

INITIAL

NAVY TRAINING SYSTEM PLAN

FOR THE

COMMON IDENTIFICATION FRIEND OR FOE
DIGITAL TRANSPONDER PROGRAM

(AN/UPX-28, AN/APX-64, AN/APX-72
and AN/APX-100 REPLACEMENT)

N88-NTSP-A-50-0014/I

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COMMON IFF DIGITAL TRANSPONDER PROGRAM
(AN/UPX-28, AN/APX-64, AN/APX-72 and AN/APX-100 REPLACEMENT)

EXECUTIVE SUMMARY

This Initial Navy Training System Plan for the Common Identification Friend or Foe Digital Transponder (CXP) Program was developed by the Naval Air Systems Command (AIR 3.4.1). It provides an early estimate of the manpower, personnel, and training requirements to support the CXP.

The CXP is a replacement for the AN/UPX-28, AN/APX-64, AN/APX-72, and AN/APX-100 (V) Transponder. The CXP will initially be installed in Navy P-3, EA-6B, VH-3D, and VH-60N aircraft with follow-on installation in all U.S. Navy aviation platforms and ships. The P-3 and VH type aircraft will be the lead integration aircraft for the aviation applications of this program. This program is planned as a Commercial Off-The-Shelf/Non-Developmental Item. This is an Acquisition Category IV(T) program that will reach Milestone III (Production or Deployment Approval) in March 2002.

Pilots, copilots, or surface craft operators will operate the CXP. Aviation organizational level maintenance will be performed by Navy Aviation Electronics Technicians and Marine Corps Aircraft Communications and Navigation Technicians with the appropriate Navy Enlisted Classifications (NEC) code or Military Occupational Specialty for the Type/Model/Series aircraft supported. Navy Electronics Technicians with NEC 1572 will perform organizational level maintenance on the CXP shipboard units. Maintenance levels for both aircraft and shipboard transponders are anticipated as organizational to commercial depot. No new operator or maintainer billets or enlisted ratings are required to support the CXP.

The contractor will establish initial and follow-on training programs for aircraft and shipboard CXP installations. Operation and maintenance training programs will include platform-unique integration issues, and will be conducted at the contractor's facilities or at a Government-approved location.

**COMMON IFF DIGITAL TRANSPONDER PROGRAM
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TABLE OF CONTENTS

	Page
Executive Summary.....	i
List of Acronyms.....	iii
Preface.....	v
 PART I - TECHNICAL PROGRAM DATA	
A. Nomenclature-Title-Program.....	I-1
B. Security Classification.....	I-1
C. Manpower, Personnel, and Training Principals.....	I-1
D. System Description.....	I-2
E. Developmental Test and Operational Test.....	I-2
F. Aircraft and/or Equipment/System/Subsystem Replaced.....	I-3
G. Description of New Development.....	I-3
H. Concepts.....	I-4
I. Onboard (In-Service) Training.....	I-22
J. Logistics Support.....	I-24
K. Schedules.....	I-25
L. Government-Furnished Equipment and Contractor-Furnished Equipment Training Requirements.....	I-25
M. Related NTSPs and Other Applicable Documents.....	I-24
 APPENDIX A - POINTS OF CONTACT.....	 A-1

**COMMON IFF DIGITAL TRANSPONDER PROGRAM
(AN/UPX-28, AN/APX-64, AN/APX-72 and AN/APX-100 REPLACEMENT)**

LIST OF ACRONYMS

ADS-B	Automatic Dependent Surveillance - Broadcast
AIMS	ATCRBS IFF Mk XII Systems
AMTCS	Aviation Maintenance Training Continuum System
ASW	Anti-Submarine Warfare
AT	Aviation Electronics Technician
ATCRBS	Air Traffic Control Radar Beacon System
BIT	Built-In Test
CBT	Computer-Based Training
CONUS	Continental United States
COTS	Commercial Off-The-Shelf
CXP	Common IFF Digital Transponder
DAP	Downlink of Aircraft Parameters
DT	Developmental Test
DVD	Direct Vendor Delivery
ET	Electronics Technician
FMS	Foreign Military Sales
FTC	Fleet Training Center
ICAP	Improved Capability
IFF	Identification Friend or Foe
IOC	Initial Operational Capability
JROC	Joint Required Operational Capability
MATMEP	Maintenance Training Management and Evaluation Program
MCAS	Marine Corps Air Station
MMH/FH	Maintenance Man-Hours per Flight Hour
MOS	Military Occupational Specialty
MSD	Material Support Date
MTIP	Maintenance Training Improvement Program
MTU	Maintenance Training Unit

**COMMON IFF DIGITAL TRANSPONDER PROGRAM
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LIST OF ACRONYMS

NA	Not Applicable
NAMP	Naval Aviation Maintenance Program
NAMTRAU	Naval Air Maintenance Training Unit
NAS	Naval Air Station
NATOPS	Naval Air Training and Operating Procedures Standardization
NAWCAD	Naval Air Warfare Center Aircraft Division
NEC	Navy Enlisted Classification
NTSP	Navy Training System Plan
OJT	On-the-Job Training
OPO	OPNAV Principal Official
OPTEVFOR	Operational Test and Evaluation Force
ORD	Operational Requirements Document
OT	Operational Test
PMA	Program Manager, Air
PQS	Personnel Qualifications Standard
RCU	Remote Control Unit
RFT	Ready For Training
SERE	Survival, Evasion, Resistance, and Escape
SRA	Shop Replaceable Assembly
TBD	To Be Determined
TD	Training Device
TM	Technical Manuals
T/M/S	Type/Model/Series
TORT	Tactical Operational Readiness Trainer
TTE	Technical Training Equipment
WRA	Weapon Replaceable Assembly

COMMON IFF DIGITAL TRANSPONDER PROGRAM
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PREFACE

This Initial Navy Training System Plan (NTSP) provides an early look at the manpower, personnel, and training system requirements for the Common Identification Friend or Foe (IFF) Digital Transponder Program (CXP). This is the second iteration of the CXP Initial NTSP, updating the January 2000 version. This document explores the various employment and support alternatives currently under consideration. Since it is still relatively early in the acquisition process, some definitive data was unavailable for inclusion in this version.

PART I - TECHNICAL PROGRAM DATA

A. NOMENCLATURE-TITLE-PROGRAM

1. **Nomenclature-Title-Acronym.** Common IFF Digital Transponder (CXP) Program
2. **Program Element.** Not Applicable (NA)

B. SECURITY CLASSIFICATION

1. **System Characteristics** Unclassified
2. **Capabilities** Unclassified
3. **Functions**..... Unclassified

C. MANPOWER, PERSONNEL, AND TRAINING PRINCIPALS

OPNAV Principal Official (OPO) Program Sponsor..... CNO (N880G2, N62G2)

OPO Resource Sponsor CNO (N880G2, N62G2)

Developing Agency..... NAVAIRSYSCOM (PMA209, PMA213)

Training Agency CINCLANTFLT
CINCPACFLT
CNET
COMNAVRESFOR

Training Support Agency NAVAIRSYSCOM (PMA205)
COMNAVRESFOR

Manpower and Personnel Mission Sponsor CNO (N12)
NAVPERSCOM (PERS-4, PERS-404)

Director of Naval Training CNO (N7)

Commander, Reserve Program Manager COMNAVRESFOR
(AIR 1.0R)

Marine Corps Force Structure..... MCCDC (C53)

D. SYSTEM DESCRIPTION

1. Operational Uses. Existing IFF transponder and interrogator equipment used by the Navy are beyond their designed service life and suffer from poor reliability and parts obsolescence. Outdated technology adversely affects reliability, maintainability, and availability. The existing analog systems are increasingly difficult to calibrate and maintain, and repair parts are increasingly difficult to procure, resulting in an unacceptable level of mission readiness. Without upgrading these systems, the Navy's IFF capability will become antiquated and inefficient, with ever increasing maintenance and support costs. The need for this upgrade is documented as a part of the Joint Required Operational Capability (JROC) Mission Need Statement for Combat Identification (JROC Memo 027-92 of 13 Apr 92). The majority of fielded IFF transponders, including most of the AN/APX-100 (V) Transponders in tri-service use, do not have Mode S or growth capabilities to upgrade to Mode S. Therefore, the requirement exists to upgrade existing systems to achieve equal or better performance in conjunction with increased reliability, maintainability, and availability.

The CXP is a receiver-transmitter that provides automatic IFF of air or surface vehicles. It provides identification and surveillance reporting in response to challenges from interrogator-equipped airborne or seaborne platforms. The CXP also provides aircraft altitude reporting and tracking data necessary for civil and military air traffic control. The CXP will initially be installed in Navy P-3, EA-6B, VH-3D, and VH-60N aircraft with follow-on installation in all U.S. Navy aviation platforms and ships. The new system will continue to provide all functions of the legacy systems with the addition of Mode S Level III that includes Downlink of Aircraft Parameters (DAP) and interoperation with Traffic Alert and Collision Avoidance System (TCAS) I/II Change 7.0. The CXP will also support future growth to a new secure IFF wave form, Mk XII Mode 5, as well as Automatic Dependent Surveillance - Broadcast (ADS-B) receive capability.

2. Foreign Military Sales. Other countries currently procure various types and quantities of existing IFF components. However, at this time no Foreign Military Sales (FMS) are planned for the CXP.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST. The Digital Transponder First Article Test and Evaluation will consist of three distinct phases of testing. These three phases are:

- Environmental and Performance Testing performed by the Prime Contractor and witnessed by the Government at the factory test site (Developmental Test (DT)-IIA).
- Independent Government Performance and Technical Evaluation Testing (DT-IIB) at Naval Air Warfare Center Aircraft Division (NAWCAD) Patuxent River, Maryland.
- Shipboard Integration Testing (DT-IIC) on designated ships.

DT assistance will be requested from Operational Test and Evaluation Force (OPTEVFOR) for these three phases in accordance with a separate Memorandum of Agreement. Successful completion of DT-IIA testing will provide justification to exercise the first option of the production contract. Other testing may be conducted at Naval Air Warfare Center Weapons

Division, China Lake, California; and NAWCAD, St. Inigoes, Maryland. Projected dates for DT and Operational Test (OT) are:

DT-IIA.....	October - November 2000
DT-IIB.....	October 2000 - February 2001
DT-II Flight Test.....	February - April 2001
DT-IIC.....	November - December 2001
OT-II.....	July - August 2001
OT-IIA.....	January 2002

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. The CXP is a replacement for the AN/UPX-28, AN/APX-64, AN/APX-72, and AN/APX-100 Transponder Sets. The AN/UPX-28 Transponder Set is an electrical equipment cabinet that integrates the transponder (AN/APX-72) and its ancillary equipment into a single enclosure for shipboard use. The AN/APX-64, AN/APX-72, and AN/APX-100 are transponders used in aviation applications. These systems consist of Receiver-Transmitters (RT), Remote Control Units (RCU), and a power supply converter for AN/APX-72 shipboard use. Currently, the CXP is expected to be a remotely mounted unit that can be controlled by either MIL-STD-1553 Bus, ETHERNET, a dedicated RCU (serial interface), a shipboard IEEE 802.3 interface, or RS-232C interface.

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. The CXP System operates on the challenge-response principle. The system has seven interrogation modes that can be used alone or in combination, allowing for several operational functions. The system also serves as secondary radar to assist in tracking friendly forces, especially when radar return is obscured by clutter. Secondary radar is also required for air traffic control use when the target is out of range of the primary radar. The CXP will operate within the existing frequency spectrum for IFF operations. Specific modes of operation are:

- Mode 1 - used as directed by field commands with 32 response codes available
- Mode 2 - used for platform identification by specific airframe or ship with 4,096 response codes available
- Mode 3/A - used for air traffic control identification inside the Continental United States (CONUS) and is assigned by the operational command outside of CONUS (4,096 response codes available)
- Mode 4 - provides secure identification of friendly platforms and is classified
- Mode 5 - provides Level I and II and ADS-B
- Mode C - provides barometric pressure altitude of aircraft in 100-foot increments, from -1000 to +126,700 feet above sea level

- Mode S Level III - provides European air traffic control compatibility with DAP functionality

2. Physical Description. Total weight for the CXP, excluding cables, should not exceed 10 pounds. Dimensional data is the AN/APX-100 form factor.

3. New Development Introduction. This program is planned as a Commercial Off-The-Shelf (COTS)/Non-Developmental Item.

4. Significant Interfaces. Functional interfaces of the CXP system include United States military interrogator systems (i.e., AN/UPX-29 Interrogator System), the Navy's Air Traffic Control Radar Beacon System (ATCRBS) IFF Mk XII Systems (AIMS), the Air Force's AIMS, and the Federal Aviation Administration's ATCRBS. The CXP system interfaces with the AN/TPX-42A(V) Direct Altitude Identification Readout Interrogator Sets aboard aircraft carriers as well as shore sites to provide aircraft identification and altitude information for air traffic control operations.

5. New Features, Configurations, or Material. There is no new technology associated with the procurement of the CXP. However, the new transponder system will use digital vice analog technology for transmitting and receiving IFF data.

H. CONCEPTS

1. Operational Concept. The pilot, copilot, or surface craft operator activates the CXP and selects the appropriate mode(s) of operation. IFF transmitting and receiving functions are automatic after activation and initial set-up. Provisions to continuously monitor for any system degradation of performance will be provided through Built-In Test (BIT).

2. Maintenance Concept. Maintenance levels for both aircraft and shipboard transponders are planned as organizational to commercial depot. After a contract is awarded, a decision is expected to determine where the commercial depot will be located. For aviation applications, general maintenance is performed in accordance with the Naval Aviation Maintenance Program (NAMAMP) Instructions, OPNAVINST 4790.2G. For shipboard applications, maintenance is performed in accordance with the Ships' Maintenance Material Management (3M Manual), OPNAVINST 4790.4C.

a. Organizational. Organizational level maintenance of the aviation CXP units will consist of preventive and corrective maintenance actions, limited to system BIT check and removal and replacement of faulty Weapons Replaceable Assembly (WRA) and certain chassis-mounted components such as fuses, lamps, knobs, and displays. Navy Aviation Electronics Technicians (AT) and Marine Corps Aircraft Communications and Navigation Technicians with the appropriate Navy Enlisted Classifications (NEC) or Military Occupational Specialty (MOS) code perform organizational maintenance for the Type/Model/Series (T/M/S) aircraft supported.

Organizational level maintenance of shipboard CXP units will consist of BIT check and the removal and replacement of Shop Replaceable Assemblies (SRA) consisting of electronic subassemblies and interconnecting cables within the transponder and RCU. Aboard surface craft, Navy Electronics Technicians (ET) with NEC 1572 will perform organizational level maintenance on the CXP.

(1) Preventive Maintenance. Preventive Maintenance will consist of corrosion control and initiating BIT to verify system readiness.

(2) Corrective Maintenance. Corrective Maintenance will consist of troubleshooting, removal, and replacement of WRAs (aviation) and SRAs (shipboard). External confidence checks may be performed using the AN/APM-480 Identification Friend Or Foe Interrogator/Transponder Test Set (IFFITTS) to verify Modes 1, 2, 3A, 4, and S operation.

b. Intermediate. No intermediate level maintenance is planned for the CXP.

c. Depot. All repairable assemblies beyond the capability of organizational level maintenance will be forwarded to a commercial depot for repair and restoration. A decision whether or not to use the original equipment manufacturer as the commercial depot will be made after a contract is awarded and final determination of CORE Logistics Capabilities studies per Public Law Section 2464 of title 10 United States Code.

d. Interim Maintenance. The contractor will provide interim maintenance during DT and OT. Sikorsky Aircraft Corporation will provide interim maintenance to HMX-1, Marine Corps Air Station (MCAS), Quantico, Virginia, during DT and OT.

e. Life-Cycle Maintenance Plan. NA

3. Manning Concept. Navy ATs and Marine Corps Aircraft Communications and Navigation Technicians with the appropriate NEC or MOS codes will perform organizational level maintenance for the T/M/S aircraft supported. Navy ETs with NEC 1572 will perform organizational level maintenance on the CXP shipboard units. Operation and maintenance of the CXP will not result in any operator and maintainer manpower increases above those currently required to maintain existing IFF systems.

a. Estimated Maintenance Man-Hours per Flight Hour. The estimated Maintenance Man-Hour (MMH) is 0.5 hours per 4,000 Flight Hours (FH) or a MMH/FH of 0.000125.

b. Proposed Utilization. Utilization rates are the same as the aircraft the unit is installed in and can be found in the appropriate aircraft's Required Operational Capability (ROC) and Projected Operational Environment (POE) documents.

c. Recommended Qualitative and Quantitative Manpower Requirements. No new operator or maintainer billets or new enlisted ratings, NECs, or MOSs will be required to support the CXP.

4. Training Concept. The contractor will establish both Initial and Follow-on Training programs for aircraft and shipboard CXP installations. Technical Training Equipment (TTE) will be required to train ET personnel with NEC 1572 as well as for the P-3 Integrated Avionics Trainers and the EA-6B Communications/Navigation/Radar Maintenance Trainers. The contractor will be required to modify and present the training for subsequent aircraft platforms incorporating the CXP, also to include platform-unique integration issues. These training programs will ensure the transfer of required knowledge and skills to instructors, operators, and maintenance personnel, and the level of training will be such that they will be able to train others given the training course materials. The training course materials developed will be delivered in paper and electronic format at the time of course presentation. Training course materials will be in contractor format but will be interoperable with existing training systems to the maximum extent. Should Computer-Based Training (CBT)/Instruction be a contractor-chosen format, it will utilize the aircraft industry CBT committee standards and the Naval Air Maintenance Training Unit (NAMTRAU) CBT Conventions and Standards Style Guide. Sikorsky Aircraft Corporation will incorporate CXP training into current HMX-1 training courses.

Specific Training Device (TD) and TTE requirements have not been identified. However, P-3 (2F87(F)) and EA-6B (2F143 and 2F178) Operational Flight Trainers and P-3 Tactical Operational Readiness Trainers (TORT) would require upgrading to include the new CXP control panel either through a flat panel mock-up or dummy control panel and simulation software upgrades. TTE would be required for the P-3 Integrated Avionics Trainers and the EA-6B Communications/Navigation/Radar Maintenance Trainers.

At this time no TD or TTE will be required for the VH aircraft since the aircraft itself is used as the training device. However, current planning is to acquire Aircraft Procedures Trainers and Aircraft Maintenance Trainers sometime after FY02, which may require TTE in the future.

The established training concept for most aviation maintenance training divides "A" School courses into two or more segments called *Core* and *Strand*. Many organizational level "C" School courses are also divided into separate *Initial* and *Career* training courses. "A" School *Core* courses include general knowledge and skills training for the particular rating, while "A" School *Strand* courses focus on the more specialized training requirements for that rating and a specific aircraft or equipment, based on the student's fleet activity destination. *Strand* training immediately follows *Core* training and is part of the "A" School. Upon completion of *Core* and *Strand* "A" Schools, graduates going to organizational level activities attend the appropriate *Initial* "C" School for additional specific training. *Initial* "C" School training is intended for students in paygrades E-4 and below. *Career* "C" School training is provided to organizational level personnel, E-5 and above, to enhance skills and knowledge within their field.

a. Initial Training. A factory-provided training course will be conducted for DT, OT, and initial cadre personnel. Course title, dates, and location of training are to be determined (TBD) after contract award. Training will be oriented toward CXP operators and maintainers. The target audience will consist of maintenance personnel, instructors, and OPTEVFOR personnel. Training will be conducted until first article delivery. Training material developed for initial training will serve as the basis of the follow-on training program.

(1) Operator. Specifics are TBD.

(2) Maintenance. Specifics are TBD.

b. Follow-on Training. Follow-on aviation training for the CXP will be incorporated into existing operator and organizational level maintenance training systems for each aircraft platform. Because of the integration differences between each platform, a training course developed for one platform may not meet all the needs of the other platforms integrating the CXP. Hence, there will be no CXP course that all aircraft platform technicians will attend. Rather, operators and maintainers will attend courses peculiar to their platform and these courses will have appropriate CXP training material incorporated. The target audience will consist of instructors, squadron maintenance personnel, aircrew, Naval Air Technical Data and Engineering Services Command (NATEC), and NAMTRAU personnel. Training will be conducted at least 60 days prior to Initial Operational Capability (IOC). The follow-on operator and maintenance training courses shown are those that might require modification to replace existing IFF system operator and maintainer training with the CXP system training.

(1) Operator Training. Operator training for the CXP Transponder Set is provided during Pilot training at the aircraft-specific Fleet Readiness Squadrons (FRS) and small craft operator training through On-the-Job Training (OJT) as a by-product of the primary mission of Combat Information Center (CIC) Surface Warfare Officer and Operation Specialist training courses. There is no operator training exclusively for the shipboard system.

Title	P-3C and P-3C Update Replacement Pilot (Category I)
CIN	D-2A-1111
Model Manager...	VP-30
Description	This track provides training to the first tour P-3C Replacement Pilot, including: <ul style="list-style-type: none">◦ Flight training◦ Crew tactics, crew safety, and egression◦ Armament control◦ Communication and radio/radar navigation in accordance with the P-3C NATOPS Manual Upon completion, the student will be able to perform as a P-3C Copilot in a squadron environment.
Location	VP-30, NAS Jacksonville
Length	200 days

RFT date Currently available
 Skill identifier 1311
 TTE/TD TORT
 Prerequisites ° Q-2A-0010, Joint T-34C Intermediate Flight Training
 ° Security Clearance - Secret

Title P-3C Update Replacement Pilot Training (Category II)

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CIN D-2A-1112

.....

Model Manager... VP-30

Description This track provides training to the second tour P-3C Fleet Replacement Pilot, including:

- ° Flight training
- ° Crew tactics, crew safety, and egression
- ° Armament control
- ° Communication and radio/radar navigation in accordance with the P-3C NATOPS Manual

Upon completion, the student be able to perform as a P-3C Pilot in a squadron environment.

Location VP-30, NAS Jacksonville

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Length 156 days

.....

RFT date Currently available

Skill identifier 1312

TTE/TD TORT

Prerequisites ° Q-2A-0010, Joint T-34C Intermediate Flight Training
 ° Security Clearance - Secret

Title	P-3C Update Replacement Pilot (PXO) (Category III) Pipeline
CIN	D-2A-1113
Model Manager...	VP-30
Description	<p>This track provides training to the prospective Commanding Officer or Executive Officer P-3C Pilot, including:</p> <ul style="list-style-type: none"> ◦ Flight training ◦ Crew tactics, crew safety, and egression ◦ Cockpit familiarization and procedures ◦ Flight simulation ◦ Armament control ◦ Communication and radio/radar navigation in accordance with the P-3C NATOPS Manual <p>Upon completion, the student will qualify as a Senior P-3C Pilot in a squadron environment.</p>
Location	VP-30, NAS Jacksonville
Length	32 days
RFT date	Currently available
Skill identifier	1312
TTE/TD	TORT
Prerequisites	<ul style="list-style-type: none"> ◦ Q-2A-0010, Joint T-34C Intermediate Flight Training ◦ Security Clearance - Secret

Title	P-3C Naval Air Training and Operating Procedures Standardization Pilot (Category IV)
CIN	D-2A-1104
Model Manager...	VP-30
Description	This track provides training to the senior level P-3C Pilot, including: <ul style="list-style-type: none"> ◦ Refresher training ◦ Flight training ◦ Crew tactics, crew safety, and egression ◦ Armament control ◦ Communication and radio/radar navigation in accordance with the P-3C NATOPS Manual <p>Upon completion, the student will qualify as a senior P-3C Pilot who could perform the duties of NATOPS instructor in a squadron environment.</p>
Location	VP-30, NAS Jacksonville
Length	11 days
RFT date	Currently available
Skill identifier	1311
TTE/TD	TORT
Prerequisites	◦ Q-2A-0010, Joint T-34C Intermediate Flight Training ◦ Security Clearance - Secret

Title	EA-6B Fleet Replacement Pilot Category 1 Pipeline
CIN	E-2A-1821
Model Manager...	VAQ-129
Description	This track provides training to the first tour EA-6B Replacement Pilot, including: <ul style="list-style-type: none"> ◦ Flight Training ◦ Crew Tactics and Safety ◦ Communications and Navigation ◦ Naval Air Training and Operating Procedures Standardization (NATOPS) <p>Upon completion, the student will be able to perform as an EA-6B Pilot in a squadron environment.</p>
Location	VAQ-129, NAS Whidbey Island
Length	241 days
RFT date	Currently available
Skill identifier	◦ Navy Officer Billet Classification (NOBC) 8562 ◦ MOS 7543
TTE/TD..... .	◦ 2F119A, Weapon Systems Trainer (WST) ◦ 2F143 Block 89A Upgrade, Operational Flight Trainer (OFT)
Prerequisites	◦ E-2D-0039, Survival, Evasion, Resistance, and Escape ◦ E-7C-0039, Basic Officer Leadership Course ◦ E-2A-0006, Advanced Strike ◦ E-2D-3815, Pilot, Electronic Warfare ◦ B-322-0041, Refresher Physiology, Tactical Jet Training ◦ B-9E-1224, Naval Aviation Water Survival Program R-1 ◦ C-2D-3815, Aviation Electronic Warfare Officer, Non technical ◦ Security Clearance - Secret

Title	EA-6B Fleet Replacement Pilot Category 2 Pipeline
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CIN	E-2A-1822
.....	
Model Manager...	VAQ-129
Description	This track provides training to the second tour EA-6B Fleet Replacement Pilot, including: <ul style="list-style-type: none"> ◦ Flight Training ◦ Crew Tactics and Safety ◦ Communications and Navigation ◦ NATOPS <p>Upon completion, the student will be able to perform as an EA-6B Pilot in a squadron environment.</p>
Location.....	VAQ-129, NAS Whidbey Island
Length	206 days
RFT date	Currently available
.....	
Skill identifier	◦ NOBC 8562 ◦ MOS 7543
TTE/TD	◦ 2F119A, WST
.....	◦ 2F143 Block 89A Upgrade, OFT
Prerequisites	◦ E-2A-1821, EA-6B Fleet Replacement Pilot, Category 1 Pipeline ◦ C-2D-3815, Aviation Electronic Warfare Officer, Non-technical ◦ Security Clearance - Secret

Title	EA-6B Fleet Replacement Pilot Category 3 Pipeline
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CIN.....	E-2A-1823
.	
Model Manager ...	VAQ-129
Description	This track provides training to the Category III EA-6B Replacement Pilot, including: <ul style="list-style-type: none"> ◦ Flight Training ◦ Crew Tactics and Safety ◦ Communications and Navigation ◦ NATOPS <p>Upon completion, the student will be able to perform as an EA-6B Pilot in a squadron environment.</p>
Location	VAQ-129, NAS Whidbey Island
Length.....	103 days
RFT date.....	Currently available
Skill identifier	◦ NOBC 8562 ◦ MOS 7543
TTE/TD	◦ 2F119A, WST ◦ 2F143 Block 89A Upgrade, OFT
Prerequisites.....	◦ E-2A-1821, EA-6B Fleet Replacement Pilot, Category 1 Pipeline ◦ C-2D-3815, Aviation Electronic Warfare Officer, Non-technical ◦ Security Clearance - Secret

Title	EA-6B Fleet Replacement Pilot Category 4 Pipeline
.....	
CIN	E-2A-1824
.....	
Model Manager ...	VAQ-129
Description	This track provides training to the senior level EA-6B Pilot, including: <ul style="list-style-type: none"> ◦ Flight Training ◦ Crew Tactics and Safety ◦ Communications and Navigation ◦ NATOPS <p>Upon completion, the student will be able to perform as an EA-6B Pilot in a squadron environment.</p>
Location	VAQ-129, NAS Whidbey Island
Length	26 days
RFT date	Currently available
.....	
Skill identifier	◦ NOBC 8562 ◦ MOS 7543
TTE/TD	◦ 2F119A, WST
.....	◦ 2F143 Block 89A Upgrade, OFT
Prerequisites	◦ B-322-0041, Refresher Physiology, Tactical Jet Training ◦ B-9E-1224, Naval Aviation Water Survival Program R-1 ◦ C-2D-3815, Aviation Electronic Warfare Officer, Non-technical ◦ E-2B-0308, EA-6B Instrument Ground School ◦ Security Clearance - Secret

Title	VH Helicopter Pilot Familiarization Training
CIN	No course number - training is provided on-site by Sikorsky Aircraft and through a Pilot OJT syllabus.
Model Manager...	HMX-1
Description	This course provides additional training to selected helicopter aviators to fly the VH-60N and VH-3D aircraft. This includes: <ul style="list-style-type: none"> ◦ Familiarization flights ◦ OJT flights in both VH-60N and VH-3D aircraft Upon completion, the student will be able to perform as a VH Helicopter Pilot in a squadron environment.
Location	HMX-1, MCAS Quantico
Length	4 days (familiarization only) OJT: 20 flights (30 hours) in VH-60N 21 flights (31.5 hours) in VH-3D
RFT date	Currently available
Skill identifier	NA
TTE/TD	NA
Prerequisites	Qualified H-46 or H-53 helicopter pilot

(2) Maintenance Training. Organizational level maintenance training for Navy and Marine Corps personnel is provided through NAMTRAU courses for each type of aircraft and are conducted at Maintenance Training Units (MTU) and Fleet Replacement Enlisted Skills Training (FREST) activities. Organizational level maintenance training for Navy ET personnel is provided at Fleet Training Center (FTC), Norfolk, Virginia.

(a) Organizational Level Maintenance

Title	P-3C Update III In-Flight Technician (Category II)
CIN	D-050-1141
Model Manager...	VP-30
Description	This track provides training to the Aviation Electronics Technician, including: <ul style="list-style-type: none">◦ P-3C Acoustic and Non-Acoustic Sensor Station maintenance◦ In-flight ordnance qualifications◦ Emergency procedures◦ Crew tactics, crew safety, and egression◦ P-3C NATOPS Manual Upon completion, the student will qualify as a P-3C In-Flight Technician in a squadron environment under limited supervision.
Location	VP-30, NAS Jacksonville
Length	40 days
RFT date	Currently available
Skill identifier	AT 8262
TTE/TD	Mini Integrated Avionics Trainer
Prerequisites	◦ D-102-1132, P-3C Weapon Systems (Career) O-Level Maintenance ◦ Q-050-1500, Naval Aircrewman Candidate School

Title	P-3C Initial Weapon Systems Organizational Level Maintenance
CIN	D/E-102-1029
Model Manager...	MTU 1011 NAMTRAU Jacksonville
Description	<p>This track provides training to the first tour Aviation Electronics Technician, including an introduction to troubleshooting and maintenance of:</p> <ul style="list-style-type: none"> ◦ Signal processors ◦ Magnetic anomaly systems ◦ AN/ASQ-212 Computers ◦ AN/ASH-33A Magnetic Tape System ◦ AN/ASA-66 and AN/ASA-70 Display Systems ◦ Navigation systems ◦ Communication systems <p>Upon completion, the student will be able to perform entry level organizational maintenance on P-3C avionics systems under direct supervision in a squadron environment.</p>
Locations	<ul style="list-style-type: none"> ◦ MTU 1011 NAMTRAU Jacksonville ◦ MTU 1012 NAMTRAU Whidbey Island
Length	60 days
RFT date	Currently available
Skill identifier	AT 8819
TTE/TD	P-3C Update III Aircraft Weapon Systems Maintenance Trainer Mock-ups
Prerequisite	C-100-2018, Avionics Technician O-Level Class A1

Title	P-3C Career Weapon System Organizational Level Maintenance
CIN	D/E-102-1132
Model Manager...	MTU-1011 NAMTRAU Jacksonville
Description	<p>This track provides training to the second tour Aviation Electronics Technician, including detailed procedures on troubleshooting and maintenance of:</p> <ul style="list-style-type: none"> ◦ CP-2044/ASQ-212 Central Computer ◦ Navigation systems ◦ Communication systems ◦ Sensor Station Three Radar and related systems ◦ Sensor Station Three Electronic Support Measures ◦ AN/AAS-36 Infrared Detection Set <p>Upon completion, the student will be able to perform organizational maintenance on P-3C avionics systems under limited supervision in a squadron environment.</p>
Locations	<ul style="list-style-type: none"> ◦ MTU 1011 NAMTRAU Jacksonville ◦ MTU 1012 NAMTRAU Whidbey Island
Length	107 days
RFT date	Currently available
Skill identifier	AT 8319
TTE/TD	P-3C Update III Aircraft Weapon Systems Maintenance Trainer Mock-ups
Prerequisite	D/E-102-1029, P-3C Initial Weapon Systems O-Level Maintenance

Title	EA-6B Initial ICAP 2/ Block 86, COMM/NAV/RADAR Set Organizational Maintenance
CIN	E-102-1827
Model Manager ...	NAMTRAU Whidbey Island
Description	This track provides training to the first tour Aviation Electronics Technician, including: <ul style="list-style-type: none"> ◦ Test and Troubleshooting ◦ Safety ◦ EA-6B COMM/NAV/RADAR Organizational Maintenance through Block 86 <p>Upon completion, the student will be able to perform as an entry level EA-6B C/N/R Organizational Maintenance Technician in a squadron environment under limited supervision.</p>
Location	MTU 1083 NAMTRAU Whidbey Island
Length	23 days
RFT date	Currently available through Block 89A ICAP III – TBD
Skill identifier.....	◦ AT 8332 (E-1 through E-4) ◦ MOS 6313 (E-1 through E-7)
TTE/TD	◦ C/N/R Systems Maintenance Trainer ◦ AN/ASW-40A/42 AFCS and ADC Trainer ◦ ACLS Maintenance Trainer
Prerequisite	C-100-2018, Avionics Technician O Level Class A1

Title	EA-6B COM/NAV/RADAR Sets Maintenance (ICAP2) Career
CIN	E-102-1823
Model Manager...	NAMTRAU Whidbey Island
Description	This track provides training to the second tour Aviation Electronics Technician, including: <ul style="list-style-type: none"> ◦ Component location and characteristics ◦ Basic test and servicing requirements ◦ EA-6B C/N/R maintenance through Block 89A ◦ Safety <p>Upon completion, the student will be able to perform as an EA-6B COMM/NAV/RADAR Organizational Maintenance Technician in a squadron environment under limited supervision.</p>
Location	MTU 1083 NAMTRAU Whidbey Island
Length	23 days
RFT date.....	Currently available
Skill identifier	AT 8332 (E-5 through E-7)
TTE/TD	◦ C/N/R Systems Maintenance Trainer ◦ AN/ASW-40A/42 Automatic Flight Control System (AFCS) and Air Data Computer (ADC) System Trainer ◦ Automatic Carrier Landing System (ACLS) Maintenance Trainer
Prerequisites	◦ C-100-2018, Avionics Technician O Level Class A1 ◦ E-102-1827, EA-6B Initial, ICAP 2/Block 86 COMM/NAV/RADAR Set Organizational Maintenance ◦ Security Clearance - Secret

Title **VH Helicopter Avionics Maintenance Training**

CIN No course number - training is provided on-site by Sikorsky Aircraft.

Model Manager... HMX-1

Description This course provides qualified aviation electronics maintenance personnel with the additional training required to maintain the VH-60N and VH-3D aircraft. Upon completion, the student will be able to perform as a VH maintenance technician in a squadron environment without supervision.

Location HMX-1, MCAS Quantico

Length 5 days

RFT date Currently available

Skill identifier NA

TTE/TD VH-3D: Modularized H-3 Airframe Components
VH-60N: None

Prerequisites Qualified helicopter avionics maintainer

Title **AIMS Mk XII IFF System Maintenance**

CIN A-102-0062

Model Manager... FTC Norfolk

Description This track provides training to the Aviation Electronics Technician, including the knowledge and skills necessary to perform maintenance on the various components of the AIMS Mk XII IFF System and Mode 4 equipment, including:

- Testing and Troubleshooting
- Crypto Equipment Loading
- Component Overview
- Test Set usage

Upon completion, the student will be able to perform as a maintenance technician with limited supervision in a shipboard environment.

Location FTC Norfolk

Length 110 days

RFT date Currently available
 Skill identifier ET 1572
 TTE/TD TBD
 Prerequisite A-100-0140, Electronics Technician Strand “A” School

(b) Intermediate Level Maintenance. There is no intermediate level maintenance training required as a result of this program.

c. Student Profiles

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
AT	<ul style="list-style-type: none"> ◦ C-100-2020, Avionics Common Core Class A1 ◦ C-100-2018, Avionics Technician O-Level Class A1
ET 1572	<ul style="list-style-type: none"> ◦ A-100-0138, Electronics Technician Core “A” School ◦ A-100-0139, Advanced Electronics Technical Core ◦ A-100-0149, Electronics Technician Strand “A” School
USMC Comm/Nav Technicians	<ul style="list-style-type: none"> ◦ C-100-2020, Avionics Common Core Class A1 ◦ C-100-2018, Avionics Technician O-Level Class A1

d. Training Pipelines. No new training pipelines will be developed for the CXP system. The existing aviation and ship maintenance courses will be updated to include the CXP digital transponder. See paragraph H.4.b.(2) above for associated training pipeline information.

I. ONBOARD (IN-SERVICE) TRAINING

1. Proficiency or Other Training Organic to the New Development

a. Maintenance Training Improvement Program. The Maintenance Training Improvement Program (MTIP) is used to establish an effective and efficient training system responsive to fleet training requirements. MTIP is a training management tool that, through diagnostic testing, identifies individual training deficiencies at the organizational and intermediate levels of maintenance. MTIP is the comprehensive testing of one's knowledge. It consists of a bank of test questions managed through automated data processing. The Deputy Chief of Staff for Training assisted in development of MTIP by providing those question banks (software) already developed by the Navy. MTIP was implemented per NAMP, OPNAVINST 4790.2G. MTIP allows increased effectiveness in the application of training resources through identification

of skills and knowledge deficiencies at the activity, work center, or individual technician level. Refresher training is concentrated where needed to improve identified skill and knowledge shortfalls. MTIP will be replaced by the Aviation Maintenance Training Continuum System (AMTCS). Current planning is for AMTCS to begin full implementation for fleet deployment on 1 October 2000.

COMNAVAIRPAC has discontinued using MTIP. They are currently using maintenance data products as a source to determine maintenance training deficiencies until AMTCS is implemented.

b. Aviation Maintenance Training Continuum System. AMTCS will provide career path training to the Sailor or Marine from their initial service entry to the end of their military career. AMTCS is planned to be an integrated system that will satisfy the training and administrative requirements of both the individual and the organization. The benefits will be manifested in the increased effectiveness of the technicians and the increased efficiencies of the management of the training business process. By capitalizing on technological advances and integrating systems and processes where appropriate, the right amount of training can be provided at the right time, thus meeting the CNO's mandated "just-in-time" training approach.

Technology investments enable the development of several state-of-the-art training and administrative tools: CBT for the technicians in the Fleet in the form of Interactive Courseware (ICW) with Computer-Managed Instruction (CMI) and Computer-Aided Instruction (CAI) for the schoolhouse.

Included in the AMTCS development effort is the AMTCS - Software Module (ASM) which provides testing [Test and Evaluation (TEV)], recording [Electronic Training Jacket (ETJ)], and a Feedback system. The core functionality of these AMTCS tools are based and designed around the actual maintenance-related tasks the technicians perform, and the tasks are stored and maintained in a Master Task List (MTL) data bank. These tools are procured and fielded with appropriate COTS hardware and software, i.e., Fleet Training Devices (FTD) - Laptops, PCs, Electronic Classrooms (ECR), Learning Resource Centers (LRC), operating software, and network software and hardware.

Upon receipt of direction from OPNAV (N889H), AMTCS is to be implemented and the new tools integrated into the daily training environment of all participating aviation activities and supporting elements. AMTCS will serve as the standard training system for aviation maintenance training within the Navy and Marine Corps, and is planned to supersede the existing MTIP and Maintenance Training Management and Evaluation Program (MATMEP) programs. AMTCS implementation will begin with the F-14, E-2C, and all models F/A-18 aircraft. For more information on AMTCS refer to PMA205-3D3.

2. Personnel Qualification Standards. No stand-alone Personnel Qualification Standards (PQS) are available for the CXP nor are any planned. However, the following PQS exist for P-3, P-3C Update Pilot, Patrol Plane Commander, and Instructor Pilot #43433-10C, and Surface Warfare Officer, #43101-4E. They contain basic IFF operating requirements although

not CXP system specific and are maintained by the PQS Development Group, Naval Education and Training Professional Development and Technology Center, Pensacola, Florida. There is no plan to change the existing PQS for the P-3 program at this time.

No PQS currently exists for the EA-6B community.

No PQS currently exists for the VH aircraft. USMC Pilots transitioning to VH-3D or VH-60N are trained through in-house courses provided by on-site contractor support, and flight syllabi maintained by HMX-1 training department.

3. Other Onboard or In-Service Training Packages. Marine Corps onboard training is based on the current series of MCO P4790.12, Individual Training Standards System and MATMEP. This program is designed to meet Marine Corps as well as the NAMP maintenance training requirements. It is a performance-based, standardized, level-progressive, documentable, training management and evaluation program. It identifies and prioritizes task inventories by MOS through a front-end analysis process that identifies task, skill, and knowledge requirements of each MOS. MTIP questions coupled to MATMEP tasks will help identify training deficiencies that can be enhanced with refresher training. (MATMEP will be replaced by AMTCS in approximately FY02.)

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers. TBD

2. Program Documentation. Draft documents are being prepared to support the aviation CXP program. Those documents are the Operational Requirements Document (ORD), Aviation Life Cycle Support Plan, and Maintenance Plan. The shipboard ORD, number 493-6-98 dated 1 July 1998, is available for the Navy Mk XII Shipboard System Upgrade.

3. Technical Data Plan. The contractor will provide both shipboard and aviation Technical Manuals (TM) and update them as required for the CXP, per the Technical Manual Contract Requirements. The TM effort will include training, operation, maintenance, peculiar support equipment, and repair instructions with the required illustrated parts breakdown.

4. Test Sets, Tools, and Test Equipment. NA

5. Repair Parts. The CXP program may implement either organic Navy support or a contractor administered supply support system such as a Direct Vendor Delivery (DVD) or contractor depot support. Supply support alternatives will be evaluated based on manning and cost savings. If organic support is elected, no changes to the current supply support system will be required. Spares and repair parts will be procured to provide interim support until the Material Support Date (MSD). If DVD is selected, the objective is to have the MSD concurrent with IOC.

6. Human Systems Integration. The CXP equipment is to be fielded as a functional replacement for existing analog IFF systems. While no new manpower factors or human

performance requirements are anticipated, a human factors evaluation to determine critical skills and training requirements for operators and maintainers will be included in this program.

K. SCHEDULES. IOC for the aviation application of the CXP is tentatively set for December 2002. All production and delivery schedules are tentative and will be finalized after contract award.

1. Installation and Delivery Schedules

DELIVERY SCHEDULE (NUMBER OF TRANSPONDERS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
2000									17				17
2001		5	12	12						7	7		43
2002		10	11	11	11	5	5	2		15	15		85
2003	11	11	11	17	17	17	17	16	16	17	17	17	184
2004	17	18	18	15	15	17	17	17	17	17	17	17	202
2005	17	17	17	16	18	17	17	17	17				153

2. Ready For Operational Use Schedule. Units are scheduled for installation beginning in 2003, upon completion of Operational Evaluation (OPEVAL).

3. Time Required to Install at Operational Sites. The CXP is a form and functional replacement for the AN/APX-100 transponder. The installation time will be minimal for replacement of the standard AN/APX-100 installation. The time required for shipboard installation and other transponder replacement will vary, depending upon the type of platform and configuration.

4. Foreign Military Sales and Other Source Delivery Schedule. No FMS are currently planned for the CXP.

5. Training Device and Technical Training Equipment Delivery Schedule. No schedule is available that details what modification of TD or delivery of TTE will be made.

L. GOVERNMENT-FURNISHED EQUIPMENT AND CONTRACTOR-FURNISHED EQUIPMENT TRAINING REQUIREMENTS. NA

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
AN/APX-100(V) Transponder Set	A-50-8305B/P	PMA209	Proposed Sep 97
AIMS Mk XII IFF	E-30-7115E/P	PMA213	Proposed Oct 99
P-3C Update III Anti-Surface Warfare Improvement Program Aircraft	N88-NTSP-A-50-8112B/A	PMA290	Approved Jul 98
EA-6B Improved Capability (ICAP) Modification II and III	N88-NTSP-A-50-7904D/D	PMA234	Draft Jul 00

APPENDIX A - POINTS OF CONTACT

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