

**DRAFT**

**NAVY TRAINING SYSTEM PLAN**

**FOR THE**

**A/E 37T-32 VIBRATION ANALYSIS**

**TEST SET**

**N88-NTSP-A-50-8620C/D**

**DECEMBER 1999**

## A/E 37T-32 VIBRATION ANALYSIS TEST SET

### EXECUTIVE SUMMARY

This Navy Training System Plan identifies the life cycle manpower, personnel, and training required to support the A/E 37T-32 Vibration Analysis Test Set (VATS) program. The VATS is a multi-function instrumentation system used for vibration analysis, propeller balancing, and helicopter rotor tracking and balancing. The VATS is also used for fault isolation in aircraft drive systems, flight controls, and airframe components, supporting both rotary and fixed wing aircraft. The Initial Operational Capability for VATS was attained in September 1990. VATS is in Phase III (Production, Deployment, and Operational Support) of the Weapon System Acquisition Process.

Navy personnel operate the VATS at the organizational and depot maintenance levels, and it is maintained by intermediate and depot level maintenance personnel. Personnel from intermediate level Work Center 670 Precision Measuring Equipment and Field Calibration Activity repair VATS. The VATS camera and three of the internal cards in the Computer Indicator Power Supply (CIPS), which include the Random Access Memory (RAM) card, the extended memory RAM card, and the analog input number two card are repaired at the depot level. VATS introduction has not caused an increase or decrease in previously existing manpower requirements.

Technical Evaluation (TECHEVAL) was completed at the Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, Maryland. The VATS manufacturer, Dynamic Instruments, Inc., conducted initial training in second quarter FY91. Naval Air Technical Data and Engineering Service Command (NATEC) representatives and Navy instructors from various activities attended initial training.

Follow-on training is integrated into existing power plants training tracks for each type aircraft. Vibration Analysis Theory and Familiarization training is conducted at the Maintenance Training Units (MTU), Naval Air Maintenance Training Group Detachments (NAMTRAGRU DET) located at Naval Station (NS) Norfolk, Virginia; Marine Corps Air Station (MCAS) Miramar, California; Naval Air Station (NAS) North Island, California; NAS Jacksonville, Florida; and NS Mayport, Florida. All courses have been modified and require no further changes. Modifications performed did not cause any changes in course or track lengths. NATEC representatives conduct Practical Job Training as required.

MTU 1025, NAMTRAGRU DET will be moving from MCAS Miramar to NAS Point Mugu, California, beginning in June 2000. The move is currently scheduled for completion with all courses ready for training in July 2000.

**A/E 37T-32 VIBRATION ANALYSIS TEST SET**

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**A/E 37T-32 VIBRATION ANALYSIS TEST SET**

**LIST OF ACRONYMS**

AD	Aviation Machinist's Mate
AE	Aviation Electrician's Mate
AMIST	Aviation Maintenance In-Service Training
AMTCS	Aviation Maintenance Training Continuum System
AT	Aviation Electronics Technician
CBT	Computer Based Training
ILSP	Integrated Logistics Support Plan
MCAS	Marine Corps Air Station
MIM	Maintenance Instruction Manual
MPT	Manpower, Personnel, and Training
MTIP	Maintenance Training Improvement Program
MTU	Maintenance Training Unit
NA	Not Applicable
NADEP	Naval Aviation Depot
NAMTRAGRU DET	Naval Air Maintenance Training Group Detachment
NAS	Naval Air Station
NATEC	Naval Air Technical Data and Engineering Service Command
NAWCAD	Naval Air Warfare Center Aircraft Division
NEC	Navy Enlisted Classification
NTSP	Navy Training System Plan
PJT	Practical Job Training
RAM	Random Access Memory
RFOU	Ready For Operational Use
TD	Training Device
TTE	Technical Training Equipment
VA	Vibration Analysis
VATS	Vibration Analysis Test Set

**A/E 37T-32 VIBRATION ANALYSIS TEST SET**

**PREFACE**

This Draft Navy Training System Plan (NTSP) for the A/E 37T-32 Vibration Analysis Test Set (VATS) program has been prepared to update the Approved A/E 37T-32 Vibration Analysis Test Set Navy Training Plan, A-50-8620B/A, dated December 1996. This Draft NTSP complies with guidelines set forth in the Navy Training Requirements Documentation Manual, OPNAV Publication P-751-1-9-97, and incorporates the following changes:

- Identifies current initial and career organizational level training tracks of all VATS supported aircraft (E-2, C-2, H-60, and S-3).
- Removes the H-3 initial and career organizational level training tracks.
- Updates the current Maintenance Training Unit (MTU) Naval Air Maintenance Training Group Detachment (NAMTRAGRU DET) locations and identifies the Course Curriculum Model Managers.
- Incorporates the Naval Air Technical Data and Engineering Service Command (NATEC) role in training.
- Includes the use of a vibration simulator as a training device.
- Removes all references to United States Marine Corps activities, aircraft, and training tracks.
- Updates operator aircrew training as not required.
- Updates the program Milestones and Points of Contact.

Since the last NTSP was approved, all Navy and Marine Corps H-53, UH-1N, AH-1T, and C-130 training courses have discontinued the VATS system instruction. Additionally, all but two of the remaining training courses are using the aircraft Maintenance Instruction Manual (MIM) as the training publication.

**PART I - TECHNICAL PROGRAM DATA**

**A. NOMENCLATURE-TITLE-PROGRAM**

1. **Nomenclature-Title-Acronym.** A/E 37T-32 VATS
2. **Program Element.** 78012N

**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 (N881C)
- OPO Resource Sponsor ..... CNO (N881C)
- Developing Agency..... NAVAIRSYSCOM (PMA260)
- Training Agency ..... CINCLANTFLT  
CINCPACFLT  
CNET  
CMC
- Training Support Agency..... NAVAIRSYSCOM (PMA205)
- Manpower and Personnel Mission Sponsor ..... CNO (N12)  
NAVPERSCOM (PERS-40, PERS-404)
- Director of Naval Training ..... CNO (N7)

**D. SYSTEM DESCRIPTION**

1. **Operational Uses.** The A/E 37T-32 VATS is used on Navy and Marine Corps aircraft by organizational and depot maintenance personnel to track and balance rotors, propellers, and turbofans, and to monitor the vibration of aircraft and aircraft dynamic components under field conditions. The VATS is capable of measuring the vibration frequency and magnitude for engines, transmissions, gear boxes, dynamic drive systems, and airframes. The VATS is used to

fault isolate vibration discrepancies and monitor the health of dynamic components and the airframe through vibration trend analysis tracking.

Vibration Analysis (VA) is a means of determining mechanical system faults such as imbalance, misalignment, mechanical looseness, gear tooth defects, bearing defects, and structural and component resonance. The VATS is used as a VA failure isolation and prediction tool. This results in increased readiness due to a reduced vibration discrepancy maintenance workload.

VA tasks which the VATS is intended to accomplish are:

- H-53 main and tail rotor track and balance, transmission, gearbox, drive shafts and airframe monitoring.
- H-3 main and tail rotor track and balance, transmission, gearbox, drive system, and airframe monitoring.
- H-60 main and tail rotor track and balance, transmission, gearbox, drive system, airframe monitoring, and vibration absorber tuning.
- E-2 and C-2 on-aircraft propeller balancing and airframe monitoring.
- S-3 fan rotor assembly balancing.

Other aircraft utilize several different types of equipment for VA and are not mentioned in this NTSP for that reason.

**2. Foreign Military Sales. Not Applicable (NA)**

**E. DEVELOPMENTAL TEST AND OPERATIONAL TEST.** VATS Technical Evaluation and Operational Evaluation were conducted in August 1990 by the Propulsion Support Equipment Evaluation and Verification Branch, Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, Maryland. Software testing is ongoing at NAWCAD Patuxent River, Maryland, and NAWCAD Lakehurst, New Jersey.

**F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED.** VA systems formerly in use were designed to meet individual needs for specific aircraft and engines. The two VATS configurations, fixed and rotary wing, replaced all of the VA equipment listed in the table below:

<b>AIRCRAFT, ENGINE</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>
E-2, C-2, T-56	Chadwick Helimuth Vibration Analysis Test Set Trim Balancer Set	9092-2, 192A 123SAV51650-1

<b>AIRCRAFT, ENGINE</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>
H-3, T-58	Strobex (Blade Tracking) RB-101 Vibration Measurement Test Set Blade Tracker	135M-9/11 225300 2520/21/38/58
SH-60, T-700	Vibrex (includes Track Balance and Strobex Equipment) Vibration Analysis Test Set	8360 70700-77347-041
S-3, TF-34	Vibration Test Set Instrument/Cable Case Chadwick Helimuth Vibration Analysis Test Set	1361AS200-1 9700

## **G. DESCRIPTION OF NEW DEVELOPMENT**

**1. Functional Description.** The VATS is used on Navy aircraft by organizational and depot level maintenance and flight crew personnel. It is capable of being placed in the aircraft for in-flight troubleshooting and VA without degrading aircraft operation. The VATS is comprised of the following six subsystems, in three portable instrument cases.

**a. Fast Fourier Transformer Analyzer.** The Fast Fourier Transformer Analyzer is used to record real-time frequency analysis of the input signal.

**b. Magnetic Media Input/Output Module.** The Magnetic Media Module is used to record digital information data appearing on the visual display or machine.

**c. Sensors.** The Sensors consist of the optical tachometer and the accelerometers. A line-scan camera provides data to the optical tachometer and the analyzer.

**d. Flat Panel Display.** The Flat Panel Display is an operator visual display unit with alphanumeric and graphic capabilities.

**e. Machine Transcribed Record (Hard Copy).** This is a device capable of producing hard copy records of both the alphanumeric and graphic data that appear on the Flat Panel Display.

**f. Integrated Operator Interface.** The Integrated Operator Interface enables the operator to select tests or functions, enter data, and communicate with the test unit.

**2. Physical Description.** The dimensions of the three portable instrument cases containing VATS are 15.5" x 18.5" x 11.5", weighing between 35 and 43 pounds.

- Instrument case one contains the Computer Indicator Power Supply which includes the control panel, display, keyboard, and connector panel.

- Instrument case two contains the remote control and optical sensing units (rotary wing configuration only), four triaxial accelerometers, four single axis accelerometers, two rotor blade tachometer pickups, various brackets and blocks used for mounting the sensors to the airframe, and all accessory cables.
- Instrument case three contains the printer disk drive.

**3. New Development Introduction.** The VATS was introduced as new production equipment, and is not currently in production.

**4. Significant Interfaces.** NA

**5. New Features, Configurations, or Material.** Existing units are currently being upgraded by Engineering Change Proposal 4871-2-98, which changes the display monitor from black and white to a color presentation, making it easier to read in sunlight. Other changes since the last version of this NTSP have been modifications to the supporting software and upgrading the processor to Pentium class.

## H. CONCEPTS

**1. Operational Concept.** VATS operation is conducted in-flight and during ground maintenance. In-flight operation of VATS equipment is performed by qualified flight crew personnel and ground operation by qualified Aviation Machinist's Mate (AD) maintenance personnel in Work Center 110. Only qualified maintenance personnel analyze the data collected by the VATS.

**2. Maintenance Concept.** VATS are pre-positioned at the supporting Aircraft Intermediate Maintenance Departments (AIMDs) as part of the Individual Material Readiness List (IMRL), and are sub-custodied to the supported squadrons. The VATS is used by organizational and depot maintenance personnel and is repaired by intermediate and depot maintenance personnel.

**a. Organizational.** Maintenance consists of pre-operational and post-operational inspections, and installation, operation, and removal of the equipment on the aircraft.

**b. Intermediate.** Aviation Electronics Technician (AT) maintenance personnel in AIMD Work Center 670 conduct fault isolation of the VATS to defective Shop Replaceable Assemblies (SRAs), and repair, recalibrate, or replace the subassemblies using the VATS maintenance manual NAVAIR 17-15BBA-8. Aviation Electrician's Mate (AE) and AD maintenance personnel perform operational testing of the VATS in AIMD Work Center 450.

**c. Depot.** Naval Aviation Depot (NADEP) Cherry Point maintenance personnel accomplish the VATS camera (optical sensing unit) and the Computer Indicator Power Supply (CIPS) calibration. Dynamic Instruments, Inc. repairs three of the VATS internal cards, the Random Access Memory (RAM) card, the extended memory RAM card, and the analog input

No. 2 card. Special equipment has been procured to enable verification of the VATS accelerometer tolerance and range as required by the calibration program, expanding the current capability of the NADEP Cherry Point calibration program. Calibration procedures can be found in NAVAIR17-20AW-296.

**d. Interim Maintenance.** Interim intermediate and depot level maintenance performed by Dynamic Instruments, Inc. ended in August 1995.

**e. Life Cycle Maintenance Plan.** NA

**3. Manning Concept.** VATS equipment is designed to replace existing vibration test sets, and does not require additional manpower at the organizational or intermediate levels of maintenance. No changes are required to current billet structures or to the available skill levels. No specific Navy Enlisted Classifications (NECs) are required for the organizational level AD or the intermediate level AD, AE, and AT ratings for VATS operation and maintenance.

**4. Training Concept.** Formal intermediate level training for Work Center 670 technicians is not required to support the VATS. NATEC representatives conduct Practical Job Training (PJT) as required. Aircrew operator training is not required for in-flight VA testing.

**a. Initial Training.** Initial training was completed in 1991.

**b. Follow-on Training.** VATS organizational level operator and maintenance training required a minor modification to existing power plants training tracks. No change to track length was required. NATEC representatives conduct PJT at the individual organizational units. Follow-on training for each aircraft is conducted at the activities listed below.

<b>AIRCRAFT / TRACK CIN</b>	<b>TRAINING ACTIVITY</b>	<b>COURSE MODEL MANAGER</b>
<b>E-2/C-2</b> D-601-0310 D-601-0315	MTU 1026, NAMTRAGRU DET Norfolk	MTU 1026, NAMTRAGRU DET Norfolk
<b>E-2C Group I/II</b> D/E-601-0313 D/E-601-0316	MTU 1025, NAMTRAGRU DET Miramar (See Note) MTU 1026, NAMTRAGRU DET Norfolk	MTU 1025, NAMTRAGRU DET Miramar (See Note)

<b>AIRCRAFT / TRACK CIN</b>	<b>TRAINING ACTIVITY</b>	<b>COURSE MODEL MANAGER</b>
<b>H-60</b> D/E-602-0810 D/E-602-0813	MTU 1005, NAMTRAGRU DET Jacksonville MTU 1022, NAMTRAGRU DET North Island MTU 1066 NAMTRAGRU DET Mayport	MTU 1022, NAMTRAGRU DET North Island
<b>S-3</b> D/E-601-1710	MTU 1037, NAMTRAGRU DET Jacksonville MTU 1036, NAMTRAGRU DET North Island	MTU 1037, NAMTRAGRU DET Jacksonville

**Note:** MTU 1025, NAMTRAGRU DET will be moving from MCAS Miramar to NAS Point Mugu, California, beginning in June 2000. The move is currently scheduled for completion with all courses ready for training in July 2000.

**c. Student Profiles.** NA

**d. Training Pipelines.** The VATS operation is not taught in a unique training track or course, and no NEC is directly associated with its use. VATS has not been incorporated into either the Career or Initial H-3 Power Plants and Related Systems Organizational Maintenance tracks. MTU 1036 NAMTRAGRU DET North Island has incorporated VATS into the S-3 Career Organizational Maintenance track only, and does not teach VA in the Initial Organizational Maintenance track. VATS organizational level operator and maintenance training has been included through minor modifications to the following Power Plants Organizational Maintenance Tracks and Related Pipeline Courses. Refer to the individual aircraft NTSPs listed in Section M for specific course details.

<b>AIRCRAFT</b>	<b>TRACK / PIPELINE COURSE CIN</b>	<b>COURSE TITLE</b>	<b>SKILL IDENTIFIER</b>
E-2/C-2	D-601-0310 / C-601-9472A	E-2/C-2 T56-A-425 Power Plant and Related Systems (Career) Organizational Maintenance	AD 8305

<b>AIRCRAFT</b>	<b>TRACK / PIPELINE COURSE CIN</b>	<b>COURSE TITLE</b>	<b>SKILL IDENTIFIER</b>
E-2C	D/E-601-0313 / C-601-9135	E-2C (Group I/II) T66-A-427 Power Plant and Related Systems (Career) Organizational Maintenance	AD 8306
E-2/C-2	D-601-0315 / C-601-9471	E-2/C-2 T56-A-425 Power Plant and Related Systems (Initial) Organizational Maintenance	AD 8805
E-2C	D/E-601-0316 / C-601-9134	E-2C (Group I/II) T66-A-427 Power Plant and Related Systems (Initial) Organizational Maintenance	AD 8806
H-60	D/E-602-0810 / C-601-9408	H-60 Power Plants and Related Systems Initial	AD 8878
H-60	D/E-601-0813 / C-601-9407	H-60 Power Plants and Related Systems Career	AD 8378
S-3	D/E-601-1710 / C-601-9876A	S-3 Power Plant and Related Systems (Career) Organizational Maintenance	AD 8346

## **I. ON-BOARD (IN-SERVICE) TRAINING**

**1. Proficiency or Other Training Organic to the New Development.** VATS organizational level operator and maintenance training required a minor modification to existing Power Plants training tracks. No change to track length was required. NATEC representatives conduct On-the-Job Training at the individual organizational units.

**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 OPNAVINST 4790.2 series. 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 initial implementation in third quarter FY00.

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 Chief of Naval Operations (CNO) mandated “just-in-time” training approach.

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

Included in the AMTCS development effort is the Aviation Maintenance Training Continuum System - 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.

**2. Personnel Qualification Standards.** NA

**3. Other On-Board or In-service Training Packages.** NA

## J. LOGISTICS SUPPORT

### 1. Manufacturer and Contract Numbers

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N00140-86-C-9090	Dynamic Instruments, Inc.	3860 Calle Fortunada San Diego, CA 92123-1825

**2. Program Documentation.** The VATS Integrated Logistics Support Plan (ILSP), NAEC-CSE-88-013 was last updated in May 1990.

**3. Technical Data Plan.** The Vibration Troubleshooting and Operator Manual has been updated to include the following fixed wing aircraft: E-2, C-2, and S-3. This manual addresses acceptable levels of vibration, vibration structures, and troubleshooting steps for all Navy helicopters, and as data becomes available, VATS operation procedures for each aircraft will be included. Long-term technical data plan objectives called for the incorporation of VATS maintenance procedures in the appropriate MIM for each aircraft, and all the appropriate MIMs were updated in the third quarter of FY96. Refer to part IV.B.3 of this NTSP for a listing of applicable MIMs.

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

**5. Repair Parts.** Parts provisioning is accomplished through normal supply channels. The Navy Support Date was achieved in August 1995.

**6. Human Systems Integration.** NA

## K. SCHEDULES

### 1. Schedule of Events

**a. Installation and Delivery Schedules.** Delivery of all VATS units is complete. Commander Naval Air Force, United States Atlantic Fleet (COMNAVAIRLANT), and Commander Naval Air Force, United States Pacific Fleet (COMNAVAIRPAC) have taken delivery and distributed the VATS units throughout their respective commands.

**b. Ready For Operational Use Schedule.** VATS was Ready for Operational Use (RFOU) upon fleet delivery and verification of aircraft type, model, and series software and procedures by respective aircraft Cognizant Field Activities.

**c. Time Required to Install at Operational Sites.** NA

**d. Foreign Military Sales and Other Source Delivery Schedule.** NA

**e. Training Device and Delivery Schedule.** A vibration simulator was procured for each training site. Delivery of the simulators was completed in 1996.

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

**M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS**

<b>DOCUMENT OR NTSP TITLE</b>	<b>DOCUMENT OR NTSP NUMBER</b>	<b>PDA CODE</b>	<b>STATUS</b>
Vibration Analysis Test Set Integrated Logistics Support Plan	ILSP-NAEC-CSE 88-013	NAEC-52812	Approved May 1990
E-2C Aircraft NTP	A-50-8716D/A	PMA231	Approved Nov 97
C-2A Reprocured Aircraft NTP	A-50-8308B/A	PMA221	Approved Oct 96
S-3B NTSP	A-50-8310D/P	PMA244	Proposed Aug 99
ES-3A NTP	A-50-8818B/P	PMA231	Proposed Feb 96
SH/UH-3H Helicopter Transition NTP	A-50-8901/AD	PMA225	Draft May 94
SH-60B Light Airborne Multi-Purpose System NTP	A-50-7702D/A	PMA299	Approved Feb 93
SH-60F Carrier Inner Zone ASW Helicopter NTSP	A-50-8508D/D	PMA299	Draft Aug 99
HH-60H Helicopter Strike Rescue/Special Warfare Helicopter NTP	A-50-8714B/A	PMA299	Approved Dec 93
CH-60S Multi-Mission Helicopter NTSP	A-50-9902/P	PMA299	Proposed Aug 99

## PART II - BILLET AND PERSONNEL REQUIREMENTS

The following elements are not affected by the VATS and, therefore, are not included in Part II of this NTSP:

### II.A. Billet Requirements

#### II.A.1.a. Operational and Fleet Support Activity Activation Schedule

#### II.A.1.b. Billets Required for Operational and Fleet Support Activities

##### II.A.1.c. Total Billets Required for Operational and Fleet Support Activities

#### II.A.2.a. Operational and Fleet Support Activity Deactivation Schedule

#### II.A.2.b. Billets to be Deleted in Operational and Fleet Support Activities

##### II.A.2.c. Total Billets to be Deleted in Operational and Fleet Support Activities

#### II.A.3. Training Activities Instructor and Support Billet Requirements

#### II.A.4. Chargeable Student Billet Requirements

#### II.A.5. Annual Incremental and Cumulative Billets

### II.B. Personnel Requirements

#### II.B.1. Annual Training Input Requirements

**Note:** Follow-on Training was integrated into existing Power Plants training for each aircraft model. All courses have been modified and require no additional changes. Modifications did not cause any changes in course or track length. VATS introduction has not caused an increase or decrease to previously existing manpower.

## PART III - TRAINING REQUIREMENTS

The following elements are not affected by the VATS and, therefore, are not included in Part III of this NTSP:

III.A.1. Initial Training Requirements

III.A.2. Follow-on Training

III.A.2.a. Existing Courses

III.A.2.b. Planned Courses

III.A.2.c. Unique Courses

III.A.3. Existing Training Phased Out

**Note:** Follow-on Training was integrated into existing Power Plants training for each aircraft model. All courses have been modified and require no additional changes. Modifications did not cause any changes in course or track length. VATS introduction has not caused an increase or decrease to previously existing manpower.

## PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

The following elements are not affected by the VATS and, therefore, are not included in Part IV of this NTSP:

### IV.A. Training Hardware

IV.A.1. TTE / GPTE / SPTE / ST / GPETE / SPETE

### IV.B. Courseware Requirements

IV.B.1. Training Services

IV.B.2. Curricula Materials and Training Aids

### IV.C. Facility Requirements

IV.C.1. Facility Requirements Summary (Space/Support) by Activity

IV.C.2. Facility Requirements Detailed by Activity and Course

IV.C.3. Facility Project Summary by Program

**Note:** Follow-on Training was integrated into existing Power Plants training for each aircraft model. All courses have been modified and require no additional changes. Modifications did not cause any changes in course or track length. VATS introduction has not caused an increase or decrease to previously existing manpower.

**IV.A.2. TRAINING DEVICES**

**DEVICE:** Vibration Simulator  
**DESCRIPTION:** The Vibration Simulator allows the student to observe the reading on the test set under varied simulated vibration and/or unbalanced conditions  
**MANUFACTURER:** Dynamic Instruments  
**CONTRACT NUMBER:** N00140-86-C-9090  
**TEE STATUS:** Complete

**TRAINING ACTIVITY:** MTU 1026, NAMTRAGRU DET  
**LOCATION, UIC:** NAS Norfolk, 44680

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9472A (Track D-601-0310)
1	Jun 96	Jun 96	Onboard	C-601-9135 (Track D-601-0313)

**TRAINING ACTIVITY:** MTU 1005, NAMTRAGRU DET  
**LOCATION, UIC:** NAS Jacksonville, 39469

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9407 (Track D-601-0813)

**TRAINING ACTIVITY:** MTU 1037, NAMTRAGRU DET  
**LOCATION, UIC:** NAS Jacksonville, 39469

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9876A (Track D-601-1710)

**TRAINING ACTIVITY:** MTU 1066, NAMTRAGRU DET  
**LOCATION, UIC:** NAS Mayport, 39470

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9407 (Track D-601-0813)

**TRAINING ACTIVITY:** MTU 1025, NAMTRAGRU DET  
**LOCATION, UIC:** NAS Miramar, 39473

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9135 (Track E-601-0313)

**IV.A.2. TRAINING DEVICES**

**TRAINING ACTIVITY:** MTU 1022, NAMTRAGRU DET  
**LOCATION, UIC:** NAS North Island, 39476

<b>QTY REQD</b>	<b>DATE REQD</b>	<b>RFT DATE</b>	<b>STATUS</b>	<b>COURSES SUPPORTED</b>
1	Jun 96	Jun 96	Onboard	C-601-9407 (Track E-601-0813)

**TRAINING ACTIVITY:** MTU 1036, NAMTRAGRU DET  
**LOCATION, UIC:** NAS North Island, 39476

<b>QTY REQD</b>	<b>DATE REQD</b>	<b>RFT DATE</b>	<b>STATUS</b>	<b>COURSES SUPPORTED</b>
1	Jun 96	Jun 96	Onboard	C-601-9876A (Track E-601-1710)

**IV.B.3. TECHNICAL MANUALS**

**CIN, COURSE TITLE:** C-601-9407, H-60 Power Plants and Related Systems (Career) Organizational Maintenance (Track D-601-0813)

**TRAINING ACTIVITY:** MTU 1005, NAMTRAGRU DET

**LOCATION, UIC:** NAS Jacksonville, 30469

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

**CIN, COURSE TITLE:** C-601-9407, H-60 Power Plants and Related Systems (Career) Organizational Maintenance (Track D-601-0813)

**TRAINING ACTIVITY:** MTU 1066, NAMTRAGRU DET

**LOCATION, UIC:** NAS Mayport, 39470

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

**CIN, COURSE TITLE:** C-601-9472, E-2/C-2 T56-A-425 Power Plants and Related Systems (Career) Organizational Maintenance (Track D-601-0310)

**TRAINING ACTIVITY:** MTU 1026, NAMTRAGRU DET

**LOCATION, UIC:** NAS Norfolk, 44680

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-C2AHA-290210 E-2/C-2 power Plants Maintenance Instruction Manual, O Level	Hard copy	14	Jun 96	Onboard

**CIN, COURSE TITLE:** C-601-9135, E-2C (Group I/II) T56-A-427 Power Plants/Propeller (Career) Organizational Maintenance (Track D-601-0313)

**TRAINING ACTIVITY:** MTU 1026, NAMTRAGRU DET

**LOCATION, UIC:** NAS Norfolk, 44680

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-C2AHA-290210 E-2/C-2 Power Plants Maintenance Instruction Manual, O Level	Hard copy	14	Jun 96	Onboard

**IV.B.3. TECHNICAL MANUALS**

**CIN, COURSE TITLE:** C-601-9876, S-3 Power Plants and Related Systems (Career) Organizational Maintenance (Track D-601-1710)

**TRAINING ACTIVITY:** MTU 1037, NAMTRAGRU DET

**LOCATION, UIC:** NAS Jacksonville, 39469

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-S3AAA-2-3.6 Testing and Troubleshooting for S-3B Engine and Related Systems	Hard copy	14	Jun 96	Onboard

**CIN, COURSE TITLE:** C-601-9135, E-2C (Group I/II) T66-A-427 Power Plants/Propeller (Career) Organizational Maintenance (Track D-601-0313)

**TRAINING ACTIVITY:** MTU 1025, NAMTRAGRU DET

**LOCATION, UIC:** NAS Miramar, 39473

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-C2AHA-290210 E-2/C-2 power Plants Maintenance Instruction Manual, O Level	Hard copy	14	Jun 96	Onboard

**CIN, COURSE TITLE:** C-601-9407, H-60 Power Plants and Related Systems (Career) Organizational Maintenance (Track E-601-0813)

**TRAINING ACTIVITY:** MTU 1022, NAMTRAGRU DET

**LOCATION, UIC:** NAS North Island, 39476

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

**CIN, COURSE TITLE:** C-601-9876, S-3 Power Plants and Related Systems (Career) Organizational Maintenance (Track E-601-1710)

**TRAINING ACTIVITY:** MTU 1036, NAMTRAGRU DET

**LOCATION, UIC:** NAS North Island, 39476

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-S3AAA-2-3.6 Testing and Troubleshooting for S-3B Engine and Related Systems	Hard copy	14	Jun 96	Onboard

**PART V - MPT MILESTONES**

<b>COG CODE</b>	<b>MPT MILESTONES</b>	<b>DATE</b>	<b>STATUS</b>
PDA	Began analysis of MPT requirements	Jul 86	Completed
DMSO	Programmed manpower and training resource requirements	Feb 87	Completed
PDA	Promulgated ILS Master Plan	Feb 87	Completed
PDA	Promulgated Approved NTP	Mar 87	Completed
PDA	Promulgated ILSP (Update)	May 90	Completed
OPTEVFOR	Began OPEVAL/TECHEVAL	Jul 90	Completed
OPTEVFOR	Completed OPEVAL/TECHEVAL	Aug 90	Completed
TSA	Delivered Curricula Materials	Aug 90	Completed
DA	Achieved IOC	Sep 90	Completed
TSA	Began Initial Training	Nov 90	Completed
TSA	Began Training Services	Nov 90	Completed
TSA	Completed Initial Training	Mar 91	Completed
TSA	Began Follow-On Training	Feb 91	Completed
PDA	Achieved NSD	Aug 95	Completed
PDA	Completed Interim Maintenance	Aug 95	Completed
MPT	Promulgated Updated NTP	May 96	Completed
TSA	Delivered TTE	Sep 96	Completed
ACNO	Approved and Promulgated NTSP	Mar 97	Completed
TSA	Developed Draft NTSP	Dec 99	Completed
TSA	Begin MTU 1025, NAMTRAGRU DET Move to Point Mugu	June 00	Pending
TSA	Complete MTU 1025 Move	July 00	Pending

PART VI - DECISION ITEMS / ACTION REQUIRED

DECISION ITEM OR  
ACTION REQUIRED

COMMAND ACTION    DUE DATE    STATUS

None

PART VII - POINTS OF CONTACT

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