chief of Naval Operations, Washington, D. C. 20350. VALIDATED AND APPROVED FOR IMPLEMENTATION Date 15 JUL 1975 Op-63 Signed				$500,000	

(15) ESTIMATED COST		$ 500,000
(16) ESTIMATED PACKING, CRATING, AND HANDLING COSTS		
(17) ESTIMATED ADMINISTRATIVE CHARGE	2%	10,000
(18) ESTIMATED CHARGES FOR SUPPLY SUPPORT ARRANGEMENTS		
(19) OTHER ESTIMATED COSTS (Specify)		
(20) ESTIMATED TOTAL COSTS		$ 510,000

(21) TERMS

(T/A-4) Dependable Undertaking

ACCEPTANCE

(22) I am a duly authorized representative of the Government of _____ and upon behalf of _____ said Government, accept this offer under the terms and conditions contained herein, this (23) 21 day of JUNE 19 75.

(24) OFFER/RELEASE CODE: A

(25) FREIGHT FORWARDER CODE: _____

(26) MARK FOR CODE: _____

(27) POINT OF DELIVERY: 4

(28) TYPED NAME AND TITLE: Major General John Korsolakis
Deputy Chief HAFC

(29) SIGNATURE:

DD FORM 1513 PREVIOUS EDITIONS ARE OBSOLETE

APPENDIX 8. LETTER TO FOREIGN GOVERNMENTS FORWARDING AN ECP FOR APPROVAL.

APC-237-3:EPS

FEB 20 1974

From: Commander, Naval Air Systems Command
To: (1) Government of Israel, Ministry of Defence
(2) New Zealand Defence Staff
(3) Embassy of Australia, Office of Naval Attache

Subj: P&W ECP 274320 J52-P-8A-8B-408 Engines: Which Provides a Revised Diffuser Case Assembly Featuring Hardened Bushings in the Burner Mount Pin Bosses and Provides a Common Combustion Chamber Pin in the J52-P-8A-8B-408 Engines

Ref: (a) CCCB 742-96

Encl: (1) 3 Copies of ECP 274320

1. Enclosure (1) is forwarded for review and approval. Reference (a) approved enclosure (1) 6 January 1974. Power Plant Change (PPC) 236 has been assigned for production and retrofit.

2. The Naval Air Rework Facility has reported excessive wear on combustion chamber pins and combustion mount pin bosses. The contractor has also observed excessive wear on experimental engines.

3. Retrofit is recommended at first overhaul after parts are made available. The new Diffuser Case Assembly with the hardened bushings will eliminate excessive wear to the combustion chamber mount pin boss due to vibratory loads.

4. Support equipment for retrofit of engines and spares based on 20 engines per month at one facility is $223.00. Estimated delivery is one set of tools per month 190 days after receipt of an acceptable order. See page 12 of enclosure (1) for tool numbers.

5. Estimate kit cost is $65.97 with delivery at the rate of 50 per month starting 190 days after receipt of acceptable offer. See page 8 of enclosure (1) for kit information.

6. Request that Naval Air Systems Command, Code AIR-01A4 be advised of tool and kit requirements.

R. J. DUFOUR
By direction

Copy to:
AIR-01A41
AIR-53312

APPENDIX 9. CORRESPONDENCE FOR THE OVERHAUL OF AN R1820 ENGINE UNDER FMS

PART 1. Memorandum from the Chief of Naval Operations with attached letter from the Government of Thailand

PART 2. Memorandum from AIR 01A4.

PART 3. Letter from the Naval Air Systems Command.

PART 4. Letter from the Dept of the Navy Security Assistance Office with attached LOA.

PART 5. Message from NAVAIR.

PART 6. Message from NAVILCO.

PART 7. Work Request.

WASHINGTON, D.C. 20350

IN REPLY REFER TO

Ser 633H/139397

8 MAY 1975

MEMORANDUM FOR THE CHIEF OF NAVAL MATERIAL (PM 21)

Subj: FMS - Price and Availability Information; request for Case TH-MAE-P5

Ref: (a) ASPR 6-705.2 (a) (2)

Encl: (1) Thai Naval Attache ltr No. 269/1975 of 25 Apr

1. Information is desired as to Price, Availability (stock or procurement), Security Classification (recommendations regarding releasability), and applicable Federal Stock Numbers of material listed in the enclosure(s). Delivery lead time from date of receipt of an accepted letter of offer is required on those cases requiring procurement. Additionally, since procurement items (material and/or services) are usually offered under terms of Dependable Undertaking type financing, when funding is required to meet expenditures prior to delivery, an estimated progress payment schedule shall be included (except for cases for Germany). If an item is not available, provide data on suitable substitute. For unclassified procurement items generally available commercially, furnish commercial designation as well as complete address(es) of supplier(s). Reference (a) applies.

2. In the event scheduled procurement of the material has been determined, the availability estimate should indicate the latest date that the country must submit its acceptance in order to add on to the USN buy. Include the delivery delay that would result if timely acceptance is not received.

3. The Support Plan (NAVMAT INST 4920.2C) should particularly address any requirement for special support or test equipment, training, skills, and facilities, and should be based on the assumption that the system or equipment is being introduced into the country for the first time; unless information to the contrary is known and noted in the reply.

4. To minimize delay in preparing a response to the country's request, the data should be provided in a listing that can be readily reproduced and enclosed as an integral part of a letter of offer. When program responsibility for items listed in the enclosure(s) is split between two or more SYSCOMs or PMs, a consolidated reply should be provided.

5. Reply is desired by 28 May 1975. In the event a complete reply cannot be forwarded by the date specified, an interim reply is requested including justification for the delay, and an estimate as to when the complete reply may be expected.

ORIGINAL

S. P. McCRANE
Head, CINCPAC Area Branch
Security Assistance Division

Copy to:
NAVMAT 03R4 NAVSUP 04B2 COMUSMACTHAI

NAVEXOS P-3084 (REV. 2-70)

PART 1

THAI NAVAL ATTACHÉ
1501 RED OAK DRIVE
SILVER SPRING, MARYLAND 20910
TEL. (301) 565-9265

No.269/1975

April 25, 1975

Office of the Chief of Naval Operations
Security Assistance Division
Pacific Branch (OP-633)
The Pentagon, Room 4E453
Washington, D.C. 20350

Attn: Lieutenant Commander J. Parker, USN.

Dear Sir:

We are instructed to have you informed that the Royal Thai Navy desires to overhaul an R-1820-76B engine, model R1820-76B, Serial No.EL511437 and two(2) 82F engine, model R-1820-82, Serial No. EL-515721 and EL516043 in the United States of America by means of FMS. Details of the aircraft engines is enclosed herewith. It is also requested to provide the transportation of those engines from Thailand (U-Tapao Air Base, Sattahip) to the manufacturer in the United States and from the United States to Thailand after the accomplishment of overhaul. The cost of the transportation and administrative charges should be included in the overhaul cost as your quotation.

If this request is acceptable, please send the Royal Thai Navy the Letter of Offer and Acceptance through this office at your earliest convenience. Should further detailed information be required, please do not hesitate to call upon us at telephone number 565-9265.

We look forward to hearing from you very soon.

Sincerely yours,

Watanapol Saneewong

Watanapol Saneewong
Captain, Royal Thai Navy
Naval Attache

AIRCRAFT MODEL S-2F

AIRCRAFT ENGINE INFORMATION FOR OVERHAUL

AIRCRAFT ENGINE

Manufacture ..... LYCOMING

Serial No. ..... ~~T~~ EL. 516043

Navy Model ..... R 1820-82

Hp. Engine ..... 1525 HP.

No. Of Cylinder 9

Authorized Operating Interval ..... 2000 Hrs.

Chiefly ..... RTN. AIR WING

Operating Time, Since Overhaul ..... 1886.5 Hrs.

No. Of Overhaul 4

Last Date Completed ..... 23 SEP. 1965.

Cause For Overhaul ..... Oil leak from locker box.

..... Engine Change.

ACCESSORY AND COMPONENT OVERHAUL

1. ..... Carburetor.

2. ..... Magneto.

Memorandum

DATE: 21 MAY [illegible]

FROM AIR-0144

TO AIR-414

SUBJ FMS Case TH-MAE-P5; overhaul of R1820-76B and R1820-82 engines for Thailand

Encl: (1) CNO memo Ser 633H/139397 of 8 May 1975 to CHNAVMAT (PM21)

1. It is requested that AIR-414 take enclosure (1) for action and provide the NAVAIR response to CNO, copy to CHNAVMAT (PM21) by the deadline date indicated. The reply should include estimated overhaul costs for both engines, with appropriate notes concerning turnaround time, place of overhaul, and other information as appropriate. Separate estimated round-trip transportation costs for the engines should also be indicated.

2. The proposed letter response should be forwarded to this office for signature.

Copy to:
AIR-410B
AIR-414E
AIR-4145

PART 2

4145A:CA

2 JUN 1975

From: Commander, Naval Air Systems Command
To: Chief of Naval Operations (OP-03EH)

Subj: FMS Case TH-MAE-TE

Ref: (a) CNO OP-03EH/139397 memo of 9 May 1975 to CNAVMAT (PM 21)

Encl: (1) Copy of NAVAIR ltr AIR-4145B:EFS of 30 Jan '74 w/encls

1. By reference (a), the Naval Air Systems Command was requested to provide price and availability to overhaul one (1) R1820-76B and two (2) R1820-82 Engines.

2. Prior correspondence concerning similar FMS cases advised that the U.S. Navy is no longer overhauling the R1820-82 engine to the older configuration. All engines subsequent to 1 January 1974 must be converted to the R1820-82B configuration.

3. Enclosure (1) provides all the information necessary for rework of the R1820-76B, serial number BL-[illegible] and R1820-82 engines, serial number BL-[illegible] and BL-[illegible].

4. The R1820-76B will be updated to the R1820-76D configuration. Turn-around-time (TAT) of the Naval Air Rework Facility (NAVAIRE-WORKFAC) is approximately 60 days after receipt of the engines and funding.

5. Rework costs are as follows:

R1820-76B	$16,250 ea. EST
R1820-82/82B	$28,500 ea. EST

These prices are for overhaul of a normal high time engine. Two of the engines requiring overhaul are apparently severely damaged, one frozen and another with broken piston and excessive metal. These engines could conceivably be more expensive to overhaul and should be examined by NAVAIRENGSUPPFAC Jacksonville prior to a firm commitment for a rework cost.

PART 3

Subj: PMS Case TH-MAE-PE

6. Transportation charges from Thailand to USA are estimated as follows:

Engine	Destination	Type Transportation	One Way
R1820-76B	Jacksonville	Surface	$ 765
R1820-76B	"	Air	3,350
R1820-82	"	Surface	765
R1820-82	"	Air	3,350

[illegible] WILSON

Copy to: (w/o encl)
[illegible] (1001)
Dlhnd copy to:
AIR-01A4
AIR-410B
AIR-414E

Prep C. Appling - 5/29/75
Ext 692-0566
A. Shanks

DEPARTMENT OF THE NAVY
SECURITY ASSISTANCE PROJECT OFFICE
WASHINGTON, D.C. 20360

Pmoa-11

IN REPLY REFER TO
PM-21D2:LHH
NOV 7 1975

From: Project Manager, Security Assistance Project
To: Commander, Naval Air Systems Command

Subj: FMS Case TH-MAE; implementation of

Encl: (1) DD1513, CNO Ser 633H/171206 of 12 Jun 75

1. Enclosure (1), with applicable case implementation instructions and data sheet, is forwarded for implementation.

2. By copy of this letter, NAVILCO is requested to;

a. Establish appropriate case record.

b. Provide funds in accordance with instructions on the case implementation data sheet.

c. Submit FMS 1100 System data input to DSAA.

3. Transaction control number 76-200 is assigned.

A. P. CLARK
By direction

Copy to:
CNO (w/o encl)
NAVILCO
COMNAVSUPSYSCOM
CHJUSMAAG THAILAND (w/o encl)

CASE IMPLEME' 'TION INSTRUCTIONS AND DATA SH' T

FMS CASE TH-MAE-PS

Ref: CNO Ser. N83H/171206 of 2 Jun 75

Control No. 76-200 Dated 5 Nov 75

IPLEMENTED TO: Navair

PECIAL INSTRUCTIONS:

UNDING INSTRUCTIONS:

or Navilco: Provide funds as directed by Navair.

INE ITEM DETAIL:

D 1513

RECORD SERIAL NUMBER	GENERIC CODE	NATIONAL STOCK NUMBER *	SPARE PARTS CODE	QUANTITY PURCHASED	TOTAL SALES PRICE	DELIVERY COMMITMENT	DELIVERY COMPLETION

* Will be completed only when FSN is other than all zeros.

(3) PURCHASER'S REFERENCE	(3) CASE DESIGNATOR	Royal Thai Naval Attache
Thai Naval Attache ltr 269/1975 of 25 Apr 75	TH-NAE-P5	1501 Red Oak Drive Silver Spring, Md 20910

The Government of the United States hereby offers to sell to the above purchaser the defense article(s) and defense service(s) listed below, subject to the terms contained herein and conditions cited on the reverse. Ser 6338/171266

(4) THIS OFFER EXPIRES 11 SEPT 19 75

(5) SIGNATURE, TYPED NAME AND TITLE OF US REPRESENTATIVE
Captain, U.S. Navy
Head, CINCPAC Mgmt Div
Security Assistance Div

(6) DATE 12 JUN 1975

(7) US DEPARTMENT OF THE NAVY

By direction of the Chief of Naval Operations

ITEM NO. (8)	ITEM DESCRIPTION (Including stock number, if applicable) (9)	QUANTITY (10)	UNIT OF ISSUE (11)	ESTIMATED UNIT COST (12)	ESTIMATED TOTAL COST (13)	AVAILABILITY AND REMARKS (14)
1.	R-1820-76B Aircraft Engine (ser BL 511437) Overhaul. (Note 1)	1	ea	16,250	16,250	NAVAIR R(2) Note 4
2.	R-1820-82 Aircraft Engines (ser BL-516043 and BL-515721) Overhaul. (Note 2)	2	ea	28,500	57,000	NAVAIR R(2) Note 4
3.	Transportation of 3 engines from Thailand to USA and return			6,700	20,100	

Note 1: The R-1820-76B will be updated to the R-1820-76D configuration.

Note 2: The R-1820-82 will be converted to R-1820-82B configuration.

Note 3: The engines should be shipped complete with all accessories and logbooks to NAVAIREWORKFAC Jacksonville.

Note 4: Turn-around-time (TAT) of the NAVAIREWORKFAC is approximately 60 days after receipt of engines.

Note 5: The estimated unit cost are for overhaul of a normal high time engine. Engines BL 511437 and BL516043 are apparently severely damaged, one frozen and the other with broken piston and excessive metal contamination. These engines could be more expensive to overhaul with resulting increases in the estimated rework cost

(15) ESTIMATED COST		$ 93,350
(16) ESTIMATED PACKING, CRATING, AND HANDLING COSTS		
(17) ESTIMATED ADMINISTRATIVE CHARGE	2%	1,867
(18) ESTIMATED CHARGES FOR SUPPLY SUPPORT ARRANGEMENTS		
(19) OTHER ESTIMATED COSTS (Specify)		
(20) ESTIMATED TOTAL COSTS		$ 95,217

(21) TERMS

Dependable Undertaking (T/A-4)

ACCEPTANCE

(22) I am a duly authorized representative of the Government of THAILAND and upon behalf of said Government, accept this offer under the terms and conditions contained herein, this (23) 10 day of SEPTEMBER 19 75.

(24) OFFER/RELEASE CODE A

(25) FREIGHT FORWARDER CODE: P-2.

(26) MARK FOR CODE: J

(27) POINT OF DELIVERY: 7

(28) TYPED NAME AND TITLE
ADM. CHING CHULLASUKHUM

(29) SIGNATURE
ADM.

DD FORM 1513 PREVIOUS EDITIONS ARE OBSOLETE. PAGE 1 OF 4 PAGES

NAVAL MESSAGE*** * OUTGOING ** *** NAVY DEPARTMENT

*******U N C L A S S I F I E D*******

ROUTINE
R 150156Z NOV 75
FM COMNAVAIRSYSCOM WASHINGTON DC

TO NAVILCO BAYONNE NJ

INFO CNO WASHINGTON DC
COMNAVSUPSYSCOM WASHINGTON DC
CHNAVMAT WASHINGTON DC
NAVAIREWORKFAC JACKSONVILLE FL

UNCLAS //N04920//

NAVILCO (13, 40, 224) CNO (OP-633H) CHNAVMAT (PM-21) NAVSUP (033) NAVAIREWORKFAC (05)
FMS CASE TH-MAF-P5, OVHL OF S2 ACFT ENGINE, IMPLM OF
A. CNM LTR PM-2102:LHH OF 7 NOV 1975 W/ECHL 1 CNO 001513 SUP 033M/171206 OF 11 SEP 1975 VALID & APPVD FOR IMPL 17 OCT 1975

1. FROM PMDA-11. IAW WITH PAR 2B OF REF A REQ NAVILCO PROVIDE MASAIR CODES PMDA-11, 414E AND 8023 ACCTNG DATA AND THREE MILSTRIPS IN WORK REQ FORMAT IN AMTS OF $16,250, $57,000 AND $20,100 FOR ITEMS 1, 2 AND 3, ENCL 1 OF REF A.

ORG PMDA-110-3(1)...ORG
RELEASER PMDA-11(3) 01(1) 410(1) FC(1) 410B(1) 414E(1)
4102A(1) 41251C(1) 8023(1) 4145A(1)
4145 [illegible](1)

...(1) D 015

CNM PM21(3)...COG
COR1(1) 09[illegible](1) 040(1) 55C(1) 0750 A 007

SUP 033(1)...COG
03(1) 01(1) 012(1) 00(6) LOG(2) 045(1) 0655 A 013

TOTAL COPIES ... 035 ...

MAT 2377

PAGE 1 OF 1 ATY 7499 | 319/091831 | 150156Z NOV 75

*******U N C L A S S I F I E D*******

PART 5

NAVAL MESSAGE ******UNCLASSIFIED****** NAVY DEPARTMENT

ACTION PRIORITY
P 2422012 NOV 75
FM NAVILCO BAYONNE NJ

TO NAVAIRSYSCOM WASH DC

INFO CHNAVMAT WASH DC NAVAIREWORKFAC JACKSONVILLE FL
GOVT OF THAILAND (NAV ATT) WASH DC

UNCLAS: //N04920// CODE 41 SENDS

FOR: AIR PMOA-11 MAT PM-21, NAVAIREWORKFAC 05
FMS TH MAE-OVERHAUL
A. DD 1513 SER 633H/171206 OF 12 JUN 75
B. PM-2102:LHH OF 7 NOV 75
C. AIR 150156Z NOV 75
1. A05/N21/O/R-1820-76BOVHL/SR/00000/PPTHJ74/5325/0001/N/PA2MAE/L/
48/FBLNK/BA1/15/BLNK RMKS: R-1820-76B AIRCRAFT ENGINE (SER BL
511437) OVERHAUL (NOTE 1) FUNDS AVAIL: 16,250 DOLS
2. A05/N21/O/R-1820-82BVHL/SR/00000/PTHJ74/5325/0002/N/PA2MAE/L/
48/FBLNK/CA1/15/BLNK RMKS; R-1820-82 AIRCRAFT ENGINES (SER BL
516043 & BL-515 72 OVERHAUL (NOTE 2) FUNDS AVAIL: 57,000 DOLS
3. A05/N21/O/TRANSPORTATION/SR/00000/PTHJ74/5325/0003/N/PA2MAE/L/
48/FBLNK/GA1/15/BLNK/RMKS: TRANSPORTATION OF 3 ENGINES FROM
THAILAND TO USA & RETURN.
4. REMARKS:
(A) ACCOUNTING DATA:
(1) APPRN. SYMBOL AND SUBHEAD 17-11X8242.2864
(2) OBJECT CLASS 000
(3) BUREAU CONTROL NUMBER 74642
(4) SUB ALLOTMENT 0

AIR PMOA-11(3)...ACT
410(1) 412(1) 417(1) FC(1) 01(2)

CNM PM21(3)...COG
0081(1) 098(1) 040(1) 55C(1)

TOTAL COPIES ... 016

0589 F 009

0750 G 007

MODIFIED AT Z

COPY AVAILABLE TO DDC DOES NOT PERMIT FULLY LEGIBLE PRODUCTION

MAT 5662

ACCESSION	PAGE	OF	PAGE	TIME OF RECEIPT	DATE TIME GROUP
042823/329	1	OF	ATR 9954	329/01:32Z	2422012 NOV 75

PART 6 72

(5) AUTHORIZATION ACCOUNTING ACTY 065916
(6) TRANS. TYPE 2D
(7) PROPERTY ACCOUNTING PTH;745325
(8) COST CODE COST CODE ENTER SER NR& NAE TO COMPLETE COST CODE
(9) "IN THE CLEAR" SHIPPING ADDRESS: CAN BE FOUND IN DOD
5105.38D OF 1 MAR 75
5. REF A IMPLEMENTED IAW REF B AS DIRECTED REF C.

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WORK REQUEST
NAVCOMPT FORM 140 (REV. 5-65)
0104-700-4300

[X] INITIAL REQ.

AMENDMENT NO.

FROM Commander, Naval Air Systems Command
Department of the Navy
Washington, D. C. 20361

NUMBER
N0001976WR64438

DATE
6 January 1976

TO Commanding Officer
Naval Air Rework Facility
Naval Air Station
Jacksonville, Florida 32212

MAXIMUM AMOUNT AUTHORIZED
$93,350.00

APPROPRIATION SYMBOL AND SUBHEAD	OBJECT CLASS	BUREAU CONTROL NO.	AUTHORIZATION ACCT'G ACTVTY	TRANS. TYPE	PROPERTY ACCT'G	COST CODE
(SEE ATTACHED FINANCIAL DATA ADDENDUM SHEETS)						

JOB ORDER NUMBER	COMPLETION DATE OR PERIOD OF WORK	FOR DETAILS, CONTACT:
N/A	30 September 1976	Jack Stump, AIR-414E AUTOVON 222-0351

TYPE OF REQUEST

[ ] CONTINUING [X] SPECIFIC [ ] NUMEROUS

REQUESTING OFFICE (Signature and Title)

John Swartchick, Fiscal Accounting Officer

WORK TO BE PERFORMED IN ACCORDANCE WITH ABOVE INFORMATION

FMS CASE TH-NAE-25 (THAILAND)

MILSTRIP NO. PLHJ74/5325/0001 $16,230.00
Funds for Overhaul and Conversion of one (1)
R1820-76B Engine, Ser. No. BL511437, to
R1820-76D Configuration.

MILSTRIP NO. PLHJ74/5325/0002 $57,000.00
Funds for Overhaul and Conversion of two (2)
R1820-82 Engines, Ser Nos. BL516043 and
BL515721 to R1820-82B Configuration.

MILSTRIP NO. PLHJ74/5325/0003 $20,100.00
Funds for Transportation of 3 engines from
Thailand to USA and return.

Copy to:
NAVILCO Bayonne (Code 13) (4 copies)
NAVAIRSYSCOMREPLANT
NAS NORFOLK (For Acct'g.)

PWW-1103
AIR-4143
AIR-414[illegible]
AIR-414282
AIR-[illegible]23
AIR-413510

COPY AVAILABLE TO DDC DOES NOT PERMIT FULLY LEGIBLE REPRODUCTION

[X] COST REIMBURSEMENT [ ] FIXED PRICE

PART 7 74

Applicable MILSTRIP Number, FMS Case number and this Work Request number should be referenced on all charges submitted to NAVILCO, Bayonne, N. J. 07002.

Request acceptance of this Work Request be forwarded to NAVILCO, Bayonne (Code 13) with copies to NAVAIRSYSCOMHQ (AIR-8023 and AIR-414E).

Upon rework completion, mark engine containers with FMS Case and applicable MILSTRIP numbers and ship engines in accordance with DOD 5105.38D (MAPAD)

Immediately upon shipment provide NAVILCO (Codes 13 and 224) mode of shipment, date of shipment and shipment serial number with copies to NAVAIR (Codes PMOA-11D3 and AIR-414E)

Upon completion of work, submit SF1080 marked "Final" to NAVILCO (Code 13) with copies to NAVAIR (Codes PMOA-11D3 and AIR-8023).

BIBLIOGRAPHY

1. OPNAVINST 4790.2, VOL II, 21 Jul 1970, The Naval Aviation Maintenance Program.

2. Aeronautical Requirements (AR) 22, 23 May 1969. Format and Content of Formal Technical Directives.

3. Aeronautical Requirements (AR) 41, 23 May 1969. Technical Directive Development and Acquisition of Integrated Logistic Support for Aeronautical Weapon System Changes.

4. NAVMATINST 4130.1, 14 September 1967, Configuration Management.

5. NAVAIRINST 4920.1C, 1 March 1976, Responsibility and procedures for handling foreign military sales price and availability information.

6. NAVAIRINST 4130.1, Ch-9, 11 April 1975, Naval Air Systems Command Configuration Management Manual.

7. NAVAIRINST 4900.1A, 22 Nov 1974, Defense Security Assistance Program; support of.

8. NAVAIRINST 5605.3A, 13 June 1975, Procedures for the distribution of technical directives and rapid action minor engineering changes (RAMECs) to foreign governments.

9. NAVAIRINST 5400.1A CH-3, 25 Apr 1975, Naval Air Systems Command Headquarters Organization Manual.

10. NAVAIR NOTICE 5215, 5 Nov 1974, Index of Address Indicator Groups for Technical Directives.

11. DOD Manual 5105.38-M, Military Assistance and Sales Manual.

12. Batty, L. H., Navy Civilian, personal interview on 22 March 1976. Mr. Batty is the Configuration Control Officer (AIR-01A62) in the NAVAIR Configuration Management Office and is experienced in Configuration Management with the Air Force and NAVAIR.

13. Padgett, Mary J., Navy Civilian, personal interview on 22 March 1976. Ms. Padgett is assigned to the Naval Air Systems Command, Aircraft Modification Branch (AIR 10411) and is experienced in budgeting and funding for retrofit kits.

14. Gorton, Charles, Navy Civilian, personal interview on 22 March 1976. Mr. Gorton is assigned to the Naval Air Systems Command, Propulsion Division (AIR53612D) as the Project Coordinator for the F402 engines installed in the AV-8A (Harrier) Aircraft.

15. Jennings, J.C., Navy Civilian, numerous personal and telephone interviews, March and April 1976.
Mr. Jennings is assigned to the Naval Air Systems Command, Defense Security Assistance Division (PMOA-11A) as the Deputy Director.

16. Jackson, Don, Navy Civilian, numerous personal interviews, March and April 1976.
Mr. Jackson is assigned to the Naval Air Systems Command, Defense Security Assistance Division (PMOA-11C4) and is a Team Member on the Fighter, Attack and Support Team for FMS.

17. Gibber, Phillip, Captain, Navy, personal interview on 22 March 1976.
Captain Gibber is the Commanding Officer of the Navy Plant Representative Office at Pratt and Whitney Aircraft Division at East Hartford, Conn.

18. Urban, A.A., Navy Civilian, personal interview on 5 April 1976.
Mr. Urban is assigned to the Naval Air Systems Command, Logistics Management Division (AIR 410B) as the Assistant for International/ Interservice FMS.

19. Ragsdale, Ducan E., Navy Civilian, personal interview on 5 April 1976.
Mr. Ragsdale is assigned to the Naval Air Systems Command, Propulsion Division (AIR 53612A) and is the Project Coordinator for a number of turbo-jet engines that have been sold to foreign governments under FMS.

20. Stump, Jack, Navy Civilian, personal interview on 9 April 1976.
Mr. Stump is assigned to the Naval Air Systems Command, Depot Management Division (AIR 414E), as the Foreign Military Sales Coordinator for the Division.

21. Mehl, J. P., Captain, Navy, telephone interview on 12 April 1976.
Captain Mehl is assigned to the Naval Air Systems Command as the Project Coordinator (NAPC-237) for the A-4/TA-4 Aircraft.

22. Peterman, K.W., Navy Civilian, personal interview on 12 April 1976.
Mr. Peterman is assigned to the Naval Air Systems Command, A-4 Project Office (NAPC-237-3) and is the Deputy Project Manager (Technical) for the A-4 Aircraft.

23. Wattenberg, L., Navy Civilian, personal interview on 12 April 1976.
Mr. Wattenberg is assigned to the Naval Air Systems Command, A-4 Project Office (NAPTC-237-4) and is the Deputy Project Manager (FMS) for the A-4 Aircraft.

24. Roxbury, R.L., Navy Civilian, numerous personal interviews March and April 1971.
Mr. Roxbury is assigned to the Naval Air Systems Command, Propulsion Division (AIR 53622C) as the Project Coordinator for the T56 series engines installed in the P-3 Aircraft.

25. Borowski, B, Navy Civilian, numerous personal interviews April 1976. Mr. Borowski is assigned to the Naval Air Systems Command, Propulsion Division (AIR 53611B) as the Project Coordinator for the TF30 series engines installed in the F-14 Aircraft.

26. Klein, J., Navy Civilian, personal interview on 19 April 1976. Mr. Klein is assigned to the Naval Air Systems Command, Propulsion Division (AIR 53612C) as the Project Coordinator for the TF-41 series engines installed in the A-7 Aircraft.

27. Pecknik, W., Navy Civilian, numerous personal interviews, April 1976. Mr. Pecknik is assigned to the Naval Air Systems Command, Maintenance Policy and Engineering Division (AIR 4113C) as the Section Head for turbo-shaft engines, and is experienced with ECPs, retorfit kits and Technical Directives.

28. Roache, Paul, Navy Civilian, personal interview, 19 April 1976. Mr. Roache is assigned to the Naval Air Systems Command, F-14, Program Management Office (PMA-241VCB) as the Deputy Assistant for Configuration Control (FMS).

29. Purdue, M. W., Navy Civilian, personal interview, 19 April 1976. Mr. Purdue is assigned to the Naval Air Systems Command, F-14 Program Management Office (PMA-241L) as the Deputy PM for Support.

30. Ford, Gloria, Navy Civilian, personal interview, 19 April 1976. Ms. Ford is assigned to the Naval Air Systems Command, F-14 Program Management Office (PMA-241-CFMS) as the Assistant for Fiscal Control, Foreign Military Sales.

31. Barnes, F. H., Navy Civilian, personal interview, 19 April 1976. Mr. Barnes is assigned to the Naval Air Systems Command, A-7 Program Management Office (PMA-235H-1) as the FMS Program Analyst.

32. Bordas, M.C., Navy Civilian, personal interview, 19 April 1976. Ms. Bordas is assigned to the Naval Air Systems Command, AV-8 Harrier Program Management Office (PMA-257-5) as the Foreign Military Sales Officer.

33. Hense, Robert, Navy Civilian, personal interview, 13 April 1976. Mr. Hense is assigned to the Weapons Engineering Support Activity, Material Acquisition and Production Dept (ESA-2050) and is responsible for the procurement of engine retrofit kits.

34. Flegle, D. D., Navy Civilian, numerous personal interviews, April 76. Mr. Flegle is assigned to the Naval Air Systems Command, P-3 Project Management Office (PMA-240D) as the Assistant for Foreign Military Sales.

35. Sander, R. E., Captain, US Navy, personal interview on 15 April 1976. Captain Sander is assigned to the Naval Air Systems Command as the Director of the Propulsion Division (AIR 536).

36. Randall, Elaine C., Navy Civilian, personal interview on 19 Apr 1976. Ms. Randall is assigned to the Naval Air Systems Command, Configuration Management Office (AIR 01A64) as the CCB Secretariat.

37. Jordon, T., USAF Civilian, telephone interview on 15 April 1976. Mr. Jordon is assigned to the Air Force Systems Command, Aeronautical Systems Division (ASD/AEPM) and is the Buyer for the Air Force for all General Electric Company Aircraft engines.

38. Hardy, James, USAF Civilian, telephone interview on 15 April 1976. Mr. Hardy is assigned to the Air Force Systems Command, Aeronautical Systems Division as the Buyer for the Air Force for the T56 series Allison aircraft engines.