NAVY TRAINING SYSTEM PLAN

FOR THE

SHARED RECONNAISSANCE POD

N78-NTSP-A-50-0121/I

DECEMBER 2001

SHARED RECONNAISSANCE POD PROGRAM

EXECUTIVE SUMMARY

This Initial Navy Training System Plan was developed to identify the life cycle manpower, personnel, and training requirements associated with the Shared Reconnaissance Pod (SHARP). The SHARP system will replace the existing Tactical Air Reconnaissance Pod System currently used on the F-14 aircraft. The F-14 will begin phase-out in Fiscal Year 2003 as the role of the Navy's tactical reconnaissance aircraft transitions to the F/A-18F Super Hornet. The SHARP system will employ an organic, all-weather, both day and night, manned, tactical air reconnaissance capability providing continuous and immediate intelligence support to the Battle Group Commander in the prosecution of independent, joint, or combined operations, as well as to provide intelligence data for the security of those forces under his/her command.

The SHARP program is an Acquisition Category III program and is currently in the System Development and Demonstration phase of the Defense Acquisition System, approaching Milestone C. Developmental Test is in its early stages and is being conducted at the Naval Air Warfare Center, Aircraft Division, Patuxent River, Maryland.

The SHARP components are of a Non-Developmental design consisting of modified Commercial and Non-Developmental Item equipment provided by the Raytheon Corporation and Recon/Optical Incorporated.

Navy F/A-18F Combat Capable Weapons Sensor Officer personnel with Navy Officer Billet Classification (NOBC) 1321 will operate and monitor the reconnaissance data collection onboard the aircraft.

Maintenance of the SHARP system will be performed at three levels: organizational, intermediate, and depot. AT and PH personnel with Navy Enlisted Classification (NEC) 8841 or 8341 will perform organizational level maintenance. A new NEC, *66XX, SHARP Intermediate Maintenance Technician*, will be assigned to intermediate level AT personnel, who will perform intermediate level maintenance. Civilian personnel at a contractor facility will perform depot level maintenance.

SHARP anticipates making maximum use of the existing F-14 TARPS infrastructure and billet structure to provide the SHARP capability to the F/A-18F. An analysis of organizational manpower requirements was performed by AIR 3.4.1. Results indicate that manpower requirements are less than those required for maintenance of the predecessor system, the F-14 TARPS.

Training for aircrew and organizational level maintenance personnel will be modified to reflect the SHARP integration. Follow-on training for intermediate level maintenance Aviation Electronics Technician (AT) personnel will be accomplished by developing a new SHARP maintenance training track, *C-XXX-XXXX, SHARP Intermediate Maintenance Technician*

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Pipeline. Training for Photographer's Mate (PH) and Intelligence Specialist (IS) reconnaissance imaging and interpretation personnel will be unaffected by the SHARP integration.

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LIST OF ACRONYMS

AIMD	Aircraft Intermediate Maintenance Department
AMTCS	Aviation Maintenance Training Continuum System
AO	Aviation Ordnanceman
AT	Aviation Electronics Technician
ATARS	Advanced Tactical Airborne Reconnaissance System
BIT	Built-In Test
CANDI	Commercial And Non-Developmental Item
CAU	Cold Air Unit
CBT	Computer-Based Training
CIN	Course Identification Number
CNO	Chief of Naval Operations
CVIC	Aircraft Carrier Intelligence Center
DT	Developmental Test
ECS	Environmental Control System
EOT	Electro-Optical Tester
FMS	Foreign Military Sales
FY	Fiscal Year
IS	Intelligence Specialist
JSIPS	Joint Service Imagery Processing System
LP	Low Pressure
MTIP	Maintenance Training Improvement Program
MTS	Maintenance Trainer Set
MTU	Maintenance Training Unit
NA	Not Applicable
NAF	Naval Aviation Facility
NAMTRAU	Naval Air Maintenance Training Unit
NAS	Naval Air Station
NATOPS	Naval Aviation Training and Operating Procedures Standardization

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LIST OF ACRONYMS

NAVAIRSYSCOM	Naval Air Systems Command
NAWCAD	Naval Air Warfare Center, Aircraft Division
NEC	Navy Enlisted Classification
NTSP	Navy Training System Plan
OEM	Original Equipment Manufacturer
OPO	OPNAV Principal Official
OT	Operational Test
PCMCIA	Personal Computer Memory Card International Association
PGSE	Peculiar Ground Support Equipment
PH	Photographer's Mate
PMA	Program Manager, Air
PTT	Part Task Trainer
RFI	Ready For Issue
RFT	Ready For Training
SEAOPDET	Sea Operational Detachment
SERE	Survival, Evasion, Resistance, and Escape
SHARP	Shared Reconnaissance Pod
SMS	Stores Management System
TARPS	Tactical Air Reconnaissance Pod System
TBD	To Be Determined
TD	Training Device
TOFT	Tactical Operational Flight Trainer
TTE	Technical Training Equipment
VF	Fighter Squadron
VFA	Strike Fighter Squadron
WRA	Weapon Replaceable Assembly
WSO	Weapons Sensor Officer
WTT	Weapons Tactics Trainer

SHARED RECONNAISSANCE POD PROGRAM

PREFACE

This Initial Navy Training System Plan (NTSP) is an early look at the Shared Reconnaissance Pod (SHARP) program. This document is the first iteration of the Initial NTSP for the SHARP program, and it explores the various employment and support alternatives currently under consideration. This NTSP is a product of the Training Planning Process Methodology, as outlined in OPNAV publication P-751-3-9-97.

PART I - TECHNICAL PROGRAM DATA

A. NOMENCLATURE-TITLE-PROGRAM

1. Nomenclature-Title-Acronym. Shared Reconnaissance Pod (SHARP) Program

2. Program Element. 0305207N

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 (N78)

OPO Resource Sponsor .... CNO (N78)

Developing Agency.. NAVAIRSYSCOM (PMA265)

Training Agency .... CINCLANTFLT (N72)
CINCPACFLT (N70)
CNET (ETE32)

Training Support Agency.. NAVAIRSYSCOM (PMA205)

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

Director of Naval Training... CNO (N795)

D. SYSTEM DESCRIPTION

1. Operational Uses. The current tactical reconnaissance aircraft is the F-14 configured with the Tactical Air Reconnaissance Pod System (TARPS), equipped with film sensors designed to operate both day and night, in clear weather conditions only. The SHARP system will employ an organic, all-weather, both day and night, manned, tactical air reconnaissance capability, providing continuous and immediate intelligence support to the Battle Group Commander in the

prosecution of independent, joint, or combined operations, as well as to provide intelligence data for the security of those forces under his/her command. SHARP will support the following operational tasks:

- ° Precision Strike
- ° Maritime Surveillance
- ° Target Acquisition and Reporting
- ° Pre-Strike Reconnaissance Targeting
- ° Suppression of Enemy Air Defense
- ° Battle Damage Assessment
- ° Order-of-Battle Maintenance
- ° Targeting Monitoring
- ° Surveillance of Special Areas of Lines of Communication
- ° Indications and Warning
- ° Drug Interdiction
- ° Combat Search and Rescue
- ° Map Supplementing
- ° Treat Verification
- ° Humanitarian (Disaster Relief).

     2. Foreign Military Sales. No Foreign Military Sales (FMS) are currently planned for the SHARP program. Multi-platform application is being considered. For further information regarding FMS or other platform applications, contact the Developing Agency, Naval Air Systems Command (NAVAIRSYSCOM) Program Manager, Air (PMA) 265.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST. Developmental Test (DT) is in its early stages and is being conducted at the Naval Air Warfare Center, Aircraft Division (NAWCAD) Patuxent River, Maryland. Successful tests have been completed with an empty prototype pod. Most of the Weapon Replaceable Assemblies (WRAs) used in SHARP are Commercial And Non-Developmental Items (CANDI), requiring no DT or Operational Test (OT) on the hardware itself. Testing is required for installation and integration onto the aircraft. An operational assessment is scheduled to be conducted by Air Test and Evaluation Squadron Nine (VX-9) at China Lake, California, beginning in July 2002. The Technical Evaluation is scheduled to be conducted at NAWCAD Patuxent River beginning in January 2003.

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. The SHARP system will replace the existing TARPS currently used on the F-14 Aircraft. The F-14 will begin phase-out in Fiscal Year (FY) 03 as the role of the Navy's tactical reconnaissance aircraft transitions to the F/A-18F Super Hornet. SHARP will have no impact on Marine Corps use of the Advanced Tactical Airborne Reconnaissance System (ATARS) on F/A-18C/D aircraft.

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. The SHARP system, depending on the operational requirements of the sensor suite(s) selected, will be capable of optimum performance to 40,000 feet and above altitude aboard the carriage aircraft, under clear to hazy weather conditions, day or night. SHARP will utilize electro-optical, infrared, and radar sensors to provide digital imaging in a hostile environment. It will, via data link, present information and imagery obtained on tactical targets to a Joint Services Imagery Processing System (JSIPS) station afloat or ashore to allow for real-time reconnaissance data interpretation. Communication between the SHARP pod and the F/A-18F Super Hornet is via the 1760 Multiplex Bus.

2. Physical Description. The SHARP pod design is based on the shape and size of the 330-gallon auxiliary fuel tank. The SHARP pod is mounted to the SUU-73 pylon on the aircraft center line on Weapon Station 6 using standard adapter equipment to interface with the BRU-32 bomb rack mounted to the large, raised, dorsal strong-back that extends along the upper third of the pod.

SHARP is composed of seven primary subsystems:

- ° Data Link
- ° Sensor
- ° Environmental Control System (ECS)
- ° Power Distribution
- ° Data Storage
- ° Navigation
- ° Personal Computer Memory Card International Association (PCMCIA) Interface

The ECS subsystem, separate from the F/A-18F ECS system, circulates liquid coolant throughout the pod to regulate internal temperature as well as maintaining the pressure and humidity within the pod. Ram air flow (in-flight) or an alternate (ground) source of low pressure air must be applied to the ECS compressor section to drive the primary cold air unit turbine and thermally stabilize the sensor optics.

The following dimensions apply to the physical characteristics of the SHARP pod:

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Length ..........   188  inches
Width............    29  inches
Weight ..........  2100  pounds
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3. New Development Introduction. The SHARP is being procured through new production.

4. Significant Interfaces. The SHARP ECS requires a stable air source to properly operate and cool the pod while on deck afloat and ashore. Shipboard modification requirements have been evaluated and are determined to be a 50-foot hose connected between a deck edge or

hanger deck low pressure (LP) air standpipe and the SHARP Secondary Cold Air Unit (CAU) snap fitting on the pod. LP air drives the Secondary CAU, which powers the Primary ECS Turbine to cool the pod. Shore-based solutions under evaluation include: hanger supplied LP service air, procurement of a new portable compressor, using mission ingress time to cool the pod, and modifying the ECS. Built-In Test (BIT) checking the pod off-aircraft would also negate the requirement for applying cooling to the aircraft.

SHARP will provide digitally formatted data via an internal data link to a ground or ship based JSIPS station for processing, exploitation, and report generation and dissemination. Upon return from the mission, the data will be downloaded from the airborne recorders and transported to the Squadron Display Stations for playback and evaluation of reconnaissance collection, battle damage assessment, and future mission planning.

5. New Features, Configurations, or Material. The SHARP does not feature a technological breakthrough but utilizes state-of-the art hardware and technology.

H. CONCEPTS

1. Operational Concept. The SHARP imagery is displayed on the center display of the aft cockpit Multipurpose Color Display of the F/A-18F Super Hornet, and is operated and monitored by the Weapons Sensor Officer (WSO). SHARP imagery is currently planned to be a series of imagery frames displayed for a duration of two to five seconds. In addition to the imagery, the sensor status and BIT information is also displayed within the video. This provides full diagnostic capability for SHARP without having a complex interface with the aircraft mission computer.

2. Maintenance Concept. SHARP is planned to employ the traditional three level maintenance approach.

a. Organizational. Organizational level maintenance of SHARP is limited to servicing and testing of the pod. Servicing consists of routine uploading and downloading of the pod, thermally conditioning the pod when required, checking and replacing desiccant cartridges, and corrosion checks. Fault detection is accomplished by an Initiated BIT using the aircraft or the Electro-Optical Pod Tester, inspection of proper operation and condition of the revolving sensor window, the reading and extraction of maintenance PCMCIA cards that contain BIT and Maintenance History Data, and the installation (preflight) and removal (postflight) of the solid state memory brick.

(1) Preventive Maintenance. Preventive maintenance performed at the organizational level primarily consists of cleaning and corrosion control. Preventive maintenance will be performed in accordance with applicable F/A-18F Maintenance Requirements Cards and NAVAIR 01-1A-509.

(2) Corrective Maintenance. Corrective maintenance at the organizational level is limited to checking and replacing desiccant cartridges. BIT failure requires

the removal and replacement of the pod. Removed pods will be inducted into the Intermediate Maintenance Activity for repair.

b. Intermediate. Fault isolation of the pod WRAs and components will be determined by detailed complex diagnostics of the pod using the Electro-Optical Tester (EOT). Repair and maintenance of the pod consists of the removal and replacement of faulty WRAs, configuring the pod with High or Medium Altitude Sensors as required, and servicing the Polyalphaolephin (PAO) liquid cooling loop. Once faults are isolated and faulty components are replaced, the pod will be tested and verified Ready For Issue (RFI) using the EOT.

c. Depot. The Original Equipment Manufacturer (OEM) will perform all maintenance and repairs beyond the capability of the intermediate maintenance level.

d. Interim Maintenance. The Raytheon Technical Systems Company will provide interim intermediate maintenance support. Support will be limited to the removal and replacement of the faulty WRAs to restore the system to operational readiness as quickly as possible. Intermediate level maintenance support will be performed by a Raytheon Technical Representative and involves fault verification of failed WRAs utilizing the EOT. The OEM will provide interim organizational and depot level support during DT and OT.

The Material Support Date and Navy Support Date are undetermined as of the date of this NTSP. Replacement parts required to support the interim maintenance of SHARP will be locally stored and managed by the Raytheon Technical Representative.

e. Life Cycle Maintenance Plan. To Be Determined (TBD)

3. Manning Concept. SHARP anticipates making maximum use of the existing F-14 TARPS infrastructure and billet structure to provide the capability of SHARP to the F/A-18F. A new NEC, *66XX, SHARP Intermediate Maintenance Technician*, will be required for personnel who perform intermediate level maintenance. An analysis of organizational manpower requirements was performed by AIR 3.4.1. Results indicate that manpower requirements are less than those required for maintenance of the predecessor system, the F-14 TARPS. Manpower requirements identified in subsequent paragraphs are based on proposed requirements provided by PMA265, validated by this manpower analysis.

a. Estimated Maintenance Man-Hours per Flight Hour. The SHARP technical parameter threshold values derived from the SHARP Operational Requirements Document for system reliability, availability, and repair times are as follows:

PARAMETER	THRESHOLD	OBJECTIVE
Operational Availability	70%	85%
Mean Flight Hours Between Operational Mission Failures	20.0 hours	60.0 hours

PARAMETER	THRESHOLD	OBJECTIVE
Mean Corrective Maintenance Time for Operational Mission Failures	3.5 hours	2.5 hours
Mean Flight Hour Between Unscheduled Maintenance Action	4.0 hours	10.0 hours
Built-In Test (BIT) Fault Detection Rate	75%	94%
BIT Fault Isolation Rate	75%	94%
Mean Flight Hour Between False BIT Indication	8.0 hours	15 hours
Mean Time to Configure Aircraft to/from Reconnaissance	1.0 hour	0.75 hours

       b. Proposed Utilization. SHARP will be required to operate day and night, and in inclement weather conditions throughout mission duration, or as selected by the operator.

       c. Recommended Qualitative and Quantitative Manpower Requirements

       (1) Aircrew. There are no anticipated changes in Aircrew manpower requirements. Aircrew requirements consist of the Pilot and the WSO.

       (2) Maintenance

       (a) Organizational Level. The additional organizational level workload generated by SHARP is considered to be minimal consisting of upload and download, system checkout, and checking and replacing desiccant cartridges. These functions are currently being performed in the F-14 community on the TARPS pods by Aviation Electronics Technician (AT) and Photographer's Mate (PH) personnel in Work Center 240. Based on an assessment of the total workload of Work Center 240, per information provided by PMA265, initial estimates indicate that to support SHARP organizational maintenance functions, each F/A-18F squadron will require:

BILLET	NOBC/NEC	QUANTITY
Photo Officer (directed billet)	6470	1
PH2	8341	1
PH3	8841	1
PHAN	8841	2

BILLET	NOBC/NEC	QUANTITY
AT3	8841	1

Additionally, one Aviation Ordnanceman (AO) with NEC 8341 or 8841 (billet currently existing) will be required as a safety supervisor during the upload and download of the pod and to arm and de-arm the BRU-32 bomb rack.

(b) Intermediate Level. Intermediate level maintenance will transfer to Sea Operational Detachment (SEAOPDET) personnel aboard ship and Aircraft Intermediate Maintenance Department (AIMD) personnel ashore after the interim intermediate maintenance support period. Because the intermediate level SHARP repair skill must be available to support repairs of equipment failures, the requirement will create the need for additional personnel in the SEAOPDET. It is estimated that each F/A-18F SEAOPDET will require two AT2, NEC 66XX, and one ATAN, NEC 0000, to support SHARP intermediate level maintenance functions.

(c) Depot. OEM personnel will perform all maintenance beyond the capability of the intermediate level.

(3) Reconnaissance Imaging and Interpretation. The additional reconnaissance imaging and interpretation level workload generated by SHARP is considered to be minimal. These functions are currently being performed by Photographer's Mate (PH) and Intelligence Specialist (IS) personnel in the Aircraft Carrier Intelligence Center (CVIC) afloat and the Fleet Intelligence Center (FIC) ashore. To support SHARP imagery functions, it is estimated that each CVIC and FIC operating JSIPS will require:

BILLET	NOBC/NEC	QUANTITY
Intelligence Officer (directed billet)	6470	1
PH3	8193	1
PHAN	0000	1
IS2	3925	1
IS2	3926	1

4. Training Concept. To ensure a well-defined training program is available for integrating the SHARP system into the F/A-18F community, training for aircrew and the training

curriculum for organizational level maintenance personnel will be modified to reflect the SHARP integration. Follow-on SHARP intermediate maintenance training for AT personnel will be accomplished by developing a new SHARP maintenance training track, *C-XXX-XXXX, SHARP Intermediate Maintenance Technician Pipeline*. Training for PH and IS reconnaissance imaging and interpretation personnel will be unaffected by the SHARP integration.

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" School graduates going to intermediate level activities attend the appropriate intermediate level "C" School. Intermediate level "C" Schools are not separated into *Initial* and *Career* courses.

a. Initial Training. The Boeing Company and the Raytheon Technical Systems Company will provide factory training to aircrew personnel utilizing Grey Book data extracted from DT and OT. Boeing will provide organizational maintenance factory training to AT and AO personnel. Aircrew and organizational maintenance training is expected to be accomplished in late FY03. Raytheon will provide intermediate maintenance training to AT personnel, and provide a Technical Representative to augment SEAOPDET personnel in off-aircraft maintenance. Intermediate maintenance training is expected to be accomplished in early FY04. Initial training curriculum as applied to SHARP has not been developed as of the date of this Initial NTSP.

Title	**F/A-18F SHARP Aircrew**
Description	This course provides SHARP initial training to cadre and instructor F/A-18F Pilot and WSO personnel.
Location	Contractor facilities
Length	TBD
RFT date	TBD
TTE/TD	TBD
Prerequisites	Qualified F/A-18F Pilot or WSO

Title	**F/A-18F SHARP Organizational Maintenance**
Description	This course provides SHARP initial organizational level maintenance training to instructor and cadre maintenance personnel.
Location	Contractor facilities
Length	TBD
RFT date	TBD
TTE/TD	TBD
Prerequisites	° AO 8841
	° AT 8841

Title	**SHARP Intermediate Maintenance**
Description	This course provides SHARP initial first degree intermediate level maintenance training to instructor and cadre maintenance personnel.
Location	Contractor facilities
Length	TBD
RFT date	TBD
TTE/TD	TBD
Prerequisites	° AT 66XX

b. Follow-on Training

(1) **F/A-18E/F Courses.** Strike Fighter Squadron One Twenty-Two (VFA-122) began F/A-18E/F Fleet Replacement Pilot Validation Training in November 1999. WSO Validation Training began in March 2000. Both courses came on-line in October 2000.

Boeing has completed Difference Training for the F/A-18E/F Initial Maintenance courses at Maintenance Training Unit (MTU) 1038 Naval Air Maintenance Training Unit (NAMTRAU) Lemoore, California. Curriculum validation of the follow-on maintenance courses was completed in January 2001 and the courses are currently Ready For Training (RFT). There are no F/A-18E/F maintenance courses planned for PH personnel. The following are the F/A-18E/F courses applicable to SHARP.

Title	**F/A-18E/F Fleet Replacement Pilot Category I**
CIN	E-2A-061X
Model Manager ...	VFA-122
Description	This pipeline provides first tour F/A-18E/F Pilot training, including:

° Flight Training
° Crew Tactics
° Crew Safety and Egress
° Communication and Navigation
° Armament Systems

Upon completion the student will be able to perform the duties of an F/A-18E/F Pilot in a squadron environment.

Location	VFA-122, Naval Air Station (NAS) Lemoore
Length	257 days (estimated)
RFT date	Currently Available
Skill identifier.......	NOBC 1311
TTE/TD...............	° TD-01 Weapons Tactics Trainer (WTT) ° TD-02 Part Task Trainer (PTT) ° TD-03 Tactical Operational Flight Trainer (TOFT)
Prerequisite..........	° Designated Service Group I Naval Aviator ° Appropriate Survival, Evasion, Resistance, and Escape (SERE) Training ° Secret Clearance

Title	**F/A-18E/F Fleet Replacement Pilot Category II**
CIN	E-2A-062X
Model Manager ...	VFA-122
Description	This pipeline provides second tour F/A-18E/F Pilot training, including:

° Flight Training
° Crew Tactics
° Crew Safety and Egress
° Communication and Navigation
° Armament Systems

Upon completion the student will be able to perform the duties of an F/A-18E/F Pilot in a squadron environment.

Location	VFA-122, NAS Lemoore
Length	215 days (estimated)
RFT date	Currently Available
Skill identifier.......	NOBC 1311
TTE/TD...............	° TD-01 WTT ° TD-02 PTT ° TD-03 TOFT
Prerequisite..........	° Designated Service Group I Naval Aviator ° Appropriate SERE Training ° Secret Clearance

Title	**F/A-18E/F Fleet Replacement Pilot Category III**
CIN	E-2A-063X
Model Manager ...	VFA-122
Description	This pipeline provides advanced F/A-18E/F Pilot training, including: ° Flight Training ° Crew Tactics ° Crew Safety and Egression ° Communication and Navigation ° Armament Systems Upon completion the student will be able to perform the duties of an F/A-18E/F Pilot in a squadron environment.
Location	VFA-122, NAS Lemoore
Length	169 days (estimated)
RFT date	June 2002
Skill identifier	NOBC 1311
TTE/TD	° TD-01 WTT ° TD-02 PTT ° TD-03 TOFT
Prerequisite..........	° Designated Service Group I Naval Aviator ° Appropriate SERE Training ° Secret Clearance

Title	**F/A-18E/F Fleet Replacement Pilot Category IV**
CIN	E-2A-064X
Model Manager ...	VFA-122
Description	This pipeline provides senior level F/A-18E/F Pilot training, including:

Description (continued):

° Flight Training
° Crew Tactics
° Crew Safety and Egression
° Communication and Navigation
° Armament Systems

Upon completion the student will be able to perform the duties of an F/A-18E/F Pilot and could perform the duties of Naval Aviation Training and Operating Procedures Standardization (NATOPS) Instructor in a squadron environment.

Location	VFA-122, NAS Lemoore
Length	36 days (estimated)
RFT date	Currently Available
Skill identifier	NOBC 1311
TTE/TD	° TD-01 WTT ° TD-02 PTT ° TD-03 TOFT
Prerequisite..........	° Designated Service Group I Naval Aviator ° Appropriate SERE Training ° Secret Clearance

Title	**F/A-18F Combat Capable Weapons Sensor Officer Training Category I**
CIN	E-2D-181X
Model Manager ...	VFA-122
Description	This pipeline provides initial training for the Category I WSO, including:
	° Flight Training
	° Crew Tactics
	° Crew Safety and Egression
	° Armament Control
	° Communication and Navigation
	Upon completion the student will be able to perform the duties of an F/A-18F WSO in a squadron environment.
Location	VFA-122, NAS Lemoore
Length	229 days (estimated). The estimate is based on current the F/A-18 WSO course.
RFT date	Currently Available
Skill identifier.......	NOBC 1321
TTE/TD...............	° TD-01 WTT
	° TD-02 PTT
	° TD-03 TOFT
Prerequisite..........	° Designated Service Group I Naval Aviator
	° Appropriate SERE Training
	° Secret Clearance

Title	**F/A-18F Combat Capable Weapons Sensor Officer Training Category II**
CIN	E-2D-182X
Model Manager ...	VFA-122
Description	This pipeline provides second tour training for the Category II WSO, including:

    ° Flight Training
    ° Crew Tactics
    ° Crew Safety and Egression
    ° Armament Control
    ° Communication and Navigation

Upon completion the student will be able to perform the duties of an F/A-18F WSO in a squadron environment.

Location	VFA-122, NAS Lemoore
Length	215 days (estimate). The estimate is based on the current F/A-18 WSO course.
RFT date	Currently Available
Skill identifier.......	NOBC 1321
TTE/TD...............	° TD-01 WTT ° TD-02 PTT ° TD-03 TOFT
Prerequisite..........	° Designated Service Group I Naval Aviator ° Appropriate SERE Training ° Secret Clearance

Title .... **F/A-18F Combat Capable Weapons Sensor Officer Training Category III**

CIN E-2D-183X

Model Manager ... VFA-122

Description .... This pipeline provides advanced training for the Category III WSO, including:

  ° Flight Training
  ° Crew Tactics
  ° Crew Safety and Egression
  ° Armament Control
  ° Communication and Navigation

Upon completion the student will be able to perform the duties of an F/A-18F WSO in a squadron environment.

Location .... VFA-122, NAS Lemoore

Length .... 169 days (estimated). The estimate is based on the current F/A-18 WSO course.

RFT date .... June 2002

Skill identifier ...... NOBC 1321

TTE/TD .... ° TD-01 WTT
  ° TD-02 PTT
  ° TD-03 TOFT

Prerequisite.......... ° Designated Service Group I Naval Aviator
  ° Appropriate SERE Training
  ° Secret Clearance

Title	**F/A-18F Combat Capable Weapons Sensor Officer Training Category IV**
CIN	E-2D-184X
Model Manager ...	VFA-122
Description	This pipeline provides senior level training for the Category IV WSO, including:

    ° Flight Training
    ° Crew Tactics
    ° Crew Safety and Egression
    ° Armament Control
    ° Communication and Navigation

Upon completion the student will be able to perform the duties of an F/A-18F WSO and could perform the duties of NATOPS Instructor in a squadron environment.

Location	VFA-122, NAS Lemoore
Length	36 days (estimated). The estimate is based on the current F/A-18 WSO course.
RFT date	Currently Available
Skill identifier	NOBC 1321
TTE/TD	° TD-01 WTT ° TD-02 PTT ° TD-03 TOFT
Prerequisite..........	° Designated Service Group I Naval Aviator ° Appropriate SERE Training ° Secret Clearance

Title	**F/A-18E/F Avionics Systems (Initial) Organizational Maintenance**
CIN	E-102-0623
Model Manager ...	MTU 1038 NAMTRAU Lemoore
Description	This track provides training to the first tour Aviation Electronics Technician, including:

    ° Fire Control Systems
    ° Communication and Navigation Systems
    ° Identification System
    ° Countermeasure System
    ° Test and Support Equipment
    ° Publications and Safety Procedures

Upon completion the student will be able to perform organizational maintenance on the F/A-18E/F under direct supervision.

Location	MTU 1038 NAMTRAU Lemoore
Length	95 days
RFT date	Currently Available
Skill identifier.......	AT 8841 (E-1 through E-4)
TTE/TD...............	° TD-05 Avionics System Maintenance Trainer Set (MTS) ° F/A-18E/F Avionics Systems
Prerequisite..........	° C-100-2020, Avionics Common Core Class A1 ° C-100-2018, Avionics Technician O-Level Class A1

Title	**F/A-18E/F Avionics Systems (Career) Organizational Maintenance**
CIN	E-102-0624
Model Manager ...	MTU 1038 NAMTRAU Lemoore
Description	This track provides the second tour Aviation Electronics Technician with advanced knowledge in theory, operation, testing, and troubleshooting, including:

    ° Fire Control Systems
    ° Communication and Navigation Systems
    ° Identification System
    ° Countermeasure System
    ° Test and Support Equipment
    ° Publications and Safety Procedures

Upon completion the student will be able to perform organizational maintenance on the F/A-18E/F Avionics Systems under limited supervision.

Location	MTU 1038 NAMTRAU Lemoore
Length	32 days
RFT date	Currently Available
Skill identifier.......	AT 8341 (E-5 through E-7)
TTE/TD...............	° TD-05 Avionics System MTS ° F/A-18E/F Avionics Systems
Prerequisite..........	° C-100-2020, Avionics Common Core Class A1 ° C-100-2018, Avionics Technician Organizational Level Class A1 ° E-102-0623, F/A-18 E/F Avionics System (Initial) Organizational Maintenance

Title	**F/A-18E/F Armament Systems (Initial) Organizational Maintenance**
CIN	E-646-0642
Model Manager ...	MTU 1038 NAMTRAU Lemoore
Description	This track provides training to the first tour Aviation Ordnanceman, including:

   ° Stores Management System (SMS)
   ° Troubleshooting Procedures
   ° Weapon Control Systems
   ° Test and Support Equipment
   ° Publications and Safety Procedures

Upon completion the student will be able to perform organizational maintenance on the F/A-18E/F Armament Systems under direct supervision.

Location	MTU 1038 NAMTRAU Lemoore
Length	30 days
RFT date	Currently Available
Skill identifier.......	AO 8841 (E-1 through E-4)
TTE/TD...............	TD-04 Armament Systems Maintenance Trainer Set (MTS)
Prerequisite..........	C-646-2012, Aviation Ordnanceman Airwing Strand Class A1

Title .... **F/A-18E/F Armament Systems (Career) Organizational Maintenance**

CIN E-646-0644

Model Manager ... MTU 1038 NAMTRAU Lemoore

Description .... This track provides the second tour Aviation Ordnanceman with advanced knowledge in theory, operation, testing, and troubleshooting, including:

   ° Troubleshooting Beyond BIT
   ° Use of Electrical Test Equipment
   ° SMS
   ° SMS Cautions and Advisories
   ° SMS Maintenance Codes
   ° Weapon Control System
   ° Publications and Safety Procedures

Upon completion the student will be able to perform organizational maintenance on the F/A-18E/F Armament Systems under limited supervision.

Location .... MTU 1038 NAMTRAU Lemoore

Length .... 11 days

RFT date .... Currently Available

Skill identifier....... AO 8341 (E-5 through E-7)

TTE/TD............... TD-04 Armament Systems MTS

Prerequisite.......... ° E-646-0642, F/A-18E/F Armament Systems (Initial) Organizational Maintenance

Title	**Advanced Electronic Imaging**
CIN	S-400-2040
Model Manager ...	Department of Defense Information School
Description	This course provides the Photographer's Mate with advanced knowledge and skills necessary to perform advanced electronic imaging tasks and functions for the multimedia, including:

° Operation of Advanced Electronic Imaging Systems
° Acquisition, Enhancement, Design, Generation, Output, and Archival of Digital Images
° Theoretical and Working Knowledge of Imaging Systems
° Troubleshooting
° Networking Communications
° Emerging Technology

Upon completion the student will be able to perform as an Advanced Electronic Imaging Systems Specialist under limited supervision.

Location	Navy Technical Training Center Detachment, Fort Meade, Maryland
Length	25 days
RFT date	Currently Available
Skill identifier.......	PH 8193 (E-3 through E-7)
TTE/TD...............	° Macintosh G3 ° Personal Computer
Prerequisite..........	° One year of digital imaging experience ° S-400-2011, Basic Still Photography; or ° S-570-0017, Intermediate Photo Journalism; or ° S-400-2038, Electronic Imaging

Title	**Digital Imagery Workstation Suite Afloat Operator**
CIN	J-243-2953
Model Manager ...	Navy and Marine Corps Intelligence Training Center (NMITC)
Description	This course provides the Intelligence Specialist with basic knowledge and skills necessary to support the creation of photogrammetric products, including:

    ° Digital Scene Matching Area Correlation
    ° Target Definition
    ° Vertical Obstruction Data
    ° Vertical Update Points
    ° Terrain Profiles

Upon completion the student will be able to perform as a Digital Imagery Workstation Suite Afloat Operator/Analyst under limited supervision.

Location	NMITC, Dam Neck, Virginia
Length	75 days
RFT date	Currently Available
Skill identifier.......	IS 3925 (E-5 through E-7)
TTE/TD...............	Digital Imagery Workstation Suite
Prerequisite..........	° J-242-0100, Intelligence Specialist Phase I Class A1
	° J-242-0993, Intelligence Specialist Imagery Interpretation Class C
	° J-150-0987, Strike Warfare Applications Analyst
	° Top Secret Clearance

Title	**Imagery Dissemination Manager Pipeline**
CIN	J-150-2973
Model Manager ...	NMITC
Description	This course provides the Intelligence Specialist with specialized knowledge and skills necessary to perform advanced digital imaging tasks and functions, including:

  ° Operation of the Precision Targeting Workstation/ Strike Planning Archive
  ° Processing and Exploitation Tasks Using JSIPS
  ° Softcopy Imagery Dissemination
  ° Input, Viewing, and Manipulation Techniques of Digital Imagery

Upon completion the student will be able to perform as an imagery dissemination manager under limited supervision.

Location	NMITC, Dam Neck, Virginia
Length	26 days
RFT date	Currently Available
Skill identifier.......	IS 3926 (E-4 through E-5)
TTE/TD...............	° National Input Segment/Dissemination Element ° Navy Tactical Input Segment
Prerequisite..........	° J-242-0100, Intelligence Specialist Class A1 ° J-242-0993, Intelligence Specialist Imagery Interpretation Class C ° Top Secret Clearance

Title	**SHARP Intermediate Maintenance Technician**
CIN	C-XXX-XXXX
Model Manager ...	TBD
Description	This course will provide training to the Aviation Electronics Technician, including:

   ° Testing and Troubleshooting Procedures
   ° SHARP System Operation and Maintenance
   ° Radio Frequency Theory
   ° Environmental Control Systems
   ° Imaging in Electro-Optical and Infrared Spectrums
   ° Reconnaissance Theory
   ° Safety

Upon completion, the student will be able to perform as a SHARP Intermediate Maintenance Technician in a shop environment under limited supervision.

Location	TBD
Length	TBD
RFT date	TBD
Skill identifier ….	AT 66XX (E-3 through E-7)
TTE/TD	° EOT ° SHARP Pod
Prerequisite	° C-100-2020, Avionics Common Core Class A1 ° C-100-2017, Avionics Technician Intermediate Level A1

c. Student Profiles

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
NOBC 1311	° Q-2A-0007, T-45 Strike Flight Training ° Q-2A-0005, Intermediate Strike Flight Training ° Q-2A-0006, Advanced Strike Flight Training ° Appropriate SERE Training ° J-495-0413, Shipboard Aircraft Firefighting

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
NOBC 1321	° Designated Service Group I Naval Aviator ° Appropriate SERE Training ° Secret Clearance
AO 8341	° E-646-0642, F/A-18E/F Armament Systems (Initial) Organizational Maintenance
AO 8841	° C-646-2012, Aviation Ordnanceman Airwing Strand Class A1
AT 8341	° C-100-2020, Avionics Common Core Class A1 ° C-100-2018, Avionics Technician Organizational Level Class A1 ° E-102-0623, F/A-18E/F Avionics System (Initial) Organizational Maintenance
AT 8841	° C-100-2020, Avionics Common Core Class A1 ° C-100-2018, Avionics Technician Organizational Level Class A1
AT XXXX	° C-100-2020, Avionics Common Core Class A1 ° C-100-2017, Avionics Technician Intermediate Level Class A1
IS 3925	° J-242-0100, Intelligence Specialist Phase I Class A1 ° J-242-0993, Intelligence Specialist Imagery Interpretation Class C ° J-150-0987, Strike Warfare Applications Analyst
IS 3926	° J-242-0100, Intelligence Specialist Phase I Class A1 ° J-242-0993, Intelligence Specialist Imagery Interpretation Class C
PH 8193	° One year of digital imaging experience ° S-400-2011, Basic Still Photography; or ° S-570-0017, Intermediate Photo Journalism; or ° S-400-2038, Electronic Imaging
PH 8341	° S-400-2011, Basic Still Photography
PH 8841	° S-400-2011, Basic Still Photography

    d. Training Pipelines. NA

I. ONBOARD (IN-SERVICE) TRAINING

1. Proficiency or Other Training Organic to the New Development. Proficiency training under consideration would be accomplished through the use of SHARP training system Computer Based Training (CBT) lessons for intermediate maintenance level personnel. If approved, CBT lessons will be developed and distributed in CD-ROM format to all F/A-18F activities receiving SHARP; NAWCAD Patuxent River, Maryland; and Naval Air Facility (NAF) Atsugi, Japan.

a. Maintenance Training Improvement Program. Current planning is to adopt the Aviation Maintenance Training Continuum System (AMTCS) concepts to replace Maintenance Training Improvement Program (MTIP). AMTCS is scheduled to begin full implementation for fleet deployment in Fiscal Year (FY) 02.

b. Aviation Maintenance Training Continuum System. AMTCS will provide career path training to the Sailor from their initial service entry to the end of their military career. AMTCS concepts will provide 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. Where appropriate, capitalizing on technological advances and integrating systems and processes can provide the right amount of training 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: Interactive Multimedia Instruction for the technicians in the Fleet in the form of Interactive Courseware with Computer Managed Instruction and Computer Aided Instruction for the schoolhouse.

Included in the AMTCS development effort is the Aviation Maintenance Training Continuum System - Software Module, which provides testing [Test and Evaluation], recording [Electronic Certification Qualification Records], 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 data bank. These tools are procured and fielded with appropriate Commercial-Off-The-Shelf hardware and software, i.e., Fleet Training Devices - Laptops, Personal Computers, Electronic Classrooms, Learning Resource Centers, operating software, and network software and hardware.

Upon receipt of direction from OPNAV (N789H), AMTCS concepts are 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 is planned to supersede the existing MTIP program.

2. Personnel Qualification Standards. No Personnel Qualification Standards are planned for SHARP maintenance personnel.

3. Other Onboard or In-Service Training Packages. Not Applicable (NA)

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N00019-96-D-0159	Raytheon Technical Systems Company	6125 East 21st Street Indianapolis, IN 46219-2058
N00019-01-C-0105	Recon/Optical Incorporated	550 West Northwest Highway Barrington, IL 60010-3094

2. Program Documentation. The following program documentation has been completed:

° SHARP Operational Requirements Document, #522-88-99, 1 July 1999
° Acquisition Logistics Support Plan, 19 December 2000
° Raytheon Integrated Support Plan, 20 March 2001

3. Technical Data Plan. Technical publications are to be developed for each assembly contained in SHARP and will provide data for the operation and maintenance of SHARP and associated Support Equipment. The Naval Air Technical Data and Engineering Service Command is the requiring activity for the SHARP program technical publication procurement and distribution. Naval Aviation Depot North Island, has been assigned engineering cognizance of SHARP technical manuals. Under their direction, the Boeing Company will develop and deliver technical publications required for organizational level support of SHARP, while the Raytheon Company will develop and deliver technical publications required for intermediate level support of SHARP. Initial Operating Capability is scheduled for FY04.

4. Test Sets, Tools, and Test Equipment. The SHARP Program is making maximum use of existing support equipment in the transport, loading, and maintenance of the SHARP system ashore and afloat. Training Device and Technical Training Equipment requirements are TBD.

° Existing Transport and Loading Equipment
  - MHU-191 Weapons Skid (organizational level ashore and afloat)
  - MHU-202 Trailer (organizational level ashore)
  - HLU-288 Hoist (organizational and intermediate level ashore and afloat)
  - SHOLS Loading (organizational level and intermediate level ashore and afloat)

° Existing Maintenance Equipment
- MSU-181 TARPS Maintenance Stand (organizational level ashore and afloat)
- ATARS/ATFLIR EO- Pod Tester (organizational and intermediate level ashore and afloat)
- 500-Pound Capacity Crane (intermediate level ashore and afloat)
- ACU-20 Compressed Air Cart (ashore)

° New PGSE requirements identified for SHARP
- SHARP Weapons Skid Adapter (organizational level ashore and afloat)
- SHARP Maintenance Frame Adapter (organizational and intermediate level ashore and afloat)
- SHARP SHOLS Trolley Adapters (organizational and intermediate level ashore and afloat)
- ACU-20 Compressor, Venturi/Aftercooler (organizational level ashore)
- 50-Foot Low Pressure Air Hose and Snap Fitting (organizational level ashore and afloat)
- Window, ECS Ram Air Inlet, and Radome Covers

5. Repair Parts. The Navy Inventory Control Point will begin procurement of interim replacement parts in FY02 in support of the Low Rate Initial Production procurements. During the Interim Support period, all SHARP WRAs will be under an organizational level to OEM maintenance concept.

6. Human Systems Integration. Since the SHARP design is based on the CANDI acquisition approach, it will be difficult to change the current design of the system. Human Systems Integration will be utilized during evaluation of current facilities and new construction to take into account human engineering and equipment accessibility, and provide working clearance and space as required by safety regulations.

K. SCHEDULES

1. Installation and Delivery Schedules. As of the date of this NTSP, the SHARP program has been funded to meet the Navy's minimum warfighting requirement of 24 pods. The total inventory objective is 50 pods (40 operational and 10 pipeline). Deliveries are planned to begin with Fighter Squadron Forty-One (VF-41) at NAS Lemoore, California, in FY02. A confirmed delivery schedule is not currently available, but will be included in updates to this NTSP.

2. Ready For Operational Use Schedule. The following table illustrates the draft transition plan as F-14 squadrons are phased out and transitioned to F/A-18F squadrons. SHARP pods will be ready for operational use when assigned to operational units during Carrier Airwing work-ups prior to deployment.

READY FOR OPERATIONAL USE SCHEDULE

ACTIVITY	FY02	FY03	FY04	FY06	FY07	FY08	FY09	FY10
VF-41	1							
VF-102		1						
VF-211			1					
VF-213				1				
VF-154					1			
VF-103					1			
VF-2						1		
VF-143						1		
VF-31							1	
VF-32								1

       3. Time Required to Install at Operational Sites. Existing TARPS maintenance facilities and spaces are planned to be utilized for SHARP. An initial candidate space has been identified within the AIMD at NAS Lemoore, California, with the official site survey approved in May 2001. Modifications are planned for the USS Nimitz (CVN 68) while pier-side at Naval Base San Diego, California, in May 2003. Consideration has also been given to installation at NAF Atsugi, Japan, and a TBD East Coast NAS. Actual time required for modification and installation is undetermined at this time.

       4. Foreign Military Sales and Other Source Delivery Schedule. No FMS are currently planned for the SHARP program. Multi-platform application is being considered. For further information regarding FMS or other platform applications contact the Developing Agency, NAVAIRSYSCOM, PMA265.

       5. Training Device and Technical Training Equipment Delivery Schedule. TBD

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
F-14A/B/D Navy Training System Plan	N88-NTSP-A-50-8511C/D	PMA241	Draft Feb 01
F/A-18 Weapon System Navy Training System Plan	N88-NTSP-A-50-7703H/P	PMA265	Proposed Oct 01

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APPENDIX A - POINTS OF CONTACT

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