



**NAVY TRAINING SYSTEM PLAN**

**FOR THE**

**JET ENGINE TEST INSTRUMENTATION**

**N78-NTSP-A-50-0102/D**

**DECEMBER 2002**

**JET ENGINE TEST INSTRUMENTATION****EXECUTIVE SUMMARY**

The Jet Engine Test Instrumentation (JETI) is a newly developed system that will, in time, supplant and replace the A/F32T-10A Standard Engine Test System, the A/W37T-1 Engine Test System, and various A/F32T-10 Engine Test Systems throughout the Navy, both ashore and afloat. This Navy Training System Plan addresses the training requirements for proper operation and maintenance of this system.

JETI is operated and maintained by Navy Aviation Machinist's Mates with Navy Enlisted Classification (NEC) code 6422 assigned to the Aircraft Intermediate Maintenance Department Test Cell Work Center 450. JETI provides an integrated, computer-based measurement and automation system for the purpose of intermediate level testing of aircraft gas turbine engines. Program Manager, Air (PMA) 205 has made an official request to Chief of Naval Operations to utilize personnel with the NEC 6701 for maintenance and troubleshooting of computers in the JETI System. The JETI System is maintained in accordance with the actions as delineated in Office of the Chief of Naval Operations Instruction (OPNAVINST) 4790.2. Since the equipment is operated and maintained at the intermediate level, Level 1 (on-equipment) maintenance will be performed at the intermediate level. Depot level repair and rework will be provided by the Original Equipment Manufacturer or through contractor maintenance for life

The training concept for the JETI System is on-site, hands-on, On-the-Job Training presented by licensed senior test cell operators (E-5 and above) and Naval Air Technical Data and Engineering Service Command (NATEC) personnel.

Familiarization training for Naval Air Systems Command (NAVAIR) Technical Evaluation personnel was performed by the contractor in June 2000 at Patuxent River, Maryland. Training for NATEC personnel was conducted at Naval Air Station Lemoore, California, in May 2001 and again, along with fleet personnel, during the first installation on CVN 72, USS Abraham Lincoln, an Atlantic Fleet aircraft carrier.

The JETI System is approaching Milestone C - Authorization to Enter into Limited Rate Initial Production or Procurement. Initial Operating Capability was attained September 2001. The Material Support Date and Navy Support Date are planned to be attained by November 2003.

**JET ENGINE TEST INSTRUMENTATION**

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**JET ENGINE TEST INSTRUMENTATION**

**LIST OF ACRONYMS**

AC	Alternating Current
ACDU	Active Duty
AD	Aviation Machinist's Mate
AE	Aviation Electrician's Mate
AIMD	Aircraft Intermediate Maintenance Department
ALSP	Acquisition Logistics Support Plan
AMTCS	Aviation Maintenance Training Continuum System
APU	Auxiliary Power Unit
AT	Aviation Electronics Technician
BIT	Built-In Test
CAGE	Commercial and Government Entity
CBT	Computer-Based Training
CFY	Current Fiscal Year
CM	Corrective Maintenance
CNO	Chief of Naval Operations
COMLANTFLT	Commander, U.S. Atlantic Fleet
COMPACFLT	Commander, U.S. Pacific Fleet
COTS	Commercial Off-The-Shelf
CSE	Common Support Equipment
CV	Aircraft Carrier
CVN	Aircraft Carrier, Nuclear
DA	Developing Agency
DAQ	Data Acquisition
EAA	Engine Adapter Assemblies
ECPI	Engineering Change Proposal Improvement
EDB	Electrical Disconnect Box
EIAA	Engine Interface Adapter Assembly
EJB	Electrical Junction Box
EUT	Engine Under Test
FADEC	Full Authority Digital Electronic Control
FY	Fiscal Year
ICP	Inventory Control Point
IMA	Intermediate Maintenance Activity

## JET ENGINE TEST INSTRUMENTATION

### LIST OF ACRONYMS

IOC	Initial Operating Capability
IPB	Illustrated Parts Breakdown
ISS	Interim Supply Support
ITA	Interface Test Adapter
JETI	Jet Engine Test Instrumentation
MB	Megabyte
MDB	Mechanical Disconnect Box
MHz	Megahertz
MJB	Mechanical Junction Box
MRC	Maintenance Requirement Card
MSD	Material Support Date
MTIP	Maintenance Training Improvement Program
NA	Not Applicable
NAF	Naval Air Facility
NAS	Naval Air Station
NATEC	Naval Air Technical Data and Engineering Service Command
NAVAIR	Naval Air Systems Command
NAVMAC	Navy Manpower Analysis Center
NAVPERSCOM	Naval Personnel Command
NEC	Navy Enlisted Classification
NETC	Naval Education and Training Command
NSD	Navy Support Date
NTSP	Navy Training System Plan
OEM	Original Equipment Manufacturer
OJT	On-the-Job Training
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval Operations Instruction
OPO	OPNAV Principal Official
PC	Personal Computer
PDA	Principal Development Activity
PDF	Portable Document Format
PFY	Previous Fiscal Year
PHB	Programming Harness Box
PM	Preventive Maintenance

**JET ENGINE TEST INSTRUMENTATION**

**LIST OF ACRONYMS**

PMA	Program Manager, Air
PMRM	Periodic Maintenance Requirements Manual
PNEC	Primary Navy Enlisted Classification
PSE	Peculiar Support Equipment
PSICP	Program Support Inventory Control Point
RAM	Random Access Memory
RFOU	Ready For Operational Use
SE	Support Equipment
SELRES	Selected Reserves
SETS	Standard Engine Test System
SHIPALT	Ship Alteration
SNEC	Secondary Navy Enlisted Classification
SRA	Shop Replaceable Assembly
TAR	Training and Administration of the Naval Reserve
TECHEVAL	Technical Evaluation
TM	Technical Manual
TPS	Test Program Set
UIC	Unit Identification Code
ULSS	User's Logistics Support Summary
USN	United States Navy
VXI	Versa Module Europa Extension for Instrumentation

## **JET ENGINE TEST INSTRUMENTATION**

### **PREFACE**

This Draft Navy Training System Plan (NTSP) for the Jet Engine Test Instrumentation (JETI) program has been developed to comply with guidelines set forth in the Navy Training Requirements Documentation Manual, Chief of Naval Operations (OPNAV) Publication P-751-3-9-97. This NTSP replaces the Initial NTSP, dated April 2001, and updates information provided in the Initial NTSP. Major changes included in this iteration of the NTSP are as follows:

- Incorporation of the latest program information
- Development of Part II, listing only billets required to support the JETI System
- Development of Parts V, VI, and update to Part VII

It was not necessary to develop Parts III and IV; the JETI System will not have a training track or formal training.

## PART I - TECHNICAL PROGRAM DATA

### A. NOMENCLATURE-TITLE-PROGRAM

1. **Nomenclature-Title-Acronym.** A/W37T-1A, A/F32T-10B, A/E37T-36A Jet Engine Test Instrumentation (JETI) System

2. **Program Element.** 020416N

### 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 (N785D)

OPO Resource Sponsor..... CNO (N785D)

Developing Agency ..... NAVAIR Lakehurst

Training Agency ..... COMLANTFLT (N731)  
COMPACFLT (N70)  
NETC (ETE32)

Training Support Agency..... NAVAIR (PMA205)

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

Director Naval Education and Training..... CNO (N00T)

### D. SYSTEM DESCRIPTION

1. **Operational Uses.** The JETI provides full performance test capability at the Aircraft Intermediate Maintenance Department (AIMD), both ashore and afloat, for manual and automatic testing of gas turbine engines. The system capabilities include instrumentation, data acquisition, engine and facility control, and status display. These enhanced capabilities allow interface and control of Full Authority Digital Electronic Control (FADEC) aircraft engines and



are required to properly test and evaluate the performance of the F414 and F110-GE-400 engines. The JETI System also enhances full performance testing capabilities for legacy engines such as the J52-P-408A/B and F404-GE-400/402, and the GTC36-200/GTCP36-201 Auxiliary Power Units (APU). Initially JETI is only being used by the Navy, but Marine Corps facilities may acquire it in the future.

The JETI has distinctive designations and part numbers, depending on the application. The designations are:

<b>INSTALLATION TYPE</b>	<b>DESIGNATION</b>	<b>PART NUMBER</b>
Aircraft Carrier (CV) or Aircraft Carrier, Nuclear (CVN)	A/W37T-1A	3654AS100-1
Fixed Facility Land-Based	A/F32T-10B	3654AS100-2
Transportable Land-Based	A/E37T-36A	3654AS100-3

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

**E. DEVELOPMENTAL TEST AND OPERATIONAL TEST.** The following sites have conducted Technical Evaluation (TECHEVAL):

**1. Patuxent River, Maryland.** TECHEVAL began in July 2000 at the Naval Air Systems Command (NAVAIR) at Patuxent River, Maryland, with the installation of an A/ET-36 prototype to test the F414 Test Program Set (TPS). TECHEVAL of the A/ET-36 prototype was completed January 2001.

NAVAIR completed testing of the A/F32T-10B configuration at Patuxent River in July 2002. The A/F32T-10B configuration received approval for Fleet use in July 2002.

NAVAIR completed TECHEVAL for the A/E37T-36A configuration at Patuxent River in October 2002.

As TPSs are developed, NAVAIR will continue to act as the software test bed for TECHEVAL of each unique TPS.

**2. USS Abraham Lincoln (CVN 72).** TECHEVAL for the A/W37T-1A configuration was conducted onboard the USS Abraham Lincoln (CVN 72), and was completed in May 2002. The A/W37T-1A configuration received approval for Fleet use in June 2002.

**F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED.** Over time, the JETI System will replace Standard Engine Test Systems (SETS) in existing engine test facilities throughout the Navy. The T-36A test facility, located at NAVAIR Patuxent River, will

be upgraded to current configuration and used to test any changes required in TPS hardware and/or software test applications, and to support development of new requirements. All other T-36 test facilities will be upgraded as required to support site-specific engine test requirements.

JETI replaces current instrumentation in both the T-1 and T-10 Test Cells and utilizes existing Government Furnished Equipment (GFE). Current Engine Adapter Assemblies (EAA) and Peculiar Support Equipment (PSE) continue to be used with JETI for all engines except the F414. The F414 TPS will include a new EAA and new PSE. The following table lists existing SETS equipment and shows which JETI configuration will replace the existing equipment.

<b>EXISTING EQUIPMENT</b>	<b>WILL BE REPLACED BY</b>
Standard Engine Test System (SETS) Configuration	JETI Configuration
A/W37T-1 (Shipboard (CV/CVN))	A/W37T-1A (Shipboard (CV/CVN))
A/F32T-10A (Enclosed (Fixed) Land-Based)	A/F32T-10B (Fixed Facility Land-Based)
A/E37T-36 (Semi-Portable (Open-Air) Land-Based)	A/E37T-36A (Transportable Land-Based)

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

**1. Functional Description.** The JETI is a Commercial Off-The-Shelf (COTS) Personal Computer (PC)-based test system that interconnects two major functional elements, the Engine Under Test (EUT) and the test facility. The JETI provides an enhanced computer-based measurement and automated data control system for the purpose of intermediate level testing of aircraft gas turbine engines in either an indoor or outdoor environment both afloat and ashore. It is designed to monitor and display all parameters of an engine being tested, and allows out-of-airframe testing and troubleshooting. The system integrates six different functions:

- Instrumentation
- Data Acquisition
- System Processor-Controller
- Programmable Throttle System
- Distributed Electrical Power
- Operator-Maintenance Control and Display

The system also provides a printout of the calculated engine performance data during normal testing.

The JETI contains two PCs linked via Ethernet. Each PC is a 600 Megahertz (MHz) Pentium III with 256 Megabyte (MB) Random Access Memory (RAM), 13.4 Gigabyte hard drive, keyboard, mouse, 18-inch Liquid Crystal Display touch screen monitor, and an Ethernet card. Each system also includes a Compact Disk-Read Only Memory (CD-ROM) drive, 250 MB Iomega Zip<sup>®</sup> Drive, 56K modem, and a laser printer.

**2. Physical Description.** All three versions of the JETI (shipboard, land-based (fixed), and land-based (transportable)) are planned to have the same number of cabinets with identical instrumentation. The difference in facility configuration is the control room floor plan. There are no restrictions anticipated for site activation of land-based (T-10B/T-36A) installations. Shipboard configuration will differ based on the existing floor plan. A Ship Alteration (SHIPALT) may be required to accommodate the difference in size of instrumentation cabinets required to facilitate installation of the JETI System. Funding for necessary SHIPALTs will be provided on as required basis. The installed dimensions of the system are eight feet high by eight feet wide by two feet deep, with an installed weight of 1,800 pounds.

In the original installations, the JETI interfaces with the existing test systems utilizing common hardware items such as Electrical Junction Boxes (EJB), Mechanical Junction Boxes (MJB), Programming Harness Boxes (PHB), power supplies, ancillary equipment, power interface buses etc., but will have separate cabling, software, and stand-alone computer control systems. The JETI power distribution systems, electrical and electronic test instrumentation, system indicators, facility and test system interface components, and controls are contained in specifically configured cabinet assemblies and control console assemblies contained in the environmentally controlled test facility control cab. Ninety-five percent of the test system components are contained within the test facility control room area.

The following paragraphs provide a general description of the System Control Cabinet/Test Console Assemblies and major system sub-assemblies of the JETI System.

**a. Test Control Console Assembly I.** This console permits monitoring and control of the EUT. Major assemblies and sub-assemblies contained in this console include

- Two Rack Mounted Control Computers (TPS Computer and Data Acquisition (DAQ) Computer)
- Computer Drawer Assembly 1
- Flat Panel Touch Screen Display
- Keyboard Panel Assembly
- Emergency Panel Assembly
- Emergency Cable Assembly
- Keyboard-Video-Monitor (KVM) Cable Assembly
- Keyboard Cable Assembly.

**b. Throttle Control Console Assembly II.** This console permits monitoring and control of the EUT and houses the mount for the engine control dual throttle lever assemblies. Major assemblies and sub-assemblies housed in this console include:

- Flat Panel Touch Screen Display Assembly
- Throttle Computer
- Intercom Panel Assembly.

**c. Terminal Strip Cabinet Assembly.** This cabinet assembly provides the electrical interface buses consisting of terminal blocks and interface wiring required for intersystem connections.

**d. Data Acquisition Instrument Cabinet Assembly.** The DAQ Cabinet Assembly houses two rack mounted 1261B Versa Module Europa Extension for Instrumentation (VXI) bus chassis (upper and lower) that contain the system data collection electronics. The upper chassis contains the bulk of the acquisition instruments as well as the Interface Test Adapter (ITA). The Lower Chassis (1261 VXI) contains the following:

- Vibration Analyzer
- 2-Channel 1553 Controller
- Counter-Timer
- Second Harmonic Signal Conditioner Instruments

Sub-assemblies contained in the Lower Chassis include the following:

- Mainframe Extender Module
- Vibration Monitor Module
- 1553 Bus Interface Module
- Second Harmonic Signal Conditioner Module
- Receiver Assembly
- ITA

**e. Control Cabinet Assembly.** The Control Cabinet Assembly contains the system instrumentation required to monitor engine parameters specified by the manufacturer as being critical and necessary for final test. Sub-assemblies contained in this cabinet assembly include:

- Power Distribution Module Assembly
- Uninterruptible Power Supply (UPS)
- 400 hertz (Hz) Alternating Current (AC) Power Supply
- Panel Assembly - Power Strip
- Facility Equipment Control Cabinet (T-10B (land-based) Test Facility).

The Facility Equipment Control Cabinet (T-10B (land-based) Test Facility) contains the instrumentation and controls required to operate and monitor facility support systems/Support Equipment (SE), i.e., fuel supply, compressed air, engine air start, fire protection, preservation oil, oil recovery, exhaust ramp temperature indicating system, heating and air conditioning systems, and the facility AC and Direct Current (DC) electrical power distribution systems. The power distribution system also interfaces with test system instrumentation, the throttle system, and electrical-mechanical junction boxes. In the event of input power interruption, battery backup power is supplied at a reasonable duration to the system hardware to enable a safe engine shutdown.

**3. New Development Introduction.** The JETI system is being incorporated as an Engineering Change Proposal Improvement (ECPI). It is being installed in the T-10A test facilities under ECPI-CSE-0038 and the T-1 test facilities under ECPI-CSE-0039. The T-36A test facility, located at NAVAIR Patuxent River, will be upgraded to current configuration and used to test any changes required in TPS hardware and/or software test applications, and to

support development of new requirements. All other T-36 test facilities will be upgraded as required to support site-specific engine test requirements.

**4. Significant Interfaces.** The JETI system interfaces with three test system configurations; transportable land-based system (A/E37T-36), the enclosed land-based system (A/F32T-10), and the shipboard (CV/CVN) system (A/W37T-1). The JETI will be contained or housed differently in each configuration and different facility interfaces will be required. Refer to the JETI User's Logistics Support Summary (ULSS) for figures that portray the various floor plans for different configurations. JETI interfaces with existing test systems utilizing common hardware such as the EJB Assembly, MJB Assembly, PHB Assembly, Engine Interface Adapter Assembly (EIAA), power supplies, ancillary equipment, busses, etc.. The JETI has separate cabling, software, and a stand-alone computer control system.

The EJB and MJB are identical in size to the existing SETS Electrical Disconnect Box (EDB) and the Mechanical Disconnect Box (MDB). The JETI EJB and MJB are mounted to the same control room wall/bulkhead flange that affixed the EDB/MDB. JETI electrical and mechanical interface assemblies are as follows:

**a. Electrical Junction Box Assembly.** The EJB Assembly contains the connector assemblies that provide the test interface required to connect the JETI cable assemblies to the EUT, EIAA, and test facility control room. The JETI EJB will replace the functions of the SETS EDB and will be mounted in the same location.

**b. Mechanical Junction Box Assembly.** The MJB Assembly is an insulated, watertight, corrosion-resistant, environmentally sealed enclosure that houses the pressure transducers used in measuring the various engine pressures during engine testing. The transducers are contained within a heated compartment maintained at a constant temperature to enhance measurement accuracy. The MJB also contains the throttle gearbox assembly and the synchro feedback loop to the throttle computer. The throttle gearbox assembly translates mechanical positions of the throttle levers to the JETI System and associated TPS and the EUT.

**c. Programming Harness Box Assembly.** The PHB Assembly is a junction box that interfaces with the JETI EJB, via cable assemblies, to provide peculiar engine interface with the JETI control and data acquisition systems. The PHB contains power and engine control circuits, and provides safety protection, ensuring the proper engine test software is loaded into the JETI computer prior to engine testing. Each engine will have its own unique PHB.

**d. Engine Interface Adapter Assembly.** The EIAA, which is part of the TPS for each engine, provides the means required to interface the JETI with the engine and with installed dress gear. Major components of the EIAA are:

- Basic Cables Interfacing the FADEC Systems
- Throttle Rotational Variable Differential Transformer (RVDT) Simulator Box
- PHB

The adapter supplements the basic cables, hoses, and miscellaneous gear that are part of the JETI System.

## **5. New Features, Configurations, or Material. NA**

## **H. CONCEPTS**

**1. Operational Concept.** JETI is operated and maintained by Navy personnel assigned to the AIMDs both ashore and afloat. Operator and maintenance personnel are Aviation Machinist's Mates (AD), assigned to Engine Test Cell Work Center 450, with Navy Enlisted Classification (NEC) Code 6422. System operation requires a total of two technicians, one AD 6422 and one safety observer-maintenance man, usually an Aviation Electrician's Mate (AE) or Aviation Electronics Technician (AT). Program Manager, Air (PMA) 205 has made an official request to the Chief of Naval Operations (CNO) to utilize personnel with NEC 6701 for maintenance and troubleshooting of computers utilized in the JETI System. Maintenance of the JETI System is based on a preventive and corrective maintenance concept in accordance with the Naval Aircraft Maintenance Program (NAMPP), Chief of Naval Operations Instruction (OPNAVINST) 4790.2 (series). Depot level repair and rework will be provided by the Original Equipment Manufacturer (OEM) or through contractor maintenance for life.

### **2. Maintenance Concept**

**a. Organizational.** There is no organizational level maintenance on the JETI. Level 1 (on-equipment maintenance) is performed by the using Intermediate Maintenance Activity (IMA).

**b. Intermediate.** Intermediate level maintenance personnel perform Level 1 maintenance tasks and systems calibration, including daily and pre-operational inspections, Preventive Maintenance (PM), and servicing, in addition to maintaining, repairing, or replacing most of the components. The JETI System has Built-in-Test (BIT) capabilities to aid the Test Cell Operator in troubleshooting and testing the JETI System. The BIT system fault-isolates a system malfunction(s) to the Shop Replaceable Assembly (SRA) card level. Non-repairable components are forwarded to the depot level for evaluation and/or repair.

**(1) Preventive Maintenance.** PM will be conducted at specific intervals in accordance with procedures established on Maintenance Requirement Cards (MRC) and the Pre-operational Check Lists developed to support operational readiness of the JETI System. PM actions include, but are not limited to corrosion prevention and control, cleaning, lubrication, and pre- and post-operational inspections. Specific listing of PM requirements are provided in the applicable Periodic Maintenance Requirements Manuals (PMRM) developed for the JETI System and EAA TPSs.

**(2) Corrective Maintenance.** Corrective Maintenance (CM) is performed in accordance with the Commercial Operations and Intermediate Maintenance Instructions Manual developed for the JETI System. CM consists of troubleshooting to a faulty replaceable component or subassembly, removal and replacement of the defective or failed items, followed

by operational testing to verify the corrective action. If required, system and equipment calibration is performed by the IMA Calibration Laboratory.

**c. Depot.** Depot level maintenance consists of repair and restoration to meet specified requirements with the manufacture of parts, assemblies, or the end item as required. Depot level repair and rework is performed by the OEM or through contractor maintenance for life.

**d. Interim Maintenance.** The contractor provides technical support during installation of the JETI system both ashore and afloat. Contractor support includes spare parts and service personnel as required to support the installation, checkout, operation, and maintenance of the JETI system and associated TPS. A team of contractor and Government representatives performs the on-site acceptance tests. After installation acceptance on-site, all TPS hardware and software is tested with engine runs to demonstrate that the JETI System, as installed, is fully functional and meets the interface and control requirements of the applicable test cell. The contractor is responsible for resolution and repair of both hardware and software anomalies identified during installation and testing procedures. A Government assigned installation team will be utilized to install future JETI systems. The Naval Air Technical Data and Engineering Service Command (NATEC) will provide on-going technical support on an as required basis.

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

**3. Manning Concept.** The manning concept is based on functional operational requirements and maintenance workload. PMA205 has made an official request to CNO to utilize personnel with the NEC 6701 for maintenance and troubleshooting of computers in the JETI System. The SETS does not require personnel with NEC 6701 for support. These billets are already manned at most of the AIMDs. The one exception is Naval Air Facility (NAF) Atsugi, Japan. NAF Atsugi does not have personnel with NEC 6701. Existing manpower requirements are adequate to operate and maintain the JETI at all AIMDs receiving the JETI System except NAF Atsugi.

**a. Estimated Maintenance Man-Hours per Operating Hour.** JETI design specifications are as follows:

Mean Time Between Critical Failures .....	500 hours
Mean Time To Repair (Intermediate Level).....	2 hours
Maximum Time To Repair (95 <sup>th</sup> percentile).....	4 hours

**b. Proposed Utilization.** The following table provides the utilization factors for both the A/W37T-1A and A/F32T-10B JETI configurations.

<b>OPERATIONAL MISSION PROFILE UTILIZATION</b>		
	<b>A/W37T-1A CV/CVN CONFIGURATION</b>	<b>A/F32T-10B LAND-BASED CONFIGURATION</b>
Typical Operations (Days)	180	365
Typical Daily Total Demand Time (Standby Hours + Operational Hours)	11.4	8.0

**c. Recommended Qualitative and Quantitative Manpower Requirements.**

The JETI will not cause a great change in fleet manpower requirements. With the exception of NAF Atsugi, the billets and skill level requirements currently assigned to the AIMDs are adequate to operate and maintain the system.

**4. Training Concept.** The training concept for the JETI System consists of hands-on, on-site, On-the-Job Training (OJT) to be presented by licensed senior test cell operators (E-5 and above) and NATEC personnel. System operator and maintainer training will be held during incorporation of the ECPI on-site, not to exceed ten days after system installation prior to site activation. The JETI System installed on-site and Government furnished SE will satisfy training equipment requirements. System Technical Manuals (TM) can also be loaded onto the JETI computer system and will greatly improve operator and maintainer training. Development of a formal training course is not planned at this time.

CNO letter Code N889H3, dated September 1992, gave Naval Air Maintenance Training Group authorization to cancel other Engine Test Systems Turbine training and gave responsibility of training to NATEC and the local AIMDs. This training is conducted by selected NATEC personnel and licensed senior test cell operators (E-5 and above) on an as-required basis per OPNAVINST 4720.2.

The established training concept for most aviation maintenance training divides "A" School courses into two or more segments called *Core* and *Strand*. "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. "A" School *Core* and *Strand* is the prerequisite training that will be needed to progress into JETI training.

**a. Initial Training.** Initial cadre familiarization training has been completed. Contractor training on the operation and maintenance of the JETI System, including related system and engine TPS, was provided to a select group of NAVAIR personnel assigned to perform TECHEVAL. This training was completed in June 2000. Training was provided to a select cadre of NATEC, AIMD, and aircraft carrier Fleet personnel in October 2001. This



training was also conducted as hands-on, on-site, in the form of OJT. Operator and maintenance training were conducted concurrently.

**(1) Operator.** Operator training was provided by the manufacturer to the NAVAIR personnel that are performing TECHEVAL. This training was hands-on, on-site, in the form of OJT. Additional initial training was provided by the manufacturer during the first installation of the system on the USS Abraham Lincoln (CVN 72). This training was OJT and was provided to NATEC personnel, as well as to the ship's company personnel. In the future, NATEC personnel will provide training at the time of installation, and thereafter the training will most likely be conducted as hands-on, on-site, in the form of OJT.

**(2) Maintenance.** Maintenance training was conducted concurrently with operator training. In the future, NATEC personnel will provide training at the time of installation, and thereafter the training will most likely be conducted as hands-on, on-site, in the form of OJT.

**b. Follow-on Training.** NATEC personnel and licensed senior Test Cell Operators (E-5 and above) will conduct on-site training for all other site operators and maintainers. This training will be hands-on, on-site in the form of OJT with maximum emphasis on performing hands-on maintenance tasks. Currently, there is an effort in process to award a contract for development of Computer-Based Training (CBT). The CBT is planned to be on contract by January 2003. It will take 16 months to develop the training packages for operator and maintenance courses. The CBT will be used to support follow-on training requirements on an as-required basis. NATEC personnel will provide OJT in the following areas:

- Basic to advanced training in core disciplines such as electronics, airframes, hydraulics, aircraft engines, and support equipment
- Aircraft systems, Automatic Test Equipment (ATE), TPS, Weapon Replaceable Assemblies (WRA), SRAs, and circuits
- Test equipment, tools, and hardware
- Maintenance, calibration, verification, and repair
- Corrosion control
- Technical publication usage
- Technical report generation

**c. Student Profiles**

<b>SKILL IDENTIFIER</b>	<b>PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS</b>
AD 6422 (Note 1)	<ul style="list-style-type: none"> <li>◦ C-601-2011, Aviation Machinist's Mate Common Core Class A1</li> <li style="text-align: center;"><i>And</i></li> <li>◦ C-601-2012, Aviation Machinist's Mate Helicopter Fundamentals Strand Class A1</li> <li style="text-align: center;"><i>Or</i></li> <li>◦ C-601-2013, Aviation Machinist's Mate Turboprop Fundamentals Strand Class A1</li> <li style="text-align: center;"><i>Or</i></li> <li>◦ C-601-2014, Aviation Machinist's Mate Turbojet Fundamentals Strand Class A1</li> </ul>
AE (Note 2)	<ul style="list-style-type: none"> <li>◦ C-100-2020, Avionics Common Core Class A1</li> <li style="text-align: center;"><i>And</i></li> <li>◦ C-602-2039, Aviation Electricians Mate Strand Class A1</li> </ul>
AT 6701	<ul style="list-style-type: none"> <li>◦ C-100-2017, Avionics Technician I Level Class A1</li> <li style="text-align: center;"><i>And</i></li> <li>◦ C-100-2018, Avionics Technician O Level Class A1</li> <li style="text-align: center;"><i>And</i></li> <li>◦ C-602-2039, Aviation Electrician's Mate Strand Class A1</li> </ul>

**Note 1:** The courses listed are for the AD rating. NEC 6422 does not have any associated courses; it is OJT awardable.

**Note 2:** For AE personnel in intermediate level billets, C-602-2039 will eventually be replaced with C-602-2042, *Aviation Electrician's Mate Intermediate Maintenance Level Strand Class A1*.

**d. Training Pipelines.** The training track for NEC 6422 has been discontinued; there is no formal training track that could be used to provide the necessary training. Currently, there is no plan to re-establish a training track to support this or other test cell systems.

**I. ONBOARD (IN-SERVICE) TRAINING**

**1. Proficiency or Other Training Organic to the New Development**

**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 November 2003.

**b. Aviation Maintenance Training Continuum System.** The AMTCS will provide career path training to the Sailor or Marine 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 (IMI) 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 Aviation Maintenance Training Continuum System - Software Module which provides testing (Test and Evaluation), recording (Electronic Training Jacket), 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 COTS hardware and software, i.e., Fleet Training Devices - Laptops, PCs, Electronic Classrooms, Learning Resource Centers (LRC), 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 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. NA**

**3. Other Onboard or In-Service Training Packages.** Training for the JETI System is hands-on, on-site, OJT to be presented by licensed senior test cell operators (E-5 and above) and NATEC personnel. OJT will be supplemented with CBT. Development of a formal training course is not planned at this time.

## J. LOGISTICS SUPPORT

### 1. Manufacturer and Contract Numbers

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N68335-00-C-0234 NS-35F-5883 N-001-8999A-770	Racal Instruments Inc.	4 Goodyear Street Irvine, CA 92618

### 2. Program Documentation

DOCUMENT	ORIGINATOR	DATE
User's Logistics Support Summary for the A/W37T-1A, A/F32T-10B, A/E37T-36A Jet Engine Test Instrumentation (JETI) System P/N 3654AS100-1/-2/-3, NAWCADLKE-U-AO-2002-66	NAVAIR Lakehurst Code 3.1.4.4	3 June 02 Draft
System Specification for the Jet Engine Test Instrumentation (JETI) System	NAVAIR Lakehurst Code 481200	Undated
Acquisition Logistics Support Plan (ALSP) Draft	NAVAIR Lakehurst Code 3.1.4.4	5 June 00

**3. Technical Data Plan.** A COTS Operations and Intermediate Maintenance Instructions Manual, with Illustrated Parts Breakdown (IPB), has been developed by the contractor for the JETI System. The COTS end item technical manual (AG-JETIS-MIB-00) addresses both the A/W37T-1A and A/F32T-10B configurations in separate work packages and identifies distinctive installation and facility interface requirements. This manual was evaluated for compliance with the Navy maintenance concept. EAA TMs for the F414, F404-400/402, F110, and J52 engines and the GTC36-200 and GTCP36-201 APUs have been revised to include JETI peculiar requirements. In-process reviews will be conducted during TECHEVAL of each TPS to evaluate the development of the TMs with final verification being performed on an installed system.

Delivery of all technical documentation will be in digital Portable Document Format (PDF) with bookmarks for entry onto the NATEC web site for AIMD technical library access. Two hard copies of each manual developed will be delivered concurrent with installation of the JETI system at each respective user site to support system peculiar requirements.

TMs have been developed for the T-1A and T-10B Test Facilities. The following TMs are required for maintenance and operation of the JETI System.

<b>T-1A AND T-10B TECHNICAL MANUALS</b>	
<b>MANUAL NUMBER</b>	<b>TECHNICAL MANUAL TITLE AND DATE</b>
AG-JETIS-MIB-000	Operation Instructions and Intermediate Maintenance with IPB, JETI System Turbo Fan/Jet Engine Test Facility, A/W37T-1A, P/N 3654AS100-1, A/F32T-10B, P/N 3654AS100-2, August 2002
AG-JETIS-POM-000	Pre-Operational Check List JETI (A/W37T-1A), P/N 3654AS100-1, August 2002
AG-JETIS-MRC-000	Periodic Maintenance Requirement Manual (A/W37T-1A), P/N 3654AS100-1, August 2002
AG-JETIS-POM-100	Pre-Operational Check List JETI (A/F32T-10B), P/N 3654AS100-2, August 2002
AG-JETIS-MRC-200	Periodic Maintenance Requirements Manual JETI (A/F32T-10B), P/N 3654AS100-2, August 2002
NAVAIR 17-50A317	Instrument Calibration Procedures for JETI P/N 3654AS100-1/-2, August 2002

EAA TMs for the F414, F110, F404-400/402, and J52 engines and the GTC36-200 and GTCP36-201 APU adapters have been revised to include JETI peculiar requirements. The existing EAA technical manuals were provided to the contractor as Government Furnished Material (GFM) for update purposes. The following EAA technical manuals will be delivered in both digital PDF and hardcopy.

<b>ENGINE ADAPTER ASSEMBLY (EAA) TECHNICAL MANUALS</b>	
<b>MANUAL NUMBER</b>	<b>TECHNICAL MANUAL TITLE AND DATE</b>
<b>J52-P408A/B Engine Adapter:</b>	
AG-J52PW-TPS-000	Intermediate Maintenance w/IPB for J52-P-408A/B Engine Interface Adapter Assembly (EIAA) P/N 3654AS5530-1 (A/W37T-1A), August 2002
AG-J52AA-POM-000	Pre-Operational Checklist for J52-P-408A/B (EIAA), P/N 3654AS5530-1 (A/W37T-1A), August 2002

<b>ENGINE ADAPTER ASSEMBLY (EAA) TECHNICAL MANUALS</b>	
<b>MANUAL NUMBER</b>	<b>TECHNICAL MANUAL TITLE AND DATE</b>
AG-J52AA-MRC-000	Periodic Maintenance Requirements Manual (PMRM) J52-P408A/B (EIAA), P/N 3654AS5530-1 (A/W37T-1A), August 2002
NAVAIR 17-50A321	J52-P-408A Engine Interface Adapter Assembly Instrument (Intermediate) Calibration Procedure, August 2002
<b>F110-GE-400 Engine Adapter:</b>	
AG-F110A-TPS-000	Intermediate Maintenance w/IPB for F110-GE-400 Engine Interface Adapter Assembly (EIAA) P/N 3654AS5230-1 (A/W37T-1A), August 2002
AG-F110A-POM-000	Pre-Operational Checklist F110-GE-400 (EIAA), P/N 3654AS5230-1 (A/W37T-1A), August 2002
AG-F110A-MRC-000	Periodic Maintenance Requirements Manual (PMRM) F110-GE-400 (EIAA), P/A 3654AS5230-1 (A/W37T-1A), Aug 02
NAVAIR 17-50A318	F110-GE-400 Engine Interface Adapter Assembly Instrument (Intermediate) Calibration Procedure, August 2002
<b>F414-GE-400 Engine Adapter:</b>	
AG-F414A-TPS-000	Intermediate Maintenance with IPB for F414-GE-400 Engine Interface Adapter Assembly (EIAA) P/N 3654AS5130-1 (A/W37T-1A), P/N 3654AS5130-2 (A/F32T-10B), August 2002
AG-F414A-POM-000	Pre-Operational Checklist F414-GE-400 (EIAA), EIAA P/N 3654AS5130-1/-2 (A/W37T-1A, A/F32T-10B)), August 2002
AG-F414A-MRC-000	Periodic Maintenance Requirements Manual (PMRM) F414-GE-400 (EIAA), P/A 3654AS5230-1/-2 (A/W37T-1A, A/F32T-10B), August 2002
NAVAIR 17-50A320	F414-GE-400 Engine Interface Adapter Assembly Instrument (Intermediate) Calibration Procedure, August 2002
<b>F404-GE-400/402 Engine Adapter:</b>	
AG-F404A-TPS-000	Intermediate Maintenance with IPB for F404-GE-400/402 Engine Interface Adapter Assembly (EIAA) P/N 3654AS5330-1 (A/W37T-1A), P/N 3654AS5330-2 (A/F32T-10B), August 2002

<b>ENGINE ADAPTER ASSEMBLY (EAA) TECHNICAL MANUALS</b>	
<b>MANUAL NUMBER</b>	<b>TECHNICAL MANUAL TITLE AND DATE</b>
AG-F404A-POM-000	Pre-Operational Checklist F414-GE-400 (EIAA), P/N 3654AS5130-1/-2 (A/W37T-1A, A/F32T-10B)), August 2002
AG-F404A-MRC-000	Periodic Maintenance Requirements Manual (PMRM) EIAA F404-GE-400/402 (EIAA), P/N 3654AS5230-1/-2 (A/W37T-1A, A/F32T-10B), August 2002
NAVAIR 17-50A319	F404-GE-400/-402 Engine Interface Adapter Assembly Instrument (Intermediate) Calibration Procedure, August 2002
<b>GTC36-200/GTCP36-201 APU Adapter:</b>	
AG-GTC36-TPS-000	Intermediate Maintenance with IPB for GTC36-200 Engine Adapter Assembly (EIAA) P/N 3654AS5630-1, GTCP36-201 Engine Adapter Assembly (EIAA) P/N 3654AS5730-1, March 2002
AG-GTC36-POM-000	Pre-Operational Checklist (EIAA), P/N 3654AS5630-1/3654AS5730-1 (A/W37T-1A), March 2002
AG-GTC36-MRC-000	Periodic Maintenance Requirements Manual (EIAA), P/N 3654AS5630-1/3654AS5730-1 (A/W37T-1A), March 2002
NAVAIR 17-50A322	GTC36-200/GTCP36-201 Engine Interface Adapter Assembly, Instrument (Intermediate) Calibration Procedure, August 2002

**4. Test Sets, Tools, and Test Equipment.** Navy Common Support Equipment (CSE) and standard tools will be utilized to the maximum extent, and COTS equipment will be used if not in the Navy inventory. Selection of SE required will be prioritized in the following order:

- Use Existing CSE
- Use PSE in Government Inventory
- Use Modified Existing CSE, PSE
- Use COTS Equipment
- Develop New PSE

SE required for maintaining the T-1A/T-10B Test Facilities is listed below. BIT features of the JETI System will accomplish most of the system test and troubleshooting requirements. The following SE, tools, and test equipment are required to perform maintenance on the JETI System.

<b>SUPPORT EQUIPMENT REQUIRED FOR MAINTENANCE OF THE JETI SYSTEM</b>		
<b>DESCRIPTION</b>	<b>MODEL/TYPE/PART NO.</b>	<b>CAGE</b>
Digital Multi-Meter (DMM)	DM-33 or Equivalent	OHBC4
Oscilloscope 100 MHz, Dual Channel	654	80009
Frequency Generator	10050-1200	14304
Frequency Counter	2458477	15090
VXI Extraction Tool	910-109-111	18117
Thermocouple Contact/Signals RCVR (ITA)	910-110-102	18117
Coaxial Contact Power (RCVR)	910-112-101	18117
Coaxial Contact Mini Power (ITA)	910-112-104	18117
Coaxial Contact Power (ITA)	910-112-105	18117

**5. Repair Parts.** The period between Initial Operating Capability (IOC), September 2001, and the Material Support Date (MSD), November 2003, is considered the Interim Supply Support (ISS) period. The planned interim support scenario is Government furnished spare and repair parts procured as an Interim Support Items List (ISIL) developed by the manufacturer and approved by the Government. The augmented ISS period will continue until full MSD is attained. Initial interim contractor supply support of repair parts will become available for transition to the Government concurrent with attainment of MSD. The Navy Support Date (NSD) is planned for November 2003.

Once MSD and NSD are achieved, supply support for the JETI System will be managed under the Program Support Inventory Control Point (PSICP) concept. The Naval Inventory Control Point (NAVICP) Code 03611.21, Philadelphia, Pennsylvania, is the PSICP representative. Other Inventory Control Points (ICP) or Defense Logistics Agencies (DLA) will be assigned supply support responsibilities for certain assemblies and commodities under their cognizance and provide material support as required.

#### **6. Human Systems Integration. NA**

### **K. SCHEDULES**

**1. Installation and Delivery Schedules.** The following schedule covers the TECHEVAL of the system, the installation at shore activities, and the installation for aircraft



carriers as they become available in the shipyard during overhaul. The column at the far right provides the Ready For Operational Use (RFOU) date.

ACTIVITY	INSTALLATIONS BY FISCAL YEAR										RFOU DATE
	00	01	02	03	04	05	06	07	08	09	
NAVAIR Patuxent River (Prototype)	1										Jan 01
NAVAIR Patuxent River (T-10B)			1								Mar 03
NAVAIR Patuxent River (T-36 Upgrade)				1							Apr 03
NAS Lemoore (T-10B)							1				Jan 06
USS Abraham Lincoln, CVN 72		1									Jul 02
NAS Lemoore (T-10B)							1				Aug 06
USS Nimitz, CVN 68			1								Jan 03
USS Carl Vinson, CVN 70			1								Jan 03
NAF Atsugi (T-10B)				1							Dec 03
USS John C. Stennis, CVN 74				1							Jun 03
USS Kitty Hawk, CV 63				1							Jul 03
AIRLANT #1 (Note)				1							Apr 04
AIRLANT #2 (Note)				1							Apr 04
USS Theodore Roosevelt, CVN 71					1						Dec 04
USS Enterprise, CVN 65					1						Oct 04
USS Dwight D. Eisenhower, CVN 69					1						Dec 04
USS George Washington, CVN 73						1					Sep 05
USS Ronald Reagan, CVN 76				1							Dec 04
USS Harry S. Truman, CVN 75									1		Dec 08
USS John F. Kennedy, CV 67										1	Jan 10

**Note:** AIRLANT refers to Commander, U.S. Atlantic Fleet; specific locations are unknown at this time. Locations will be added in updates to this NTSP.

**2. Time Required to Install at Operational Sites.** The initial installation was completed in five months from start to finish. Further refinements in the installation procedure are expected to lower the time required in the future.

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

**4. Training Device and Technical Training Equipment Delivery Schedule.** NA

**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>
Gas Turbine Engine Test Systems NTSP	NTSP-A-50-8616B/A	PMA205	Approved Aug 98
User's Logistics Support Summary for the A/W37T-1A, A/F32T-10B, A/E37T-36A Jet Engine Test Instrumentation (JETI) System P/N 3654AS100-1/-2/-3	NAWCADLKE-U-AO-2002-66	NAVAIR Lakehurst Code 3.1.4.4	3 June 02 Draft
System Specification for the Jet Engine Test Instrumentation (JETI) System	NA	NAVAIR Lakehurst Code 481200	Undated
Acquisition Logistics Support Plan (ALSP) Draft	NAWCADLKE-ALSP	NAVAIR Lakehurst Code 3.1.4.4	5 Jun 00

## PART II - BILLET AND PERSONNEL REQUIREMENTS

The JETI is replacing an existing engine test cell and will not result in the deactivation of any activities. Additionally, billets will not be deleted. Since the JETI Operators and Maintainers are trained via OJT, there are no requirements for instructor billets or chargeable student billets. The following elements are not affected by the JETI and, therefore, are not included in Part II of this NTSP:

### II.A Billet Requirements

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

II.A.2.b Billets To Be Deleted For Operational And Fleet Support Activities

II.A.2.c Total Billets To Be Deleted For Operational And Fleet Support Activities

II.A.3 Training Activities Instructor And Support Billet Requirements

II.A.4 Chargeable Student Billet Requirements

### II.B Personnel Requirements

II.B.1 Annual Training Input Requirements

**Note:** This Part of the JETI NTSP reflects intermediate level maintenance billet and personnel requirements. It is a compilation of NEC 6422 and 6701. The addition of JETI to the intermediate level workload is only a percentage of the required workload for these NECs.

**PART II - BILLET AND PERSONNEL REQUIREMENTS**

**II.A. BILLET REQUIREMENTS**

**SOURCE OF AMD:** Total Force Manpower Management System

**DATE:** October 2002

**II.A.1.a. OPERATIONAL AND FLEET SUPPORT ACTIVITY ACTIVATION SCHEDULE**

<b>ACTIVITY, UIC</b>	<b>PFYs</b>	<b>CFY03</b>	<b>FY04</b>	<b>FY05</b>	<b>FY06</b>	<b>FY07</b>
<b>OPERATIONAL ACTIVITIES - USN</b>						
CV 67 USS John F. Kennedy	03367	1	0	0	0	0
CVN 65 USS Enterprise	03365	1	0	0	0	0
CVN 69 USS Dwight D. Eisenhower	03369	1	0	0	0	0
CVN 71 USS Theodore Roosevelt	21247	1	0	0	0	0
CVN 73 USS George Washington	21412	1	0	0	0	0
CVN 75 USS Harry S. Truman	21853	1	0	0	0	0
CVN 76 USS Ronald Reagan	22178	1	0	0	0	0
CV 63 USS Kitty Hawk	03363	1	0	0	0	0
CVN 68 USS Nimitz	03368	1	0	0	0	0
CVN 70 USS Carl Vinson	20993	1	0	0	0	0
CVN 72 USS Abraham Lincoln	21297	1	0	0	0	0
CVN 74 USS John C. Stennis	21847	1	0	0	0	0
<b>TOTAL:</b>		12	0	0	0	0
<b>FLEET SUPPORT ACTIVITIES - USN</b>						
NAF Atsugi - AIMD	44323	1	0	0	0	0
NAF Atsugi AIMD Det Iwakuni	49340	1	0	0	0	0
<b>TOTAL:</b>		2	0	0	0	0

II.A.1.b. BILLETTS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES

ACTIVITY, UIC, PHASING INCREMENT	BILLETTS		DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
	OFF	ENL			
OPERATIONAL ACTIVITIES - USN					
<b>CV 67 USS John F. Kennedy, 03367</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			
<b>CVN 65 USS Enterprise, 03365</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			
<b>CVN 69 USS Dwight D. Eisenhower, 03369</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			
<b>CVN 71 USS Theodore Roosevelt, 21247</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			

II.A.1.b. BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES

ACTIVITY, UIC, PHASING INCREMENT	BILLETS		DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
	OFF	ENL			
<b>CVN 73 USS George Washington, 21412</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			
<b>CVN 75 USS Harry S. Truman, 21853</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	1	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>9</b>			
<b>CVN 76 USS Ronald Reagan, 22178</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			
<b>CV 63 USS Kitty Hawk, 03363</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			

II.A.1.b. BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES

ACTIVITY, UIC, PHASING INCREMENT	BILLETS		DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
	OFF	ENL			
<b>CVN 68 USS Nimitz, 03368</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			
<b>CVN 70 USS Carl Vinson, 20993</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			
<b>CVN 72 USS Abraham Lincoln, 21297</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			
<b>CVN 74 USS John C. Stennis, 21847</b>					
ACDU	0	1	AD1	6422	
	0	1	AD2	6422	
	0	1	AD3	6422	
	0	2	ADAN	6422	
	0	1	AE1	6701	
	0	3	AT1	6701	
	0	1	AT1	6701	9503
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>10</b>			

**II.A.1.b. BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES**

ACTIVITY, UIC, PHASING INCREMENT	BILLETS		DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
	OFF	ENL			
FLEET SUPPORT ACTIVITIES - USN					
<b>NAF Atsugi - AIMD, 44323</b>					
ACDU	0	1	AD1	6422	
	0	2	AD2	6422	
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>3</b>			
<b>NAF Atsugi AIMD Det Iwakuni, 49340</b>					
ACDU	0	2	AD2	6422	
	0	1	AD3	6422	
SELRES	0				
<b>ACTIVITY TOTAL:</b>	<b>0</b>	<b>3</b>			



**II.A.1.c. TOTAL BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES**

DESIG/ RATING	PNEC/SNEC PMOS/SMOS	PFYs		CFY03		FY04		FY05		FY06		FY07	
		OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL
USN OPERATIONAL ACTIVITIES - ACDU													
AD1	6422		12	0	0	0	0	0	0	0	0	0	0
AD2	6422		12	0	0	0	0	0	0	0	0	0	0
AD3	6422		12	0	0	0	0	0	0	0	0	0	0
ADAN	6422		23	0	0	0	0	0	0	0	0	0	0
AE1	6701		11	0	0	0	0	0	0	0	0	0	0
AT1	6701		33	0	0	0	0	0	0	0	0	0	0
AT1	6701 9503		11	0	0	0	0	0	0	0	0	0	0
USN OPERATIONAL ACTIVITIES - SELRES													
NA			0	0	0	0	0	0	0	0	0	0	0
USN FLEET SUPPORT ACTIVITIES - ACDU													
AD1	6422		1	0	0	0	0	0	0	0	0	0	0
AD2	6422		4	0	0	0	0	0	0	0	0	0	0
AD3	6422		1	0	0	0	0	0	0	0	0	0	0
USN FLEET SUPPORT ACTIVITIES - SELRES													
NA			0	0	0	0	0	0	0	0	0	0	0
<b>SUMMARY TOTALS:</b>													
USN OPERATIONAL ACTIVITIES - ACDU													
			114	0	0	0	0	0	0	0	0	0	0
USN OPERATIONAL ACTIVITIES - SELRES													
			0	0	0	0	0	0	0	0	0	0	0
USN FLEET SUPPORT ACTIVITIES - ACDU													
			6	0	0	0	0	0	0	0	0	0	0
USN FLEET SUPPORT ACTIVITIES - SELRES													
			0	0	0	0	0	0	0	0	0	0	0
<b>GRAND TOTALS:</b>													
USN - ACDU			120	0	0	0	0	0	0	0	0	0	0
USN - SELRES			0	0	0	0	0	0	0	0	0	0	0

**II.A.5. ANNUAL INCREMENTAL AND CUMULATIVE BILLETS**

DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS	BILLET BASE	CFY03		FY04		FY05		FY06		FY07	
				+/-	CUM	+/-	CUM	+/-	CUM	+/-	CUM	+/-	CUM

**a. OFFICER – USN**      Not Applicable

**b. ENLISTED - USN**

Operational Billets ACDU and TAR

AD1	6422		12	0	12	0	12	0	12	0	12	0	12
AD2	6422		12	0	12	0	12	0	12	0	12	0	12
AD3	6422		12	0	12	0	12	0	12	0	12	0	12
ADAN	6422		23	0	23	0	23	0	23	0	23	0	23
AE1	6701		11	0	11	0	11	0	11	0	11	0	11
AT1	6701		33	0	33	0	33	0	33	0	33	0	33
AT1	6701	9503	11	0	11	0	11	0	11	0	11	0	11

Fleet Support Billets ACDU and TAR

AD1	6422		1	0	1	0	1	0	1	0	1	0	1
AD2	6422		4	0	4	0	4	0	4	0	4	0	4
AD3	6422		1	0	1	0	1	0	1	0	1	0	1

SELRES Billets

			0	0	0	0	0	0	0	0	0	0	0
--	--	--	---	---	---	---	---	---	---	---	---	---	---

**TOTAL USN ENLISTED BILLETS:**

Operational			114	0	114	0	114	0	114	0	114	0	114
Fleet Support			6	0	6	0	6	0	6	0	6	0	6
SELRES			0	0	0	0	0	0	0	0	0	0	0

**c. OFFICER - USMC**      Not Applicable

**d. ENLISTED - USMC**      Not Applicable

## **PART III - TRAINING REQUIREMENTS**

CNO letter Code N889H3, dated September 1992, gave Naval Air Maintenance Training Group authorization to cancel other Engine Test Systems Turbine training and gave responsibility of training to NATEC and the local AIMDs. This training is provided as OJT and is conducted by selected NATEC personnel and licensed senior Test Cell Operators (E-5 and above) on an as-required basis. Therefore, there is no requirement for courses; the following elements are not affected by the JETI and are not included in Part III of this NTSP:

### III.A. Training Course Requirements

#### 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

## **PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS**

Since the JETI Operators and Maintainers are trained via OJT, there are no requirements for training hardware, courseware, or facilities. The following elements are not affected by the JETI 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.A.2 Training Devices

### **IV.B Courseware Requirements**

IV.B.1 Training Services

IV.B.2 Curricula Materials And Training Aids

IV.B.3 Technical Manuals

### **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

**PART V - MPT MILESTONES**

<b>COG CODE</b>	<b>MPT MILESTONES</b>	<b>DATE</b>	<b>STATUS</b>
DA	Distribute Initial NTSP	Dec 99	Complete
Contractor	Conduct Initial Familiarization Training for TECHEVAL Personnel	Jun 00	Complete
Contractor	Conduct Initial Training for NATEC Personnel	May 01	Complete
DA	Distribute Second Iteration Initial NTSP	Apr 01	Complete
PDA	Achieve IOC	Sep 01	Complete
DA	Began Fleet Introduction	Jul 02	Ongoing
NATEC	Conduct OJT During Fleet Installation	-	Ongoing
DA	Deliver Draft NTSP	Nov 02	Complete
OPO	Distributed Draft NTSP for Review	Dec 02	Complete
DA	Award Contract for Computer Based Training (CBT)	FY03	In process
PDA	Achieve NSD	Nov 03	Pending
PDA	Achieve MSD	Nov 03	Pending



**PART VI - DECISION ITEMS / ACTION REQUIRED**

**DECISION ITEM OR ACTION REQUIRED**

**COMMAND ACTION**

**DUE DATE**

**STATUS**

No actions pending



## PART VII - POINTS OF CONTACT

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