NAVY TRAINING SYSTEM PLAN

FOR

NAVAL AVIATION OXYGEN SYSTEMS

N88-NTSP-A-50-8603C/A

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NAVAL AVIATION OXYGEN SYSTEMS

EXECUTIVE SUMMARY

Naval Aviation Oxygen Systems (NAOS) include the On-Board Oxygen Generating System (OBOGS), Liquid Oxygen (LOX) System, and the Aviators Breathing Oxygen (ABO) Contaminant Analyzer. All three programs have reached Full Operational Capability and are in the Operations and Support phase of the Defense Acquisition System (DAS).

The OBOGS was developed to provide a continuous supply of oxygen-enriched air to the aircrew when the system is activated during aircraft engine operation. Initial Operational Capability (IOC) was achieved in September 1985. The LOX Converter Assembly converts LOX into gaseous oxygen for the aircrew during flight and pressure regulated by either a panel or man-mounted diluter demand regulator. The LOX system is a fully developed legacy system and all acquisition milestones have been achieved. The ABO Contaminant Analyzer is used with existing auxiliary support equipment to provide ABO contaminant analysis capability. ABO Contaminant Analyzer IOC was achieved in March 1994 and all units were delivered prior to the Navy Support Date (NSD) in September 1996.

Navy Aviation Structural Mechanics (Safety Equipment) (AME) with aircraft specific Navy Enlisted Classifications (NEC) and Marine Corps Aircraft Safety Equipment Mechanics with aircraft specific Military Occupational Specialties (MOS) maintain the OBOGS and LOX at the organizational level. The ABO Contaminant Analyzer is not used at the organizational level. Navy Aviation Survival Equipmentmen with NEC 7356 and Marine Corps Flight Equipment Marines with MOS 6048 maintain OBOGS and LOX System components, and operate and maintain the ABO Contaminant Analyzer at the intermediate level. The respective manufacturer performs depot level maintenance for the OBOGS, LOX components, and the ABO Contaminant Analyzer. Naval Aviation Depot Jacksonville, Florida, also performs depot level maintenance for LOX components. The manpower identified in current Navy and Marine Corps manpower documents is sufficient to support the NAOS. No new NECs or MOSs will be required.

Initial training for all three systems has been completed. Follow-on training for OBOGS and LOX System organizational level maintenance is included in applicable aircraft Naval Air Maintenance Training Group organizational level maintenance training courses. Previously established follow-on OBOGS intermediate level maintenance training at Maintenance Training Unit (MTU) 1038 Naval Aviation Maintenance Training Unit (NAMTRAU) Lemoore, California, and MTU 1039 NAMTRAU Oceana, Virginia, has been discontinued. The OBOGS maintenance curricula is being added to the Aircrew Survival Equipment Intermediate Maintenance Pipeline at Naval Air Technical Training Center (NATTC) Pensacola, Florida. The OBOGS course will be Ready For Training in Fiscal Year 02. LOX System components and ABO Contaminant Analyzer intermediate level maintenance training is part of the existing Aircrew Survival Equipment Intermediate Maintenance Pipeline at NATTC, Pensacola.

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LIST OF ACRONYMS

ABO	Aviators Breathing Oxygen
AIMD	Aviation Intermediate Maintenance Department
AME	Aviation Structural Mechanic (Safety Equipment)
AMTCS	Aviation Maintenance Training Continuum System
AOS	Aircraft Oxygen System
BIT	Built-In Test
BOSS	Buy Our Spares Smart
CIN	Course Identification Number
CINCLANTFLT	Commander in Chief, Atlantic Fleet
CINCPACFLT	Commander in Chief, Pacific Fleet
CMC	Commandant Marine Corps
CNET	Chief of Naval Education and Training
CNO	Chief of Naval Operations
COTS	Commercial Off-The-Shelf
DAS	Defense Acquisition System
FMS	Foreign Military Sales
FY	Fiscal Year
G	Gravity Force
inH_2O	Inches of Water
ILSP	Integrated Logistics Support Plan
LITOCS	Litton Oxygen Concentrating System
LOX	Liquid Oxygen
lpm	Liters per Minute
MALS	Marine Aviation Logistics Squadron
MATMEP	Maintenance Training Management and Evaluation Program
MCAS	Marine Corps Air Station
MCCDC	Marine Corps Combat Development Command
MM	Machinist's Mate
MOS	Military Occupational Specialty
MSD	Material Support Date

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LIST OF ACRONYMS

MTIP	Maintenance Training Improvement Program
MTRR	Maintenance Training Requirements Review
MTU	Maintenance Training Unit
NA	Not Applicable
NACES	Naval Aircrew Common Ejection Seat
NAMTRAGRU DET	Naval Air Maintenance Training Group Detachment
NAMTRAU	Naval Aviation Maintenance Training Unit
NAOS	Naval Aviation Oxygen Systems
NATC	Naval Air Test Center
NATTC	Naval Air Technical Training Center
NAVAIR	Naval Air Systems Command
NAVAIRSYSCOM	Naval Air Systems Command
NAVICP	Naval Inventory Control Point
NAVPERSCOM	Naval Personnel Command
NAWCADLKE	Naval Air Warfare Center Aircraft Division Lakehurst
NEC	Navy Enlisted Classification
NSD	Navy Support Date
NTSP	Navy Training System Plan
OBIGGS	On-Board Inert Gas Generating System
OBOGS	On-Board Oxygen Generating System
OPEVAL	Operational Evaluation
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval Operations Instruction
OPO	OPNAV Principal Official
PMA	Program Manager, Air
PO_2	Pressure of Oxygen
PPO_2	Partial Pressure of Oxygen
PR	Aviation Survival Equipmentman
psi	Pounds per Square Inch
psig	Pounds per Square Inch Gauged
RFI	Ready For Issue
RFT	Ready For Training
SESM	Solid State Oxygen Monitor

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LIST OF ACRONYMS

SSOM	Solid State Oxygen Monitor
TD	Training Device
TECHEVAL	Technical Evaluation
TOC	Total Ownership Cost
TTE	Technical Training Equipment
WRA	Weapon Replaceable Assembly

NAVAL AVIATION OXYGEN SYSTEMS

PREFACE

This Approved Navy Training System Plan (NTSP) for the Naval Aviation Oxygen Systems (NAOS) updates the On-Board Oxygen Generating System (OBOGS) Approved NTSP, A-50-8603B/A, dated June 1994, and supercedes the A/E 24T-226 Aviators Breathing Oxygen Contaminant Analyzer Draft NTSP, A-50-9308A/D, dated February 1999. This document has been developed in accordance with the guidelines set forth in the Navy Training Requirements Documentation Manual, Office of the Chief of Naval Operations (OPNAV) Publication P-751-1-9-97. Major changes to this document include:

- Changing the name of the NTSP from On-Board Oxygen Generating System to Naval Aviation Oxygen Systems. This title change more accurately reflects the revised content of the document.

- Incorporation of information applicable to the A/E 24T-226 Aviators Breathing Oxygen (ABO) Contaminant Analyzer and all components of the Liquid Oxygen (LOX) System. The ABO Contaminant Analyzer information was previously contained in NTSP A-50-9308A/D, A/E 24T-226 Aviators Breathing Oxygen Contaminant Analyzer, dated February 1999.

- Updating all information for OBOGS, LOX System, and the A/E 24T-226 ABO Contaminant Analyzer.

- Incorporation of NTSP format changes and updating of milestones and points of contact since the last publication date.

PART I - TECHNICAL PROGRAM DATA

A. NOMENCLATURE-TITLE-PROGRAM

1. **Nomenclature-Title-Acronym.** Naval Aviation Oxygen Systems (NAOS)

2. **Program Element.** 64264N

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)

Functional Mission Sponsor ..... CNO (N78)

Marine Corps Program Sponsor ..... CMC (ASL-33)

Developing Agency ..... NAVAIRSYSCOM (PMA202)

Training Agency ..... CINCLANTFLT
CINCPACFLT
CMC
CNET

Training Support Agency..... NAVAIRSYSCOM (PMA205)

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

Director of Naval Training ..... CNO (N795)

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

D. SYSTEM DESCRIPTION

1. Operational Uses. NAOS includes the OBOGS, the LOX System, and the ABO Contaminant Analyzer.

a. On-Board Oxygen Generating System. The OBOGS provides a continuous supply of oxygen-enriched air to the aircrew when the system is activated during aircraft engine operation. OBOGS installation eliminates aircraft dependence on LOX facilities. OBOGS facilitates the deployment of aircraft aboard air capable ships and shore bases that do not have the capability of oxygen manufacturing. The Litton Oxygen Concentrating System (LITOCS) and On-Board Inert Gas Generating System (OBIGGS) are special applications of OBOGS technology developed specifically for the T-6 and V-22 aircraft.

b. Liquid Oxygen System. The LOX System is designed to convert LOX into gaseous oxygen for use by the aircrew at altitudes up to a maximum of 50,000 feet.

c. Aviators Breathing Oxygen Contaminant Analyzer. The model A/E 24T-226 ABO Contaminant Analyzer is a modularized unit capable of analyzing contaminant levels and determining the concentration of contaminants that may be present in ABO.

2. Foreign Military Sales. For information concerning Foreign Military Sales (FMS) of NAOS equipment, contact Naval Air Systems Command (NAVAIRSYSCOM) Program Manager, Air (PMA) 202D.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST

1. Technical Evaluation

a. On-Board Oxygen Generating System. Technical Evaluation (TECHEVAL) was conducted on an OBOGS-equipped AV-8A Aircraft from February 1980 to August 1981 at the Naval Air Test Center (NATC) Patuxent River, Maryland, and Marine Corps Air Station (MCAS) Yuma, Arizona. TECHEVAL on an improved OBOGS installed in an AV-8A Aircraft was conducted at NATC Patuxent River from January to March 1982. Results were satisfactory.

b. Liquid Oxygen System. Not Applicable (NA)

c. Aviators Breathing Oxygen Contaminant Analyzer. Two TECHEVALs were conducted on the ABO Contaminant Analyzer at the Naval Air Warfare Center, Aircraft Division, Patuxent River. These evaluations were completed in July 1993. After correcting discrepancies, the ABO Contaminant Analyzer was approved for fleet use in 1994.

2. Operational Evaluation

a. On-Board Oxygen Generating System. Operational Evaluation (OPEVAL) was conducted on an AV-8 OBOGS-equipped aircraft at MCAS Yuma from October 1983 to February 1984. Marine Corps personnel under the direction of the Commander, Operational

Test and Evaluation Force, Norfolk, Virginia, conducted OPEVAL. OBOGS was found operationally suitable and effective.

b. Liquid Oxygen System. NA

c. Aviators Breathing Oxygen Contaminant Analyzer. OPEVAL was not required for the ABO Contaminant Analyzer.

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED

1. On-Board Oxygen Generating System. The OBOGS is designed to replace the LOX System. This is planned replacement by attrition with OBOGS being installed in new development aircraft. The CRU-99/A Solid State Oxygen Monitor (SSOM) is scheduled to replace all installations of the CRU-83/A and CRU-91/A Polarographic Alarm Monitors. The CRU-103/P Oxygen Regulator is scheduled to replace the CRU-82/P and CRU-88/P series regulators as part of a Total Ownership Cost (TOC) Initiative.

2. Liquid Oxygen System. A Cost Benefit Analyses developed by the Aviation Oxygen Systems Fleet Support Team determined that it is the best interest of the Navy and Marine Corps to convert all aircraft from LOX to OBOGS. The elimination of LOX enhances safety and mission effectiveness, while reducing maintenance, operational support costs, and the logistics infrastructure. As a result, the Aviation Oxygen Systems Fleet Support Team established a goal to replace all LOX Systems in all Department of the Navy aircraft, aircraft carriers, and shore bases with OBOGS by 2007. The CRU-103/P Oxygen Regulator is scheduled to replace the CRU-79/P and CRU-88/P series regulators as part of a Total Ownership Cost (TOC) Initiative.

3. Aviators Breathing Oxygen Contaminant Analyzer. The ABO Contaminant Analyzer replaced the ACCULAB-4 and ACCULAB-8 Oxygen Analyzers.

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. The following table identifies specific aircraft applications of OBOGS and LOX Systems, components, oxygen monitors, and oxygen regulators.

AIRCRAFT APPLICATION TABLE

COMPONENT NOMENCLATURE	AV/TAV-8B	E-2	EA-6B	F-14A/B	F-14D	F/A-18 (Blue Angels)	F/A-18A/B	F/A-18C/D	F/A-18C/D (Lot 13 and Up)	F/A18-E/F	ES-3A/S-3B	T-2C	T-6A	T-45A/C	MV-22A

COMPONENT NOMENCLATURE	AV/TAV-8B	E-2	EA-6B	F-14A/B	F-14D	F/A-18 (Blue Angels)	F/A-18A/B	F/A-18C/D	F/A-18C/D (Lot 13 and Up)	F/A18-E/F	ES-3A/S-3B	T-2C	T-6A	T-45A/C	MV-22A
OBOGS	X				X				X	X				X	
GGU-7/A	X													X	
GGU-12/A					X				X	X					
LITOCS													X		
OBOGS/OBIGGS															X
CRU-83/A	X				X									X	
CRU-91/A	X				X									X	
CRU-99/A SSOM	X				X				X	X				X	X
LOX		X	X	X		X	X	X			X	X			
CRU-79/P		X	X	X		X	X	X			X	X			
CRU-82/P	X				X				X	X				X	
CRU-88/P	X			X			X	X	X	X				X	X
CRU-98/P													X		
CRU-103/P	X	X	X	X	X	X	X	X	X	X	X	X		X	X

a. On-Board Oxygen Generating System. The OBOGS consists of three primary components: an oxygen concentrator, an oxygen monitor, and an oxygen regulator. OBOGS provides a continuous supply of oxygen-enriched air to the aircrew when the system's electrical power source is activated and engine bleed air or conditioned air is provided to the inlet of the oxygen concentrator. The self-contained OBOGS includes the GGU-7/A or GGU-12/A Oxygen Concentrators or CRU-99/A SSOM and CRU-82/P, CRU-88/P, or CRU-103/P Oxygen Regulators. Airframe peculiar equipment, which includes plenum(s), valves, plumbing, and other parts are required in order to integrate the OBOGS with the host aircraft.

Litton Life Support, the primary OBOGS development contractor, has developed specific applications of OBOGS technology for incorporation into the T-6A and the MV-22 aircraft. The LITOCS is a high performance OBOGS Concentrator for single and dual seat aircraft that was developed specifically for the T-6A and the Brazilian ALX Advanced Trainer, Pilatus PC-9. An integral oxygen monitor-controller utilizes a current-limiting zirconia oxygen sensor that does not require a reference gas or periodic calibration. Comprehensive Built-In Test (BIT) provides self-testing of the oxygen monitor and eliminates the need for all organizational level support equipment. LITOCS is ideally suited for use where engine bleed air pressure is low and air consumption is critical.

The OBOGS/OBIGGS Concentrator was specifically designed for the MV-22 and supports up to four crewmembers. The OBOGS/OBIGGS Concentrator uses a common valve assembly and control scheme to cycle engine bleed air through separate beds of molecular sieve. This system performs the functions of two separate systems: 1) supplies oxygen-enriched air for aircrew breathing and 2) supplies inert gas to the fuel tanks to protect the aircraft from fuel tank explosion and fire. This system also includes a SSOM to confirm performance of the system.

(1) Oxygen Concentrator. The Oxygen Concentrator is a self-contained unit that is capable of providing oxygen-enriched air for aircrew at altitudes up to 50,000 feet. The oxygen concentrator extracts undesirable gases from either engine bleed air or conditioned air and provides a continuous high concentration of oxygen-enriched air for aircrew use. The gaseous product consists of approximately six-percent argon with the balance consisting of oxygen. On the F-14D and F/A-18C/D, the concentrator is located in the same space previously occupied by the LOX converter. The AV-8B and T-45 were originally designed and fielded with OBOGS installed. The concentrator is composed of the following components:

(a) Molecular Sieve Beds. Two Molecular Sieve Beds act to adsorb nitrogen molecules through molecular bonding as engine bleed air or conditioned air passes through them. Each bed contains 5.5 pounds of molecular sieve. The sieve retains the unwanted gasses as the source air flows through the bed with the desired oxygen-enriched air exiting the sieve bed and being routed to the aircrew. The sieve beds are purged via cycling of the rotary valve on alternate cycles in which nitrogen is dissipated with other undesirable gases and vented overboard. The sieve beds do not require periodic replacement.

(b) Rotary Valve Assembly. The Rotary Valve Assembly consists of a direct current motor driven valve that rotates on a timed basis to control the gas flow in order to cause alternate adsorption and desorption cycles in the sieve beds.

(c) Electronics Box Assembly. The Electronics Box Assembly controls the temperature of the heater assembly and shroud heater solenoid, and controls timing of the rotary valve assembly.

(d) Plenum Assembly. The Plenum Assembly stores oxygen rich gas produced by the Molecular Sieve Beds.

(e) Inlet Filter Assembly. The Inlet Filter Assembly removes contaminants from the air source before being routed to the Molecular Sieve Beds.

(2) Oxygen Monitor. The Oxygen Monitor senses Partial Pressure of Oxygen (PPO_2) and provides a warning signal through the aircraft's WARNING-CAUTION-ADVISORY system if the oxygen concentration falls below 182 millimeters of mercury. The monitor is mounted in the cockpit and consists of the following items:

(a) Aneroid Assembly. The Aneroid Assembly senses the change in air pressure resulting from changes in altitude.

(b) Aneroid Valve and Filter Assembly. The Aneroid Valve and Filter Assembly control pressure in the oxygen sensor chamber in order to prevent false low PPO_2 warnings.

(c) Sensor Cover Assembly. The Sensor Cover Assembly provides access to the sensor chamber for sensor replacement.

(d) Oxygen Sensor. The Oxygen Sensor is a polarographic oxygen sensor that detects Pressure of Oxygen (PO_2) while being insensitive to other gases. An electrical current, proportional to PO_2, is produced by the sensor, activating a warning light when PO_2 falls below the minimum physiological requirements.

(e) Press to Vent Assembly. The Press To Vent Assembly is an inlet assembly that draws ambient air across the oxygen sensor when the plunger Built-In Test valve is depressed.

(f) Cover Screw and Lanyard Assembly. The Cover Screw and Lanyard Assembly provide access to the monitor gain adjustment potentiometer.

(3) Solid State Oxygen Monitor. The CRU-99/A SSOM (P/N 3270063-0102) is a direct replacement for the CRU-83/A and CRU-91/A Polarographic Oxygen Monitors. The oxygen sensor in the SSOM is a current limiting zirconia type sensor. The SSOM incorporates several self-test features, is not adjustable, and does not require intermediate level testing or maintenance.

(4) OBOGS Regulators

LEADING PARTICULARS	CRU-82/P	CRU-88/P	CRU-103/P
Recommended Inlet Pressure (pounds per square inch gauged (psig))	5-120	5-120	5-120
Flow (liters per minute (lpm))	0-100	0-180	0-240
Operating Altitude Range (feet)	0-50,000	0-50,000	0-50,000

LEADING PARTICULARS	CRU-82/P	CRU-88/P	CRU-103/P
Operating Temperature Range (°F)	-65 to +160	-65 to +165	-65 to +160
Weight (ounces)	9.50	10.25	12.00

(a) CRU-82/P Oxygen Regulator. The CRU-82/P Oxygen Regulator is mounted by a quick disconnect attachment to the aircrew parachute harness. The regulator is an automatic pressure breathing type, providing oxygen-enriched air to the aircrew facemask during flight. The safety pressure feature automatically maintains a positive pressure in the mask of 0.4 to 2.5 inches of water (inH_2O) at all altitudes up to approximately 34,000 feet, and up to 20 inH_2O at altitudes between 34,000 and 50,000 feet with the positive pressure increasing with altitude. The CRU-82/P can be used routinely up to approximately 43,000 feet. However, due to risk of rapid and severe hypoxia, the CRU-82/P shall not be used above 41,000 feet except for very short periods. The CRU-82/P is designed for use with the MBU-14 series oxygen mask.

(b) CRU-88/P Oxygen Regulator. The CRU-88/P Oxygen Regulator is mounted by a quick disconnect attachment to the aircrew parachute harness. The regulator is an automatic pressure breathing type, providing oxygen-enriched air to the aircrew facemask during flight. The safety pressure feature automatically maintains a positive pressure in the mask of 0.5 to 4.0 inH_2O at all altitudes up to approximately 34,000 feet, and up to 20 inH_2O at altitudes between 34,000 and 50,000 feet with the positive pressure increasing with altitude. The CRU-88/P can be used routinely up to approximately 41,000 feet with OBOGS. Above this altitude, aircrew will suffer rapid and severe hypoxia if chest-mounted regulators are used except for very short periods. The CRU-88/P is designed for use with the MBU-14 series oxygen mask.

(c) CRU-103/P Demand Oxygen Regulator. The CRU-103/P Demand Oxygen Regulator is designed for use with all tactical aircraft series oxygen masks as part of the oxygen system in aircraft with LOX systems or OBOGS. The regulator is designed to regulate oxygen to the aircrew member during flight. The CRU-103/P Demand Oxygen Regulator was developed as a part of the Navy Combat Edge system. It is a chest mounted, automatic positive pressure breathing type, Gravity Force (G)-modulated regulator that provides demand oxygen flow to the aircrew member including Pressure Breathing for Altitude and Pressure Breathing for Gs.

The CRU-103/P regulator has proven to be a less expensive, very reliable, easily maintained regulator. For these reasons it was designated by PMA202 as the regulator of choice, and the Aviation Oxygen Systems team was tasked with implementing it as the sole tactical aviation regulator. The CRU-103/P is scheduled to replace the CRU-79/P, CRU-82/P, and CRU-88/P series regulators under a TOC Initiative program to achieve that goal.

b. Liquid Oxygen System. The LOX System is designed to store and convert LOX into gaseous breathing oxygen for aircrew use during flight. Valves, tubing, and fittings incorporated in the converter assembly convert LOX on demand to gas, and direct its flow at a controlled rate to the crew for breathing. A typical LOX System consists of the following components:

(1) LOX Converter Assembly

(a) Sphere Assembly. Oxygen in its liquid state (approximately 297^{o} F) is stored in a spherical assembly consisting of inner and outer shells separated by an annular space. The annular space is evacuated, preventing the transmittal of heat through the space. The thermos bottle effect created retards heating and eventual conversion of LOX to gaseous oxygen.

(b) Build-Up and Vent Valves. Build-Up and Vent Valves supply gaseous pressure to the upper portion of the Pressure Closing Valve to allow closure.

(c) Relief Valve. Without a demand being placed on the converter, pressure continues to slowly rise. If allowed to go unchecked, pressure in excess of 12,000 Pounds per Square Inch (psi) could be generated. The Relief Valve is set to relieve pressure in excess of 110 psi.

(d) Pressure Closing Valve. This valve allows pressure from the Build-Up Valve to enter the top of the Sphere Assembly. This is set to maintain 75 psi of pressure for system operation.

(2) Liquid Oxygen Regulators

LEADING PARTICULARS	**CRU-79/P**	**CRU-88/P**	**CRU-103/P**
Recommended Inlet Pressure (psig)	40-120	5-120	5-120
Flow (lpm)	0-100	0-180	0-240
Operating Altitude Range (feet)	0-50,000	0-50,000	0-50,000
Operating Temperature Range (°F)	-65 to +160	-65 to +165	-65 to +160
Weight (ounces)	5.00	10.25	12.00

(a) CRU-79/P Type Miniature Oxygen Breathing Regulators. The Type CRU-79/P miniature oxygen breathing regulators are designed to reduce and regulate supply oxygen pressure for breathing 100% oxygen. The safety-pressure feature automatically maintains a positive pressure in the mask of up to 20.0 inH_2O at all altitudes up to and including 30,000 feet. The pressure-breathing feature maintains a positive pressure in the mask of up to

20.0 inH_2O at altitudes between 34,000 and 50,000 feet with the positive pressure increasing in proportion to the altitude. The CRU-79/P can be used routinely up to approximately 45,000 feet. Type CRU-79/P miniature regulators shall not be used above 50,000 feet except for very short periods. The CRU-79/P is designed for use with the MBU-14 series oxygen mask.

(b) CRU-88/P Oxygen Regulator. The CRU-88/P Oxygen Regulator is mounted by a quick disconnect attachment to the aircrew parachute harness. The safety pressure feature automatically maintains a positive pressure in the oxygen mask of 0.5 to 4.0 inH_2O at all altitudes up to approximately 34,000 feet, and up to 20 inH_2O at altitudes between 34,000 and 50,000 feet with the positive pressure increasing in proportion to the altitude. The CRU-88/P can be used routinely up to approximately 43,000 feet with LOX. Above this altitude, aircrew will suffer rapid and severe hypoxia if chest-mounted regulators are used except for very short periods. The CRU-88/P is designed for use with the MBU-14 series oxygen mask.

(c) CRU-103/P Demand Oxygen Regulator. The CRU-103/P Demand Oxygen Regulator is designed for use with all tactical aircraft series oxygen masks as part of the oxygen system in aircraft with LOX systems or OBOGS as described in paragraph G.1.a(4)(c) above. This regulator is scheduled to replace the CRU-79/P, CRU-82/P, and CRU-88/P series regulators under a TOC Initiative program.

c. Aviators Breathing Oxygen Contaminant Analyzer. The ABO Contaminant Analyzer is capable of scanning a gas phase sample containing up to fifteen contaminants and providing an output of the quantitative results. This analysis is performed on gas samples at one psi above sea level pressure. Contaminant analysis time, including evacuated cell analysis (background scan), sample analysis, data processing, and printout of results, is less than ten minutes. The unit's computer is capable of searching a library and comparing it with sample spectra to estimate the composition of the suspected contaminant substance(s). The ABO Contaminant Analyzer uses an Infrared Spectrophotometer integrated with a microprocessor, which produces a printout of the qualitative and quantitative contamination levels encountered. The ABO Contaminant Analyzer is used to ensure specifications of the ABO are maintained per the Naval Air Systems Command (NAVAIR) AG-332AO-GYD-000, ABO Surveillance Program Laboratory Manual and Field Guide. The ABO Contaminant Analyzer is located at Navy and Marine Corps Air Stations, expeditionary sites, and onboard Navy aircraft carriers. The unit consists of the following components:

(1) Data Processor. The Data Processor changes the signal from the infrared detector into a spectrum curve, then compares it to spectrum curves of a preprogrammed signal to determine if a contaminant is present, and if so, at what quantity.

(2) Built-In Keyboard. The Built-In Keyboard is a 40-character keypad, similar to a standard typewriter with numeric keypad. The Built-In Keyboard is used for entering textual information.

(3) Two-Line Display. Most software functions appear as menu options in the Two-Line Display. Four blue soft keys adjacent to the display allow selection of the desired software function from the menu.

(4) Internal Printer. The Internal Printer is permanently mounted and prints on four-inch wide rolled thermal paper.

(5) Optics. The three main components of the Optics are the Michelson interferometer, an infrared light source, and a detector. The interferometer consists of a partially reflective beam-splitter mirror, a mirror that oscillates back and forth, and an automatic alignment machine for the beam splitter.

(6) Gas Cell. The Gas Cell houses the gas sample during analysis and is located in the sample compartment. The 10-meter multi-path length cell bounces the beam of infrared light back and forth within the cell to achieve a greater path length without the need for an excessively large gas cell. All gas cells feature a safety release valve that prohibits pressure inside the cell from exceeding 25 psi.

(7) Hard Drive. A 210-megabyte internally mounted hard drive provides space for storing the system software and the spectrum libraries.

(8) Laser. The source of laser energy is a nominal two-milliwatt, continuous, 632.8 nanometer laser head.

2. Physical Description

a. On-Board Oxygen Generating System. The components of the OBOGS are contained within the interior portion of the aircraft and do not affect any storage or aircraft handling considerations.

b. Liquid Oxygen Systems. The components of LOX systems are contained within the interior portion of the aircraft and do not affect any storage or aircraft handling considerations.

c. Aviators Breathing Oxygen Contaminant Analyzer

Electrical requirements	115 volts, 60 Hertz
Electro Magnetic Interference ..	5 volts per meter (MIL-STD-461, RS03)
Length	30.5 inches
Width.....	42.0 inches
Height.....	23.0 inches
Shipping Weight	300 pounds

3. New Development Introduction

a. On-Board Oxygen Generating System. The OBOGS will be installed in the MV-22, T-6A, and F/A-18E/F aircraft during production. Existing AV-8B, TAV-8B, and T-45 aircraft were manufactured with OBOGS installed. OBOGS was installed in existing F-14D and F/A-18C/D aircraft (Lot 13 and up) through retrofit programs.

The CRU-99/A SSOM was developed and first fielded in OBOGS equipped F/A-18C/D Aircraft and new production T-45 Aircraft. It is now also being incorporated in all OBOGS aircraft platforms through a Navy Inventory Control Point (NAVICP) Buy Our Spares Smart (BOSS) III retrofit program.

The CRU-103/P Oxygen Regulator is currently being fielded with the Navy Combat Edge system. These regulators will also be delivered with Lot XIV Naval Aircrew Common Ejection Seat (NACES) deliveries at two per seat.

b. Liquid Oxygen System. NA

c. Aviators Breathing Oxygen Contaminant Analyzer. The ABO Contaminant Analyzer was procured as a Commercial Off-The-Shelf (COTS) Non-Developmental Item.

4. Significant Interfaces

a. On-Board Oxygen Generating System. The OBOGS interfaces directly with the aircraft quick disconnect fittings used during emergency egress; the MBU-14, MBU-23/P, and MBU-24/P series oxygen masks; the Navy Combat Edge system; and the engine bleed air system.

b. Liquid Oxygen System. The LOX interfaces directly with the aircraft quick disconnect fittings used during emergency egress and the MBU-14 series oxygen masks.

c. Aviators Breathing Oxygen Contaminant Analyzer. NA

5. New Features, Configurations, or Material. NA

H. CONCEPTS

1. Operational Concept

a. On-Board Oxygen Generating System. By design, the OBOGS is activated during aircraft engine operation. The aircrew control the flow of oxygen-enriched air through a flow control switch in the cockpit.

b. Liquid Oxygen System. The aircrew operates the LOX System through a flow control switch in the cockpit.

c. Aviators Breathing Oxygen Contaminant Analyzer. The ABO Contaminant Analyzer is operated by Navy Aircrew Survival Equipmentman (PR) personnel with Navy Enlisted Classification (NEC) 7356 and Marine Corps personnel with Military Occupational Specialty (MOS) 6048 assigned to intermediate level maintenance Work Center 81C, Oxygen Regulator and Equipment Shop. Machinist's Mate (MM) personnel with NEC 4201 and Marine Corps personnel with MOS 6075 assigned to intermediate level maintenance Work Center 820, Oxygen/Nitrogen Generating Facility, also operate the ABO Contaminant Analyzer. The ABO Contaminant Analyzer is used as required with a minimum average operating time of 2.5 hours per week. (The manpower, personnel, and training requirements associated with Navy and Marine Corps personnel assigned to Work Center 820 are addressed in the Trailer Mounted Liquid Oxygen/Nitrogen Generating Plant NTSP identified in Part I paragraph M. of this document.)

2. Maintenance Concept

a. On-Board Oxygen Generating System

(1) Organizational. Organizational level maintenance is performed by Aviation Structural Mechanic (Safety Equipment) (AME), Marine Corps Aircraft Safety Equipment Mechanic, or contract maintenance personnel assigned to the Egress-Environmental Systems Shop, Work Center 13B.

(a) Preventive Maintenance. Preventive maintenance consists of functional tests every 56 days on F-14D Aircraft equipped with the CRU-99/A SSOM using the TTU-520A/E Aircraft Oxygen Test Set. Due to the high reliability demonstrated on the F/A-18C/D Aircraft, a similar inspection previously performed has been eliminated. The GGU-7/A Oxygen Concentrator is removed and forwarded to the intermediate level for the Inlet Filter change and functional check every 500 flight hours. The GGU-12/A Oxygen Concentrator is removed and forwarded to the intermediate level for the Inlet Filter change and functional check every 400 flight hours. Also an 84 day special inspection is perform consisting of a BIT Fail Test on the cockpit regulator and system leak test. Although the F/A-18 Aircraft concentrator undergoes intermediate level check during the aircraft Phase B and D inspections, it is also accomplished within the required 400 flight hour window. Additionally, preflight visual and functional testing of the CRU-82/P, CRU-88/P, and CRU-103/P Oxygen Regulators is performed every 30 days in accordance with NAVAIR 13-1-6.4, Aviation Crew Systems Oxygen Equipment Manual. OBOGS/OBIGGS preventive maintenance requirements for the MV-22 Aircraft will be prescribed in the MV-22 Maintenance Plan, which is currently pending validation and final approval.

(b) Corrective Maintenance. Corrective maintenance consists of fault isolating plumbing, wiring, and Weapon Replaceable Assemblies (WRA) using Built-In Test and Common Support Equipment. Faulty WRAs are forwarded to the intermediate or depot maintenance level, as applicable, for repair.

(2) Intermediate. Intermediate level maintenance is performed by PRs with NEC 7356 and Marine Corps personnel with MOS 6048 assigned to Work Center 81C,

Oxygen Regulator and Equipment Shop, of the Aircraft Intermediate Maintenance Department (AIMD) and the Marine Aviation Logistics Squadron (MALS). Intermediate level maintenance for the MV-22 OBOGS/OBIGGS assembly has not yet been determined. The following table illustrates the intermediate maintenance level requirements by system:

SYSTEM	INTERMEDIATE MAINTENANCE REQUIREMENTS
GGU-7/A Oxygen Concentrator (Preventive Maintenance)	Inspect for material condition and repair as necessary. Remove and replace inlet filter element and bench test the oxygen concentrator every 500 flight hours.
GGU-7/A Oxygen Concentrator (Corrective Maintenance)	Fault isolate, remove and replace defective components as necessary, and perform bench test.
GGU-7/A Sieve Bed, Rotary Valve Assembly, Oxygen Concentrator, Electric Box	Forward to depot level for repair.
GGU-7/A Plenum Assembly, Inlet Filter Assembly, Shroud Assembly	Limited repair capability.
GGU-12/A Oxygen Concentrator (Preventive Maintenance)	Inspect for material condition and repair as necessary. Remove and replace inlet filter element and bench test the oxygen concentrator every 400 flight hours.
GGU-12/A Oxygen Concentrator (Corrective Maintenance)	Fault isolate, remove and replace defective components as necessary, and perform bench test.
GGU-12/A Sieve Bed, Rotary Valve Assembly, Oxygen Concentrator	Forward to depot level for repair.
GGU-12/A Plenum Assembly, Inlet Filter Assembly, Top Shroud Assembly, Wrap Shroud Assembly, Bottom Shroud Assembly	Limited repair capability.
CRU-99/A SSOM (Corrective Maintenance)	Forward monitor to depot level for repair.
CRU-82/P and CRU-88/P Oxygen Regulators (Preventive Maintenance)	Perform “place in service” inspection in accordance with NAVAIR 13-1-6.4. Perform bench test of the regulator every 90 days in accordance with NAVAIR 13-1-6.4-2.

SYSTEM	INTERMEDIATE MAINTENANCE REQUIREMENTS
CRU-82/P and CRU-88/P Oxygen Regulators (Corrective Maintenance)	Fault isolate, remove and replace defective components as necessary, and perform bench test in accordance with NAVAIR 13-1-6.4-2.
CRU-103/P Oxygen Regulator (Preventive Maintenance)	Perform "place in service" inspection in accordance with NAVAIR 13-1-6.4-2. Perform bench test of the regulator every 90 days in accordance with NAVAIR 13-1-6.4-2.
CRU-103/P Oxygen Regulator (Corrective Maintenance)	Fault isolate, remove and replace defective components as necessary, and perform bench test in accordance with NAVAIR 13-1-6.4-2.

(3) Depot. Litton Life Support, Davenport, Iowa, performs depot level maintenance and rework of OBOGS components.

(4) Interim Maintenance. NA

(5) Life Cycle Maintenance Plan. NA

b. Liquid Oxygen System

(1) Organizational. AME and Marine Corps Aircraft Safety Equipment Mechanic personnel assigned to the Egress-Environmental Systems Shop, Work Center 13B, perform organizational level maintenance.

(a) Preventive Maintenance. Preventive maintenance consists of forwarding the LOX converter to AIMD or MALS for test and check every 231 days. Additionally, preflight visual and functional testing of the CRU-79/P and CRU-103/P Oxygen Regulator is performed every 90 days in accordance with NAVAIR 13-1-6.4-2, Aviation Crew Systems Oxygen Equipment Manual.

(b) Corrective Maintenance. Corrective maintenance consists of fault isolating plumbing, wiring, and WRAs using Common Support Equipment. Faulty WRAs are forwarded to the intermediate or depot maintenance level, as applicable, for repair.

(2) Intermediate. PRs with NEC 7356 and Marine Corps personnel with MOS 6048 assigned to the AIMD or MALS Oxygen Regulator and Equipment Shop, Work Center 81C, perform intermediate level maintenance. The following table illustrates the intermediate maintenance level requirements by system:

SYSTEM	INTERMEDIATE MAINTENANCE REQUIREMENTS
CRU-79/P Oxygen Regulators (Preventive Maintenance)	Perform "place in service" inspection in accordance with NAVAIR 13-1-6.4. Perform bench test of the regulator every 90 days in accordance with NAVAIR 13-1-6.4-2.
CRU-79/P Oxygen Regulators (Corrective Maintenance)	Fault isolate, perform bench test, and adjust as necessary in accordance with NAVAIR 13-1-6.4-2.
CRU-103/P Oxygen Regulator (Preventive Maintenance)	Perform "place in service" inspection in accordance with NAVAIR 13-1-6.4. Perform bench test of the regulator every 90 days in accordance with NAVAIR 13-1-6.4-2.
CRU-103/P Oxygen Regulator (Corrective Maintenance)	Fault isolate, remove and replace defective components as necessary, and perform bench test in accordance with NAVAIR 13-1-6.4-2.
GCU-24/A, GCU-29/A Liquid Oxygen Converter (Preventive Maintenance)	Perform "place in service" inspection in accordance with NAVAIR 13-1-6.4-4. Perform bench test of LOX Converter every 224 days in accordance with NAVAIR 13-1-6.4-4.
GCU-24/A, GCU-29/A Liquid Oxygen Converter (Corrective Maintenance)	Fault isolate, remove and replace defective components as necessary, and perform bench test in accordance with NAVAIR 13-1-6.4-4.
MD-1, MD-2, CRU-52/A, 54/A, 55/A, 57/A, 72/A Aircraft Panel Mounted Oxygen Regulators (Preventive Maintenance)	Perform "place in service inspection" in accordance with NAVAIR 13-1-6.4-2. Perform bench test of the regulator every 224 days in accordance with NAVAIR 13-1-6.4-2.
MD-1, MD-2, CRU-52/A, 54/A, 55/A, 57/A, 72/A Aircraft Panel Mounted Oxygen Regulators (Corrective Maintenance)	Fault isolate, remove and replace defective components as necessary, and perform bench test in accordance with NAVAIR 13-1-6.4-2.
29255 Series Aircraft Panel Mounted Oxygen Regulators (Preventive Maintenance)	Perform "place in service inspection" in accordance with NAVAIR 13-1-6.4. Perform bench test of the regulator in accordance with NAVAIR 13-1-6.4-2.
29255 Series Aircraft Panel Mounted Oxygen Regulators (Corrective Maintenance)	Fault isolate, remove and replace defective components as necessary, and perform bench test in accordance with NAVAIR 13-1-6.4-2.

(3) Depot. Naval Aviation Depot Jacksonville, Florida, and Essex Industries, Inc, perform depot level maintenance and rework of LOX Components.

(4) Interim Maintenance. NA

(5) Life Cycle Maintenance Plan. NA

c. Aviators Breathing Oxygen Contaminant Analyzer. Maintenance of the ABO Contaminant Analyzer is performed at two levels, intermediate and depot.

(1) Organizational. NA

(2) Intermediate. PRs with NEC 7356 and Marine Corps personnel with MOS 6048 assigned to Work Center 81C, Oxygen Regulator and Equipment Shop, perform intermediate maintenance on the ABO Contaminant Analyzer.

(a) Preventive Maintenance. Preventive maintenance consists of pre-operational inspections, replenishment of consumable items, adjustment of pressures, cleaning, servicing, and corrosion control.

(b) Corrective Maintenance. Corrective maintenance consists of fault isolation and removal and replacement of defective assemblies and components.

(3) Depot. Depot level maintenance of the ABO Contaminant Analyzer is performed by Nicolet Instrument Corporation, Madison, Wisconsin, and includes repair of components beyond the capability of intermediate level maintenance and equipment overhaul.

(4) Interim Maintenance. NA

(5) Life Cycle Maintenance Plan. NA

3. Manning Concept

a. On-Board Oxygen Generating System. Navy AMEs and Marine Corps Aircraft Safety Equipment Mechanics perform organizational level maintenance of OBOGS. Organizational level maintenance manpower, personnel, and training requirements associated with OBOGS are addressed in the individual aircraft NTSPs identified in Part I paragraph M. of this document. PRs with NEC 7356 and Marine Corps personnel with MOS 6048 maintain OBOGS components at the intermediate level. Existing intermediate maintenance manpower requirements will remain unchanged. No new NECs or MOSs are required.

b. Liquid Oxygen Systems. Navy AMEs and Marine Corps Aircraft Safety Equipment Mechanics perform organizational level maintenance of aircraft LOX Systems. Organizational level maintenance manpower, personnel, and training requirements associated with LOX Systems are addressed in the individual aircraft NTSPs identified in Part I paragraph M. of this document. PRs with NEC 7356 and Marine Corps personnel with MOS 6048

maintain LOX System components at the intermediate level. Existing intermediate maintenance manpower requirements will remain unchanged. No new NECs or MOSs will be required.

c. Aviators Breathing Oxygen Contaminant Analyzer. The ABO Contaminant Analyzer is operated and maintained at the intermediate level by Navy PRs with NEC 7356 and Marine Corps personnel with MOS 6048. Existing intermediate maintenance manpower requirements will remain unchanged. No new NECs or MOSs are required.

4. Training Concept. All initial operator and maintenance training for oxygen systems currently employed have been completed. Initial training for new oxygen systems will either be conducted by the manufacturer, the contractor, or will be conducted by Navy personnel who will provide on-site indoctrination training to aircrew and maintenance personnel. Follow-on oxygen system operator training is conducted as part of general and aircraft-specific aircrew training via aviation physiology, aviation water survival, and Fleet Readiness Squadron training.

All initial training for the OBOGS, LOX System, and ABO Contaminant Analyzer has been completed.

Follow-on OBOGS organizational level maintenance is included in applicable Naval Air Maintenance Training Group Detachment (NAMTRAGRU DET) or Naval Air Maintenance Training Unit (NAMTRAU) aircraft organizational level maintenance training courses.

Follow-on OBOGS intermediate level maintenance training previously established at Maintenance Training Unit (MTU) 1038 NAMTRAU Lemoore, California, and MTU 1039 NAMTRAU Oceana, Virginia, has been discontinued. The OBOGS maintenance curricula is being revised and added to existing course *C-602-2028, LOX Converter Test Stand/LOX Converter and Survival Kit Repair*, which is part of the Aircrew Survival Equipment Intermediate Maintenance Pipeline at Naval Air Technical Training Center (NATTC) Pensacola, Florida. Intermediate level operator and maintenance training for the ABO Contaminant Analyzer is included in course *C-670-2018, Aviator's Breathing Oxygen Test Site Operator/Analyst,* which is part of the Aircrew Survival Equipment Intermediate Maintenance Pipeline at NATTC Pensacola.

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. NAOS organizational and intermediate level maintenance training for PR and MOS 6048 personnel is established at PR Class A1 and intermediate level C1 schools. Marine Corps students are enrolled in both *Core* and *Strand* training as provided by the A1 course at this time.

It was decided at the April 2000 Maintenance Training Requirements Review (MTRR) conference to eliminate the *Core* and *Strand* training track concept in the PR Class A1 school, combining *C-602-2037, Aircrew Survival Equipment Intermediate Level Strand Class A1*, into *C-602-2035, Aircrew Survival Equipment Common Core Class A1,* and eliminating *C-602-2037* as a separate course. *C-602-2035* was also extended by ten days to include flight clothing fitting procedures, newly procured systems, and deleting obsolete equipment. Additionally, a proposal was accepted to divide the Survival Equipment phase of the course into two units, and include night vision systems; Chemical, Biological, and Radiological equipment; and a practical laboratory exercise.

Significant changes were approved to the PR Class C1 School *C-602-2040, Aircrew Survival Equipment Intermediate Maintenance Pipeline*, in the 1997 MTRR including incorporation of the CRU-103/P Oxygen Regulator, OBOGS, and the NACES Packing Press, adding a combined total of fifteen days to the existing training track. At the April 2000 MTRR, proposals to extend the course by three additional days to include the Helicopter Aircrew Breathing Device and delete the CRU-88/P Oxygen Regulator were also approved.

Planning was to have all accepted MTRR proposals incorporated into the training track and Ready for Training (RFT) no later than October 2001. This has not occurred; when updated information is available it will be included in updates to this document.

a. Initial Training

(1) On-Board Oxygen Generating System. Initial training for TECHEVAL and OPEVAL personnel was conducted in 1985 by the manufacturer at Clifton Precision Instrument (now Litton Life Support) in Davenport, Iowa. Initial organizational maintenance training for NAMTRAU instructors consisted of two courses conducted by the aircraft manufacturer in 1985. Initial intermediate maintenance training for NAMTRAU instructors was conducted in 1985 by Clifton Precision Instrument.

(2) Liquid Oxygen System. NA

(3) Aviators Breathing Oxygen Contaminant Analyzer. Nicolet Instrument Corporation, Madison, Wisconsin, provided initial training for OPEVAL and NATTC Pensacola instructor personnel. All initial training was completed in 1993.

b. Follow-On Training

(1) On-Board Oxygen Generating System. Follow-on training for OBOGS organizational maintenance is established by the specific aircraft community at their respective NAMTRAGRU DET or NAMTRAU. The RFT date for OBOGS organizational level

training was June 1993. The tracks for the applicable aircraft are listed below and detailed in the respective aircraft NTSPs listed in Part I paragraph M. of this document. The T-45A/B and T-6A Aircraft do not apply since they are contractor maintained.

AIRCRAFT	CIN	TITLE
AV-8B	M-602-0163	AV-8B Aircraft Safety Equipment Mechanic Organizational Maintenance
F-14D	D-602-1667	F-14 Environmental/Escape Systems Initial Organizational Maintenance
F/A-18C/D	D/E-602-0662	F/A-18 Safety Equipment Initial Organizational Maintenance
F/A-18E/F	E-602-0664	F/A-18E/F Safety Equipment (Initial) Organizational Maintenance
MV-22	M-602-XXX2	MV-22 Environmental Control Miscellaneous Utilities/Egress Systems Organizational Maintenance

Follow-on training for OBOGS intermediate maintenance was originally established at MTU 1038 NAMTRAU Lemoore and MTU 1039 NAMTRAU Cecil Field, Florida, (currently located at Oceana), in June 1993 as a stand-alone course *C-602-4892, On-Board Oxygen Generating System Intermediate Maintenance*. The content of this course (*C-602-4892*) is being integrated within course *C-602-2028, LOX Converter Test Stand/LOX Converter and Survival Kit Unit Repair*, which is part of track *C-602-2040, Aircrew Survival Equipment Intermediate Maintenance Pipeline*. Note that course *C-602-4892* is currently unavailable due to the course rewrite. The revised course is scheduled to be RFT in Fiscal Year (FY) 02. The exact date of the course revision completion is not currently known. When this information becomes available it will be included in updates to this document. The addition of OBOGS will not affect the length of the current training track.

OBOGS refresher continuation training for ejection seat equipped aircraft is conducted at various Aviation Survival Training Centers and is fully documented in the Naval Aviation Survival Training Program NTSP identified in Part I paragraph M. of this document.

(2) Liquid Oxygen System. Follow-on training for LOX Converter operation and maintenance is provided in course *C-602-2028, LOX Converter Test Stand/LOX Converter and SKU Repair*, which is also part of track *C-602-2040, Aircrew Survival Equipment Intermediate Maintenance Pipeline*.

(3) Aviators Breathing Oxygen Contaminant Analyzer. Follow-on ABO Contaminant Analyzer operator and maintenance training is provided in course

C-670-2018, Aviators Breathing Oxygen Test Site Operator/Analyst, which is also part of track *C-602-2040, Aircrew Survival Equipment Intermediate Maintenance Pipeline*.

Title	**Aircrew Survival Equipment Intermediate Maintenance Pipeline**
CIN	C-602-2040, Path 2
Model Manager....	NATTC Pensacola
Description.....	This track provides training to the Aircrew Survival Equipment maintainer, including: ° A/E 24T-226 ABO Contaminant Analyzer Operation And Maintenance ° LOX Converter Test Stand Operation and Maintenance ° LOX Converter Maintenance ° Flowmeter Repair and Calibration ° Regulator Valve Repair ° IT-71 Oxygen Test Stand Operation and Maintenance ° Purging Device Operation and Maintenance ° Oxygen Monitor Repair ° Oxygen Concentrator Repair ° Nitrogen Regulator Repair ° Oxygen and Nitrogen Cylinder Servicing and Handling ° Pressurized Parachute Packing ° Naval Aircrew Common Ejection Seat Packing Press Operation and Maintenance Upon completion, the student will be able to maintain and repair aircrew survival equipment in a shop environment under limited supervision.
Location	NATTC Pensacola
Length	54 days
RFT date	Currently available; RFT in FY02 with OBOGS.
Skill identifier	PR 7356
TTE/TD.....	See elements IV.A.1 and IV.A.2
Prerequisite	o C-602-2035, Aircrew Survival Equipmentman Common Core Class A1 o C-602-2037, Aircrew Survival Equipmentman Intermediate Level Strand Class A1

Note 1: Marine Corps personnel receive MOS 6075, Cryogenics Equipment Operator, by successfully completing course *M-750-6075* at MTU 1006 Cherry Point, North Carolina. Navy MMs receive NEC 4201, Cryogenics Technician

Overseas Shore Based Equipment Operator/Maintainer, by successfully completing course *M-750-9901* at MTU 1006 Cherry Point. The use of the A/E 240T-226 ABO Contaminant Analyzer is contained in both of these courses. This training is addressed in detail in the Trailer Mounted Liquid Oxygen/Nitrogen Generating Plant NTSP identified in Part I paragraph M of this document.

Note 2: Course *C-602-2035, Aircrew Survival Equipmentman Common Core Class A1* and *C-602-2037, Aircrew Survival Equipmentman Intermediate Level Strand Class A1* are currently in the process of being combined into one course. This new course will be ready for training in FY02.

c. Student Profiles

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
PR 7356	° C-602-2035, Aircrew Survival Equipmentman Common Core Class A1 ° C-602-2037, Aircrew Survival Equipmentman Intermediate Level Strand Class A1
MOS 6048	° C-602-2035, Aircrew Survival Equipmentman Common Core Class A1 ° C-602-2037, Aircrew Survival Equipmentman Intermediate Level Strand Class A1

d. Training Pipeline. No additional training pipelines will be required.

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 in FY02.

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 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 COTS hardware and software, i.e., Fleet Training Devices - Laptops, PCs, 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 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 Onboard or In-Service Training Packages. Marine Corps onboard training is based on the current series of MCO P4790.12, Individual Training Standards System and MATMEP. This program is designed to meet Marine Corps, as well as Navy OPNAVINST 4790.2 series, maintenance training requirements. It is a performance-based, standardized, level-progressive, documentable, training management and evaluation program. It identifies and prioritizes task inventories by MOS through a front-end analysis process that identifies task, skill, and knowledge requirements of each MOS. MTIP questions coupled to MATMEP tasks will help identify training deficiencies that can be enhanced with refresher training. (MATMEP is planned to be replaced by AMTCS.)

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N62269-83-C-0204 (AV-8 OBOGS only)	Litton Life Support Litton Systems, Inc.	P.O. Box 4508 Davenport, IA 52808-4508
N00019-86-C-0182 (All other OBOGS)	Litton Life Support Litton Systems, Inc.	P.O. Box 4508 Davenport, IA 52808-4508

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N68335-92-C-0186 (ABO Contaminant Analyzer)	Nicolet Instrument Corporation	52252 Verona Road Madison, WI 53744-4451

2. Program Documentation

a. On-Board Oxygen Generating System. The Integrated Logistics Support Plan (ILSP) AV-ILSP-229 was approved on 15 February 1984, and revised 20 July 1990.

b. Liquid Oxygen System. NA

c. Aviators Breathing Oxygen Contaminant Analyzer. A Users Logistics Support Summary, Naval Air Warfare Center Aircraft Division Lakehurst (NAWCADLKE)-ULSS-91015, was published in November 1995.

3. Technical Data Plan

a. On-Board Oxygen Generating System. Naval Air Training and Operating Procedures Standardization manual changes for all applicable aircraft have been updated to include OBOGS. Organizational Maintenance Instruction Manuals, Illustrated Parts Breakdowns, and Maintenance Requirement Cards have been updated to include OBOGS. The intermediate and depot maintenance aircraft manuals have been updated to include the OBOGS concentrator, monitor, and regulator. Maintenance requirements for OBOGS components and regulators including test set/stand operation are found in NAVAIR 13-1-6.4-2 and 13-1-6.4-3. Refer to element IV.B.3 of this NTSP for technical manual requirements at the training site.

b. Liquid Oxygen System. All publications required supporting the operation, maintenance, and training of LOX systems are in place. Maintenance requirements for LOX components and regulators including test set/stand operation are found in NAVAIR 13-1-6.4-2 and NAVAIR 13-1-6.4-4. Refer to element IV.B.3 of this NTSP for technical manual requirements at the training site.

c. Aviators Breathing Oxygen Contaminant Analyzer. All publications required to support the operation, maintenance, and training of the ABO Contaminant Analyzer were delivered as part of the new equipment delivery order package. Installation, operation, and maintenance requirements for the ABO Contaminant Analyzer are contained in NAVAIR 17-15-98. Additional program information is contained the ABO Surveillance Program Laboratory Manual and Field Guide, NAVAIR AG-332AO-GYD-000. Refer to element IV.B.3 of this NTSP for technical manual requirements at the training site.

4. Test Sets, Tools, and Test Equipment

a. On-Board Oxygen Generating System. Three types of test sets were developed for use specifically with the OBOGS, the TTU-520A/E Aircraft Oxygen System (AOS) Test Set, the TTU-452A/E and TTU-518A/E Oxygen Concentrator Test Set, and the Regulator/Monitor Test Set. The OBOGS Test Adapter Set was also developed specifically for use with the OBOGS. Refer to Part IV.A.1 of this NTSP for test sets, tools, and test equipment requirements at the training site.

(1) Aircraft Oxygen System Test Set. The TTU-520A/E AOS Test Set, part number 1582AS500-2, is a self-contained portable test unit with hoses and cables needed for functional testing and repair of the aircraft oxygen system (excluding the oxygen regulator). Testing is conducted in the cockpit of the aircraft at the organizational level of maintenance. The AOS Test Set is used to measure oxygen concentration in the product gas from the concentrator at high and low flow rates by conducting three tests:

- Measures analog or digital output voltage from the aircraft oxygen monitor and converts that value to indicate oxygen partial pressure
- Measures and indicates product gas delivery pressure from the concentrator
- Verifies proper operation of the oxygen monitor warning signal circuit and the continuity of the aircraft Polarographic oxygen monitor heater circuit

(2) Oxygen Concentrator Test Set. There are two models of the Oxygen Concentrator Test Set in the Navy inventory, the TTU-452A/E and TTU-518A/E. The TTU-452A/E (part number 1779AS100-2) is used to test the GGU-7A Concentrator. The TTU-518A/E (part number 1779AS500-2) can used to test both the GGU-7/A and GGU-12/A concentrators. The test sets are self contained test units with all required hoses, cables, filter assemblies, and exhaust muffler assemblies needed for functional testing and repair of oxygen concentrators.

(3) Regulator/Monitor Test Set. The Regulator/Monitor Test Set (part number 1780AS100-1) is a self-contained testing unit with all required hoses, cables, gauges, and valves needed to perform functional testing and to adjust the oxygen monitor and oxygen regulator. This test set is used to test CRU-83/A or CRU-91/A Polarographic Oxygen Monitors and the TTU-450/E and TTU-520/E organizational level test sets equipped with the Polarographic oxygen monitor. The TTU-520A/E AOS Test Set, which has been modified with the Solid State Oxygen Monitor (SESM), does not require this test set.

This test set was also designed to test the CRU-82/P Oxygen Regulator during deployment where the Oxygen Components Test Stand (1172AS100 or 1316AS100) was not available. The addition of cleaning requirements for the CRU-82/P Demand Valve exceeded this test set's capability to completely test and make the regulator Ready For Issue (RFI). NAVAIR (PMA202) has therefore rescinded the authority to test regulators on this test set. Upon completion of the SESM retrofit, the Regulator/Monitor Test Set will no longer be required and will be removed from the Navy inventory.

(4) OBOGS Test Adapter Set. The OBOGS Test Adapter Set (part number 74D470010-1001 and 75D470000-1001) consists of the major components, described in the following paragraphs, and assorted hoses and fittings to perform operational checks, leak checks, and purging of the OBOGS. These Test Adapter Sets are under strong consideration to be eliminated from the inventory and use the existing Oxygen Purge Cart to accomplish the tasks the test sets previously performed. Preliminary maintenance procedures for purging and leak checking the AV-8B, F/A-18, and T-45A OBOGS is under development.

(a) OBOGS Adapter Tool. Commonly known as the Ground Air Adapter, the OBOGS Adapter Tool (part number 3248AS100-1) is a fixture that contains a ball valve, a moisture remover, a pressure regulator, and a pressure gauge. It is used to regulate the air supply pressure being used to perform the test on the concentrator at the organizational maintenance level. This tool also removes the entrained moisture found in the air supply.

The OBOGS Adapter Tool has been redesigned due to inadequate moisture removal capacity and will be assigned part number 3248AS200-1. The improved adapter is a self-contained, dual-stage filtering system comprised of two high-efficiency filers, a high-flow regulator, and all necessary hoses and aircraft adapters. Although it was originally intended for use at the organizational level, it has been proven effective during testing at the intermediate level as well.

(b) OBOGS Oxygen Clean Adapter. The OBOGS Oxygen Clean Adapter (part number 3249AS100-2) is a fixture that contains a ball valve, a pressure gauge, a flexible metal hose, and various fittings. The adapter is used for regulating the flow of gaseous nitrogen into the product gas delivery subsystem during flow and leak checks.

(c) OBOGS Test Adapter. The OBOGS Test Adapter (part number 3249AS100-3) is a fixture that contains a ball valve, a pressure regulator, a pressure gauge, and various fittings. It is used for regulating input pressures while leak checking the OBOGS.

b. Liquid Oxygen Systems. Two models of the Oxygen Component Test Stand were developed for use with LOX System components, Model 1172AS100 and Model 1316AS100. Both models have incorporated adapters for OBOGS compatibility. The Oxygen Component Test Stand tests and evaluates miniature oxygen regulators as well as panel and console mounted oxygen regulators. The test stand consists of a nitrogen pressure source and a vacuum system. It includes the plumbing and instrumentation necessary to measure, test, and evaluate the performance and operating characteristics of oxygen system components at altitudes up to 50,000 feet. The latest change to the test stand is the incorporation of SEC 5430, which installs a digital manometer in support of the CRU-103/P Oxygen Regulator. Refer to element IV.A.1 of this NTSP for test sets, tools, and test equipment requirements at the training site.

c. Aviators Breathing Oxygen Contaminant Analyzer. The test sets, tools, and test equipment required to support ABO Contaminant Analyzer maintenance and training are identified in the installation, operation, and maintenance instructions for the ABO Contaminant

Analyzer, NAVAIR 17-15-98. Refer to element IV.A.1 of this NTSP for test sets, tools, and test equipment requirements at the training site.

5. Repair Parts

a. On-Board Oxygen Generating System. Spares and repair parts for the OBOGS are available through normal supply channels and are managed by the NAVICP, Mechanicsburg, Pennsylvania. The Material Support Date (MSD) for OBOGS was achieved in 1986 and the Navy Support Date (NSD) was achieved in 1987.

b. Liquid Oxygen Systems. Spares and repair parts for the LOX Systems are available through normal supply channels and are managed by the NAVICP, Mechanicsburg.

c. Aviators Breathing Oxygen Contaminant Analyzer. Spares and repair parts for the ABO Contaminant Analyzer are available through normal supply channels and are managed by the NAVICP, Mechanicsburg. The MSD was September 1995 and the NSD was September 1996.

6. Human Systems Integration. NA

K. SCHEDULES

1. Installation and Delivery Schedules

a. On-Board Oxygen Generating System. Retrofit installation of OBOGS into the AV-8B, T-45, F-14D, and F/A-18C/D (Lot 13 and up) has been completed. OBOGS is being installed in the F/A-18E/F, T-6A, and MV-22 aircraft during production.

b. Liquid Oxygen System. NA

c. Aviators Breathing Oxygen Contaminant Analyzer. Delivery and installation of the ABO Contaminant Analyzer was completed in June 1996.

2. Ready For Operational Use Schedule

a. On-Board Oxygen Generating System. OBOGS are considered Ready For Operational Use upon installation in the aircraft.

b. Liquid Oxygen Systems. LOX Systems are considered Ready For Operational Use upon installation in the aircraft.

c. Aviators Breathing Oxygen Contaminant Analyzer. The ABO Contaminant Analyzer is Ready For Operational Use upon receipt, check out, and installation at each site.

3. Time Required to Install at Operational Sites

a. On-Board Oxygen Generating System. NA

b. Liquid Oxygen Systems. NA

c. Aviators Breathing Oxygen Contaminant Analyzer. The time required to install the ABO Contaminant Analyzer is approximately one week.

4. Foreign Military Sales and Other Source Delivery Schedule. For information concerning FMS of NAOS equipment contact the program office, NAVAIRSYSCOM PMA202D.

5. Training Device and Technical Training Equipment Delivery Schedule

a. On-Board Oxygen Generating System. No Training Devices (TD) are required to support OBOGS training. Technical Training Equipment (TTE) supporting OBOGS training has been relocated from NAMTRAU Lemoore to NATTC Pensacola. TTE requirements are identified in element IV.A.1 of this NTSP.

b. Liquid Oxygen System. All TD and TTE supporting LOX Systems training are currently available at the training site. TTE requirements are identified in element IV.A.1 of this NTSP.

c. Aviators Breathing Oxygen Contaminant Analyzer. No TDs are required to support ABO Contaminant Analyzer Training. All required TTE is currently available at the training site. TTE requirements are identified in element IV.A.1 of this NTSP.

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
Aviation Life Support System	N78-NTSP-A-50-9206A/D	PMA202	Draft Aug 01
Navy Aircrew Common Ejection Seat	N88-NTSP-A-50-8517C/A	PMA211	Approved Jan 01
AV-8B Harrier II Plus System	N88-NTSP-A-50-8210D/A	PMA257	Approved Sep 01

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Naval Aviation Survival Training Program	N88-NTSP-A-50-9803/D	PMA202	Draft Jun 99
Navy Undergraduate Jet Flight Training System, T-45TS	A-50-8703B/D	PMA273	Draft Feb 95
F-14A/B/D Aircraft	N88-NTSP-A-50-8511C/D	PMA241	Draft Feb 01
F/A-18 Aircraft	N88-NTSP-A-50-7703H/P	PMA265	Proposed Oct 01
Joint Training System Plan for the V-22 Osprey	N88-NTSP-A-50-8412D/D	PMA275	Draft Nov 00
Trailer Mounted Liquid Oxygen/Nitrogen Generating Plant	N88-NTSP-A-50-9401/A	PMA260	Approved Apr 00
Integrated Logistics Support Plan for the On-Board Oxygen Generating System	AV-ILSP-229	PMA202	Approved Jul 90
Users Logistics Support Summary for the Aviators Breathing Oxygen Contaminant Analyzer	NAWCADLKE-ULSS-91015	PMA260	Approved Nov 95

PART II - BILLET AND PERSONNEL REQUIREMENTS

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

II.A. Billet Requirements

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

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

PART II - BILLET AND PERSONNEL REQUIREMENTS

II.A. BILLET REQUIREMENTS

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

SOURCE: Total Force Manpower Management System **DATE:**10/26/2001
MCCDC Total Manpower Requirements Extract for MOS 6048 10/30/2001
Aircraft Program Data File – Model Detail for MV-22B 10/24/2001

ACTIVITY, UIC		PFYs	CFY02	FY03	FY04	FY05	FY06
OPERATIONAL ACTIVITIES - NAVY							
VFA-106 NAS Oceana	09679	1	0	0	0	0	0
VFA-203 NAS Cecil Field	09030	1	0	0	0	0	0
VFA-125 NAS Lemoore	09485	1	0	0	0	0	0
VFA-201 JRB Fort Worth	09309	1	0	0	0	0	0
VFA-204 JRB New Orleans	09032	1	0	0	0	0	0
TOTAL:		5	0	0	0	0	0
OPERATIONAL ACTIVITIES - USMC							
VMA-223 MCAS Cherry Point	09438	1	0	0	0	0	0
VMA-231 MCAS Cherry Point	52948	1	0	0	0	0	0
VMA-542 MCAS Cherry Point	52847	1	0	0	0	0	0
VMAQ-1 MCAS Cherry Point	41345	1	0	0	0	0	0
VMAQ-2 MCAS Cherry Point	42362	1	0	0	0	0	0
VMAQ-3 MCAS Cherry Point	42363	1	0	0	0	0	0
VMAQ-4 MCAS Cherry Point	67837	1	0	0	0	0	0
VMAT-203 MCAS Cherry Point	45483	1	0	0	0	0	0
VMFA(AW)-224 MCAS Beaufort	09439	1	0	0	0	0	0
VMFA(AW)-332 MCAS Beaufort	09501	1	0	0	0	0	0
VMFA(AW)-533 MCAS Beaufort	09193	1	0	0	0	0	0
VMFA-115 MCAS Beaufort	09234	1	0	0	0	0	0
VMFA-122 MCAS Beaufort	09407	1	0	0	0	0	0
VMFA-142 NAS Atlanta	67243	1	0	0	0	0	0
VMFA-251 MCAS Beaufort	09241	1	0	0	0	0	0
VMFA-312 MCAS Beaufort	09253	1	0	0	0	0	0
VMFA-321 AFB Andrews	67235	1	0	0	0	0	0
VMGR-252 MCAS Cherry Point	09387	1	0	0	0	0	0
VMGR-452 JRB Fort Stewart	55215	1	0	0	0	0	0
VMGRT-253 MCAS Cherry Point	55251	1	0	0	0	0	0
VMM-162 MCAS New River	09492	0	0	0	1	0	0
VMM-261 MCAS New River	09441	0	0	0	0	1	0
VMM-263 MCAS New River	09445	0	0	0	0	1	0
VMM-264 MCAS New River	09374	0	0	0	0	0	1
VMM-266 MCAS New River	53972	0	0	0	0	0	1
VMMT-204 MCAS New River	52842	1	0	0	0	0	0
VMA-211 MCAS Yuma	09412	1	0	0	0	0	0
VMA-214 MCAS Yuma	09436	1	0	0	0	0	0
VMA-311 MCAS Yuma	09416	1	0	0	0	0	0
VMA-513 MCAS Yuma	09231	1	0	0	0	0	0
VMFA(AW)-121 MCAS Miramar	09257	1	0	0	0	0	0
VMFA(AW)-225 MCAS Miramar	09232	1	0	0	0	0	0
VMFA(AW)-242 MCAS Miramar	09668	1	0	0	0	0	0
VMFA-112 JRB Fort Worth	08954	1	0	0	0	0	0

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

SOURCE: Total Force Manpower Management System **DATE:**10/26/2001
MCCDC Total Manpower Requirements Extract for MOS 6048 10/30/2001
Aircraft Program Data File – Model Detail for MV-22B 10/24/2001

ACTIVITY, UIC		PFYs	CFY02	FY03	FY04	FY05	FY06
VMFA-134 MCAS Miramar	09365	1	0	0	0	0	0
VMFA-212 MCAS Iwakuni	09434	1	0	0	0	0	0
VMFA-232 MCAS Miramar	09242	1	0	0	0	0	0
VMFA-314 MCAS Miramar	09230	1	0	0	0	0	0
VMFA-323 MCAS Miramar	09235	1	0	0	0	0	0
VMFAT-101 MCAS Miramar	09965	1	0	0	0	0	0
VMGR-152 MCAS Futenma	09443	1	0	0	0	0	0
VMGR-234 JRB Fort Worth	08344	1	0	0	0	0	0
VMGR-352 Cherry Point	09182	1	0	0	0	0	0
TOTAL:		38	0	0	1	2	2
FLEET SUPPORT ACTIVITIES - NAVY							
AIMD NAS Brunswick	44314	1	0	0	0	0	0
AIMD NAS Jacksonville	44319	1	0	0	0	0	0
AIMD NAS Oceana	44327	1	0	0	0	0	0
AIMD NAS Roosevelt Roads	44373	1	0	0	0	0	0
AIMD NAS Sigonella	44330	1	0	0	0	0	0
AIMD USS Bataan (LHD 5)	21879	1	0	0	0	0	0
AIMD USS Dwight D. Eisenhower (CVN 69)	03369	1	0	0	0	0	0
AIMD USS Enterprise (CVN 65)	03365	1	0	0	0	0	0
AIMD USS George Washington (CVN 73)	21412	1	0	0	0	0	0
AIMD USS Harry S. Truman (CVN 75)	21853	1	0	0	0	0	0
AIMD USS Iwo Jima (LHD 7)	23027	1	0	0	0	0	0
AIMD USS John F. Kennedy (CV 67)	03367	1	0	0	0	0	0
AIMD USS Kearsarge (LHD 3)	21700	1	0	0	0	0	0
AIMD USS Nassau (LHA 4)	20725	1	0	0	0	0	0
AIMD USS Ronald Reagan (CVN 76)	22178	0	0	1	0	0	0
AIMD USS Saipan (LHA 2)	20632	1	0	0	0	0	0
AIMD USS Theodore Roosevelt (CVN 71)	21247	1	0	0	0	0	0
AIMD USS Wasp (LHD 1)	21560	1	0	0	0	0	0
COMHSWINGLANT WTU	48097	1	0	0	0	0	0
COMSEACONWINGLANT WTU	47989	1	0	0	0	0	0
NAVSCOLSCOM NAS Pensacola	62229	1	0	0	0	0	0
NAVTEST WINGLANT NAS Patuxent River	39782	1	0	0	0	0	0
Reserve AIMD NAF Washington D.C.	44492	1	0	0	0	0	0
Reserve AIMD NAS Willow Grove	44493	1	0	0	0	0	0
Sea OP DET MCAS Beaufort	46961	1	0	0	0	0	0
Sea OP DET NAS Jacksonville	46965	1	0	0	0	0	0
Sea OP DET NAS Oceana	46963	1	0	0	0	0	0
Strike Fighter Weapons School Atlantic, NAS	47084	1	0	0	0	0	0
AIMD MCBH Kaneohe Bay	44312	1	0	0	0	0	0
AIMD NAF Atsugi	44323	1	0	0	0	0	0
AIMD NAF Misawa	44331	1	0	0	0	0	0
AIMD NAS Lemoore	44321	1	0	0	0	0	0
AIMD USS Belleau Wood (LHA 3)	20633	1	0	0	0	0	0
AIMD USS Bonhomme Richard (LHD 6)	22202	1	0	0	0	0	0
AIMD USS Boxer (LHD 4)	21808	1	0	0	0	0	0

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

SOURCE: Total Force Manpower Management System **DATE:**10/26/2001
MCCDC Total Manpower Requirements Extract for MOS 6048 10/30/2001
Aircraft Program Data File – Model Detail for MV-22B 10/24/2001

ACTIVITY, UIC		PFYs	CFY02	FY03	FY04	FY05	FY06
AIMD USS Constellation (CV 64)	03364	1	0	0	0	0	0
AIMD USS Essex (LHD 2)	21533	1	0	0	0	0	0
AIMD USS John C. Stennis (CVN 74)	21847	1	0	0	0	0	0
AIMD USS Kitty Hawk (CV 63)	03363	1	0	0	0	0	0
AIMD USS Abraham Lincoln (CVN 72)	21297	1	0	0	0	0	0
AIMD USS Nimitz (CVN 68)	03368	1	0	0	0	0	0
AIMD USS Peleliu (LHA 5)	20748	1	0	0	0	0	0
AIMD USS Tarawa (LHA 1)	20550	1	0	0	0	0	0
AIMD USS Carl Vinson (CVN 70)	20993	1	0	0	0	0	0
Aircraft OP DET China Lake	47677	1	0	0	0	0	0
COMAEWWINGPAC DET AIMD	44328	1	0	0	0	0	0
COMFAIRWESTPAC	09356	1	0	0	0	0	0
COMSEACONWINGPAC DET AIMD	44326	1	0	0	0	0	0
COMVAQWINGPAC DET AIMD	44329	1	0	0	0	0	0
Naval Weapons Test Squadron China Lake	39787	1	0	0	0	0	0
Navy FTR WPNS School Fallon	52912	1	0	0	0	0	0
Sea OP DET NAS Lemoore	46964	1	0	0	0	0	0
Sea OP DET NAS North Island	46968	1	0	0	0	0	0
Van OP DET NAS Whidbey Island	31179	1	0	0	0	0	0
TOTAL:		53	0	1	0	0	0
FLEET SUPPORT ACTIVITIES - USMC							
MALS-14 MCAS Cherry Point	09114	1	0	0	0	0	0
MALS-26 MCAS New River	09167	1	0	0	0	0	0
MALS-31 MCAS Beaufort	09131	1	0	0	0	0	0
MATSG-21 Pensacola	67389	1	0	0	0	0	0
MALS-11 MCAS Miramar	09111	1	0	0	0	0	0
MALS-12 MCAS Iwakuni	09112	1	0	0	0	0	0
MALS-13 MCAS Yuma	57082	1	0	0	0	0	0
MALS-16 MCAS Miramar	55583	1	0	0	0	0	0
MALS-36 MCAS Futenma	09136	1	0	0	0	0	0
MALS-41 JRB Fort Worth	03007	1	0	0	0	0	0
TOTAL:		10	0	0	0	0	0

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
OPERATIONAL ACTIVITIES - NAVY					
VFA-106 NAS Oceana, 09679					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VFA-203 NAS Cecil Field, 09030					
SELRES	0	1	PR3	7356	
ACTIVITY TOTAL:	0	1			
VFA-125 NAS Lemoore, 09485					
USMC	0	1	CPL	6048	
ACTIVITY TOTAL:	0	1			
VFA-201 JRB Fort Worth, 09309					
SELRES	0	1	PR3	7356	
ACTIVITY TOTAL:	0	1			
VFA-204 JRB New Orleans, 09032					
SELRES	0	1	PR3	7356	
ACTIVITY TOTAL:	0	1			
OPERATIONAL ACTIVITIES - USMC					
VMA-223 MCAS Cherry Point, 09438					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMA-231 MCAS Cherry Point, 52948					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMA-542 MCAS Cherry Point, 52847					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
VMAQ-1 MCAS Cherry Point, 41345					
USMC	0	1	CPL	6048	
	0	2	LCPL	6048	
	0	1	SGT	6048	
ACTIVITY TOTAL:	0	4			
VMAQ-2 MCAS Cherry Point, 42362					
USMC	0	1	CPL	6048	
	0	2	LCPL	6048	
	0	1	SGT	6048	
ACTIVITY TOTAL:	0	4			
VMAQ-3 MCAS Cherry Point, 42363					
USMC	0	1	CPL	6048	
	0	2	LCPL	6048	
	0	1	SGT	6048	
ACTIVITY TOTAL:	0	4			
VMAQ-4 MCAS Cherry Point, 67837					
USMC	0	1	CPL	6048	
	0	2	LCPL	6048	
	0	1	SGT	6048	
ACTIVITY TOTAL:	0	4			
VMAT-203 MCAS Cherry Point, 45483					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
	0	2	SGT	6048	
ACTIVITY TOTAL:	0	4			
VMFA(AW)-224 MCAS Beaufort, 09439					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMFA(AW)-332 MCAS Beaufort, 09501					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
VMFA(AW)-533 MCAS Beaufort, 09193					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMFA-115 MCAS Beaufort, 09234					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-122 MCAS Beaufort, 09407					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-142 NAS Atlanta, 67243					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-251 MCAS Beaufort, 09241					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-312 MCAS Beaufort, 09253					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-321 AFB Andrews, 67235					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMGR-252 MCAS Cherry Point, 09387					
USMC	0	1	CPL	6048	
	0	2	LCPL	6048	
ACTIVITY TOTAL:	0	3			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
VMGR-452 JRB Fort Stewart, 55215					
USMC	0	1	CPL	6048	
	0	2	LCPL	6048	
SMCR	0	1	CPL	6048	
ACTIVITY TOTAL:	0	4			
VMGRT-253 MCAS Cherry Point, 55251					
USMC	0	1	SGT	6048	
ACTIVITY TOTAL:	0	1			
VMM-162 MCAS New River, 09492, FY04 Increment					
USMC	0	2	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMM-264 MCAS New River, 09374, FY06 Increment					
USMC	0	2	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMM-266 MCAS New River, 53972, FY06 Increment					
USMC	0	2	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMMT-204 MCAS New River, 52842					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMA-211 MCAS Yuma, 09412					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMA-214 MCAS Yuma, 09436					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMA-311 MCAS Yuma, 09416					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
VMA-513 MCAS Yuma, 09231					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA(AW)-121 MCAS Miramar, 09257					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMFA(AW)-225 MCAS Miramar, 09232					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMFA(AW)-242 MCAS Miramar, 09668					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMFA-112 JRB Fort Worth, 08954					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-134 MCAS Miramar, 09365					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-212 MCAS Iwakuni, 09434					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-232 MCAS Miramar, 09242					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFA-314 MCAS Miramar, 09230					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
VMFA-323 MCAS Miramar, 09235					
USMC	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	1			
VMFAT-101 MCAS Miramar, 09965					
USMC	0	2	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMGR-152 MCAS Futenma, 09443					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			
VMGR-234 JRB Fort Worth, 08344					
USMC	0	1	CPL	6048	
	0	2	LCPL	6048	
SMCR	0	1	CPL	6048	
ACTIVITY TOTAL:	0	4			
VMGR-352 Cherry Point, 09182					
USMC	0	1	CPL	6048	
	0	1	LCPL	6048	
ACTIVITY TOTAL:	0	2			
FLEET SUPPORT ACTIVITIES - NAVY					
AIMD NAS Brunswick, 44314					
ACDU	0	1	PR1	7356	
	0	1	PR2	7356	
	0	1	PR3	7356	
ACTIVITY TOTAL:	0	3			
AIMD NAS Jacksonville, 44319					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
	0	3	PR3	7356	
ACTIVITY TOTAL:	0	6			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
AIMD NAS Oceana, 44327					
ACDU	0	2	PR1	7356	
	0	4	PR2	7356	
	0	3	PR3	7356	
ACTIVITY TOTAL:	0	9			
AIMD NAS Roosevelt Roads, 44373					
ACDU	0	2	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	4			
AIMD NAS Sigonella, 44330					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Bataan (LHD 5), 21879					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS Dwight D. Eisenhower (CVN 69), 03369					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Enterprise (CVN 65), 03365					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS George Washington (CVN 73), 21412					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Harry S. Truman (CVN 75), 21853					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
AIMD USS Iwo Jima (LHD 7), 23027					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS John F. Kennedy (CV 67), 03367					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Kearsarge (LHD 3), 21700					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS Nassau (LHA 4), 20725					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS Ronald Reagan (CVN 76), 22178, FY03 Increment					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Saipan (LHA 2), 20632					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS Theodore Roosevelt (CVN 71), 21247					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Wasp (LHD 1), 21560					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
COMHSWINGLANT WTU, 48097					
ACDU	0	1	PR1	7356	
ACTIVITY TOTAL:	0	1			
COMSEACONWINGLANT WTU, 47989					
ACDU	0	1	PR1	7356	
	0	1	PR2	7356	
ACTIVITY TOTAL:	0	2			
NAVSCOLSCOM NAS Pensacola, 62229					
ACDU	0	1	PR1	7356	
ACTIVITY TOTAL:	0	1			
NAVTEST WINGLANT NAS Patuxent River, 39782					
ACDU	0	1	PR1	7356	
ACTIVITY TOTAL:	0	1			
Reserve AIMD NAF Washington D.C., 44492					
TAR	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
Reserve AIMD NAS Willow Grove, 44493					
TAR	0	1	PR1	7356	
	0	1	PR2	7356	
ACTIVITY TOTAL:	0	2			
Sea OP DET MCAS Beaufort, 46961					
ACDU	0	1	PR3	7356	
ACTIVITY TOTAL:	0	1			
Sea OP DET NAS Jacksonville, 46965					
ACDU	0	5	PR3	7356	
ACTIVITY TOTAL:	0	5			
Sea OP DET NAS Oceana, 46963					
ACDU	0	4	PR3	7356	
ACTIVITY TOTAL:	0	4			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
Strike Fighter Weapons School Atlantic, NAS Oceana, 47084					
ACDU	0	1	PR1	7356	
	0	1	PR3	7356	
ACTIVITY TOTAL:	0	2			
AIMD MCBH Kaneohe Bay, 44312					
ACDU	0	1	PR1	7356	
	0	4	PR2	7356	
	0	1	PR3	7356	
ACTIVITY TOTAL:	0	6			
AIMD NAF Atsugi, 44323					
ACDU	0	2	PR1	7356	
	0	1	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD NAF Misawa, 44331					
ACDU	0	2	PR1	7356	
	0	1	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD NAS Lemoore, 44321					
ACDU	0	2	PR1	7356	
	0	4	PR2	7356	
	0	1	PR3	7356	
AIMD NAS Lemoore, 44321, FY04 Increment					
ACDU	0	1	PR1	7356	
ACTIVITY TOTAL:	0	8			
AIMD USS Belleau Wood (LHA 3), 20633					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS Bonhomme Richard (LHD 6), 22202					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
AIMD USS Boxer (LHD 4), 21808					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS Constellation (CV 64), 03364					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Essex (LHD 2), 21533					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS John C. Stennis (CVN 74), 21847					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Kitty Hawk (CV 63), 03363					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
	0	2	PR3	7356	
ACTIVITY TOTAL:	0	5			
AIMD USS Abraham Lincoln (CVN 72), 21297					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Nimitz (CVN 68), 03368					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
AIMD USS Peleliu (LHA 5), 20748					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
AIMD USS Tarawa (LHA 1), 20550					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
AIMD USS Carl Vinson (CVN 70), 20993					
ACDU	0	1	PR1	7356	
	0	2	PR2	7356	
ACTIVITY TOTAL:	0	3			
Aircraft OP DET China Lake, 47677					
ACDU	0	1	PR2	7356	
ACTIVITY TOTAL:	0	1			
COMAEWWINGPAC DET AIMD, 44328					
ACDU	0	1	PR1	7356	
	0	1	PR2	7356	
ACTIVITY TOTAL:	0	2			
COMFAIRWESTPAC, 09356					
SELRES	0	1	PR1	7356	
ACTIVITY TOTAL:	0	1			
COMSEACONWINGPAC DET AIMD, 44326					
ACDU	0	4	PR2	7356	
ACTIVITY TOTAL:	0	4			
COMVAQWINGPAC DET AIMD, 44329					
ACDU	0	2	PR1	7356	
	0	5	PR2	7356	
	0	3	PR3	7356	9526
ACTIVITY TOTAL:	0	10			
Naval Weapons Test Squadron China Lake, 39787					
ACDU	0	1	PR1	7356	
	0	3	PR2	7356	
ACTIVITY TOTAL:	0	4			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
Navy FTR WPNS School Fallon, 52912					
USMC	0	1	SGT	6048	
ACTIVITY TOTAL:	0	1			
Sea OP DET NAS Lemoore, 46964					
ACDU	0	4	PR3	7356	
ACTIVITY TOTAL:	0	4			
Sea OP DET NAS North Island, 46968					
ACDU	0	4	PR3	7356	
ACTIVITY TOTAL:	0	4			
Van OP DET NAS Whidbey Island, 31179					
ACDU	0	5	PR2	7356	
ACTIVITY TOTAL:	0	5			
FLEET SUPPORT ACTIVITIES - USMC					
MALS-14 MCAS Cherry Point, 09114					
USMC	0	1	GYSGT	6048	
	0	11	LCPL	6048	
	0	2	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	16			
MALS-26 MCAS New River, 09167					
USMC	0	3	CPL	6048	
	0	1	GYSGT	6048	
	0	5	LCPL	6048	
	0	2	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	13			
MALS-31 MCAS Beaufort, 09131					
USMC	0	1	GYSGT	6048	
	0	11	LCPL	6048	
	0	2	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	16			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
MATSG-21 Pensacola, 67389					
USMC	0	3	GYSGT	6048	
	0	3	SGT	6048	
	0	4	SSGT	6048	
ACTIVITY TOTAL:	0	10			
MALS-11 MCAS Miramar, 09111					
USMC	0	1	GYSGT	6048	
	0	11	LCPL	6048	
	0	2	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	16			
MALS-12 MCAS Iwakuni, 09112					
USMC	0	1	GYSGT	6048	
	0	11	LCPL	6048	
USMC	0	2	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	16			
MALS-13 MCAS Yuma, 57082					
USMC	0	1	GYSGT	6048	
	0	11	LCPL	6048	
	0	2	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	16			
MALS-16 MCAS Miramar, 55583, FY06 Increment					
USMC	0	3	CPL	6048	
	0	1	GYSGT	6048	
	0	5	LCPL	6048	
	0	2	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	13			

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

ACTIVITY, UIC, PHASING INCREMENT	BILLETS OFF	BILLETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
MALS-36 MCAS Futenma, 09136					
USMC	0	3	CPL	6048	
	0	1	GYSGT	6048	
	0	5	LCPL	6048	
	0	2	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	13			
MALS-41 JRB Fort Worth, 03007					
USMC	0	1	SGT	6048	
SMCR	0	1	GYSGT	6048	
	0	11	LCPL	6048	
	0	1	SGT	6048	
	0	2	SSGT	6048	
ACTIVITY TOTAL:	0	16			

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

DESIG/ RATING	PNEC/SNEC PMOS/SMOS	PFYs OFF	PFYs ENL	CFY02 OFF	CFY02 ENL	FY03 OFF	FY03 ENL	FY04 OFF	FY04 ENL	FY05 OFF	FY05 ENL	FY06 OFF	FY06 ENL
NAVY OPERATIONAL ACTIVITIES - SELRES													
PR3	7356		3	0		0		0		0		0	
NAVY OPERATIONAL ACTIVITIES - USMC													
CPL	6048		1	0		0		0		0		0	
LCPL	6048		1	0		0		0		0		0	
USMC OPERATIONAL ACTIVITIES - USMC													
CPL	6048		17	0		0		0		0		0	
LCPL	6048		45	0		0		2		4		4	
SGT	6048		7	0		0		0		0		0	
USMC OPERATIONAL ACTIVITIES - SMCR													
CPL	6048		2	0		0		0		0		0	
NAVY FLEET SUPPORT ACTIVITIES - ACDU													
PR1	7356		35	0		1		1		0		0	
PR2	7356		77	0		2		0		0		0	
PR3	7356		30	0		0		0		0		0	
PR3	7356 9526		3	0		0		0		0		0	
NAVY FLEET SUPPORT ACTIVITIES - TAR													
PR1	7356		1	0		0		0		0		0	
PR2	7356		2	0		0		0		0		0	
NAVY FLEET SUPPORT ACTIVITIES - SELRES													
PR1	7356		1	0		0		0		0		0	
NAVY FLEET SUPPORT ACTIVITIES - USMC													
SGT	6048		1	0		0		0		0		0	
USMC FLEET SUPPORT ACTIVITIES - USMC													
CPL	6048		6	0		0		0		0		3	
GYSGT	6048		10	0		0		0		0		1	
LCPL	6048		65	0		0		0		0		5	
SGT	6048		18	0		0		0		0		2	
SSGT	6048		18	0		0		0		0		2	
USMC FLEET SUPPORT ACTIVITIES - SMCR													
GYSGT	6048		1	0		0		0		0		0	
LCPL	6048		11	0		0		0		0		0	
SGT	6048		1	0		0		0		0		0	
SSGT	6048		2	0		0		0		0		0	

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

DESIG/ RATING	PNEC/SNEC PMOS/SMOS	PFYs OFF	PFYs ENL	CFY02 OFF	CFY02 ENL	FY03 OFF	FY03 ENL	FY04 OFF	FY04 ENL	FY05 OFF	FY05 ENL	FY06 OFF	FY06 ENL
SUMMARY TOTALS:													
NAVY OPERATIONAL ACTIVITIES - SELRES													
	3			0		0		0		0		0	
NAVY OPERATIONAL ACTIVITIES - USMC													
	2			0		0		0		0		0	
USMC OPERATIONAL ACTIVITIES - USMC													
	69			0		0		2		4		4	
USMC OPERATIONAL ACTIVITIES - SMCR													
	2			0		0		0		0		0	
NAVY FLEET SUPPORT ACTIVITIES - ACDU													
	145			0		3		1		0		0	
NAVY FLEET SUPPORT ACTIVITIES - TAR													
	3			0		0		0		0		0	
NAVY FLEET SUPPORT ACTIVITIES - SELRES													
	1			0		0		0		0		0	
NAVY FLEET SUPPORT ACTIVITIES - USMC													
	1			0		0		0		0		0	
USMC FLEET SUPPORT ACTIVITIES - USMC													
	117			0		0		0		0		13	
USMC FLEET SUPPORT ACTIVITIES - SMCR													
	15			0		0		0		0		0	

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

DESIG/ RATING	PNEC/SNEC PMOS/SMOS	PFYs OFF	PFYs ENL	CFY02 OFF	CFY02 ENL	FY03 OFF	FY03 ENL	FY04 OFF	FY04 ENL	FY05 OFF	FY05 ENL	FY06 OFF	FY06 ENL
GRAND TOTALS:													
NAVY - ACDU		145		0		3		1		0		0	
NAVY - TAR		3		0		0		0		0		0	
NAVY - SELRES		4		0		0		0		0		0	
NAVY - USMC		3		0		0		0		0		0	
USMC - USMC		186		0		0		2		4		17	
USMC - SMCR		17		0		0		0		0		0	

II.A.2.a. OPERATIONAL AND FLEET SUPPORT ACTIVITY DEACTIVATION SCHEDULE

SOURCE: Total Force Manpower Management System **DATE:** 10/26/2001
MCCDC Total Manpower Requirements Extract for MOS 6048 10/30/2001
Aircraft Program Data File – Model Detail for MV-22B 10/24/2001

ACTIVITY, UIC		PFYs	CFY02	FY03	FY04	FY05	FY06
FLEET SUPPORT ACTIVITIES - NAVY							
AIMD USS Constellation (CV 64)	03364	0	1	0	0	0	0
TOTAL:		0	1	0	0	0	0

II.A.2.c. TOTAL BILLETS TO BE DELETED IN OPERATIONAL AND FLEET SUPPORT ACTIVITIES

DESIG/ RATING	PNEC/SNEC PMOS/SMOS	PFYs OFF	PFYs ENL	CFY02 OFF	CFY02 ENL	FY03 OFF	FY03 ENL	FY04 OFF	FY04 ENL	FY05 OFF	FY05 ENL	FY06 OFF	FY06 ENL
NAVY FLEET SUPPORT ACTIVITIES - ACDU													
PR1	7356			1	-1	0		0		0		0	
PR2	7356			4	-2	0		0		-1		0	

SUMMARY TOTALS:

NAVY FLEET SUPPORT ACTIVITIES - ACDU													
				5	-3	0		0		-1		0	

GRAND TOTALS:

NAVY - ACDU													
				5	-3	0		0		-1		0	

II.A.4. CHARGEABLE STUDENT BILLET REQUIREMENTS

ACTIVITY, LOCATION, UIC	USN/ USMC	PFYs OFF	PFYs ENL	CFY02 OFF	CFY02 ENL	FY03 OFF	FY03 ENL	FY04 OFF	FY04 ENL	FY05 OFF	FY05 ENL	FY06 OFF	FY06 ENL
NATTC Pensacola, NAS Pensacola, Florida, 63093													
	NAVY		0.0		7.4		7.3		7.4		7.3		7.3
	USMC		0.0		6.4		6.5		6.8		7.1		7.1
SUMMARY TOTALS:													
	NAVY		0.0		7.4		7.3		7.4		7.3		7.3
	USMC		0.0		6.4		6.5		6.8		7.1		7.1
GRAND TOTALS:													
			0.0		13.8		13.8		14.2		14.4		14.4

II.A.5. ANNUAL INCREMENTAL AND CUMULATIVE BILLETS

DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS	BILLET BASE	CFY02 +/-	CFY02 CUM	FY03 +/-	FY03 CUM	FY04 +/-	FY04 CUM	FY05 +/-	FY05 CUM	FY06 +/-	FY06 CUM
a. OFFICER - USN	Not Applicable												
b. ENLISTED - USN													
Fleet Support Billets ACDU and TAR													
PR1	7356		36	-1	35	1	36	1	37	0	37	0	37
PR2	7356		79	-2	77	2	79	0	79	-1	78	0	78
PR3	7356		30	0	30	0	30	0	30	0	30	0	30
PR3	7356	9526	3	0	3	0	3	0	3	0	3	0	3
Chargeable Student Billets ACDU and TAR													
			0	8	8	-1	7	1	8	-1	7	0	7
SELRES Billets													
PR1	7356		1	0	1	0	1	0	1	0	1	0	1
PR3	7356		3	0	3	0	3	0	3	0	3	0	3
TOTAL USN ENLISTED BILLETS:													
Fleet Support			148	-3	145	3	148	1	149	-1	148	0	148
Chargeable Student			0	8	8	-1	7	1	8	-1	7	0	7
SELRES			4	0	4	0	4	0	4	0	4	0	4
c. OFFICER - USMC	Not Applicable												
d. ENLISTED - USMC													
Operational Billets USMC and AR													
CPL	6048		18	0	18	0	18	0	18	0	18	0	18
LCPL	6048		46	0	46	0	46	2	48	4	52	4	56
SGT	6048		7	0	7	0	7	0	7	0	7	0	7
Fleet Support Billets USMC and AR													
CPL	6048		6	0	6	0	6	0	6	0	6	3	9
GYSGT	6048		10	0	10	0	10	0	10	0	10	1	11
LCPL	6048		65	0	65	0	65	0	65	0	65	5	70
SGT	6048		19	0	19	0	19	0	19	0	19	2	21

II.A.5. ANNUAL INCREMENTAL AND CUMULATIVE BILLETS

DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS	BILLET BASE	CFY02 +/-	CFY02 CUM	FY03 +/-	FY03 CUM	FY04 +/-	FY04 CUM	FY05 +/-	FY05 CUM	FY06 +/-	FY06 CUM
SSGT	6048		18	0	18	0	18	0	18	0	18	2	20
Chargeable Student Billets USMC and AR			0	7	7	0	7	0	7	0	7	0	7
SMCR Billets													
CPL	6048		2	0	2	0	2	0	2	0	2	0	2
GYSGT	6048		1	0	1	0	1	0	1	0	1	0	1
LCPL	6048		11	0	11	0	11	0	11	0	11	0	11
SGT	6048		1	0	1	0	1	0	1	0	1	0	1
SSGT	6048		2	0	2	0	2	0	2	0	2	0	2
TOTAL USMC ENLISTED BILLETS:													
Operational			71	0	71	0	71	2	73	4	77	4	81
Fleet Support			118	0	118	0	118	0	118	0	118	13	131
Chargeable Student			0	7	7	0	7	0	7	0	7	0	7
SMCR			17	0	17	0	17	0	17	0	17	0	17

II.B. PERSONNEL REQUIREMENTS

II.B.1. ANNUAL TRAINING INPUT REQUIREMENTS

CIN, COURSE TITLE: C-602-2040 Path 2, Aircrew Survival Equipment Intermediate Maintenance Pipeline
COURSE LENGTH: 8.0 Weeks **NAVY TOUR LENGTH:** 36 Months
ATTRITION FACTOR: Navy: 10% USMC: 0% **BACKOUT FACTOR:** 0.16

TRAINING ACTIVITY	SOURCE	ACDU/TAR SELRES	CFY02 OFF	CFY02 ENL	FY03 OFF	FY03 ENL	FY04 OFF	FY04 ENL	FY05 OFF	FY05 ENL	FY06 OFF	FY06 ENL
NATTC Pensacola												
	NAVY	ACDU		52		51		52		51		51
		TAR		1		1		1		1		1
		SELRES		0		1		0		1		0
	USMC	USMC		43		44		46		48		48
		SMCR		2		2		2		2		2
		TOTAL:		98		99		101		103		102

PART III - TRAINING REQUIREMENTS

The following elements are not affected by the NAOS 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.b. Planned Courses

III.A.2.c. Unique Courses

III.A.3. Existing Training Phased Out

PART III - TRAINING REQUIREMENTS

III.A.2. FOLLOW-ON TRAINING

III.A.2.a. EXISTING COURSES

CIN, COURSE TITLE: C-602-2040 Path 2, Aircrew Survival Equipment Intermediate Maintenance Pipeline
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

SOURCE: NAVY **STUDENT CATEGORY:** ACDU - TAR

CFY02		FY03		FY04		FY05		FY06		
OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	
53		52		53		52		52		ATIR
48		47		48		47		47		Output
7.4		7.3		7.4		7.3		7.3		AOB
7.4		7.3		7.4		7.3		7.3		Chargeable

SOURCE: NAVY **STUDENT CATEGORY:** SELRES

CFY02		FY03		FY04		FY05		FY06		
OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	
0		1		0		1		0		ATIR
0		1		0		1		0		Output
0.0		0.1		0.0		0.1		0.0		AOB
0.0		0.0		0.0		0.0		0.0		Chargeable

SOURCE: USMC **STUDENT CATEGORY:** USMC - AR

CFY02		FY03		FY04		FY05		FY06		
OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	
43		44		46		48		48		ATIR
43		44		46		48		48		Output
6.4		6.5		6.8		7.1		7.1		AOB
6.4		6.5		6.8		7.1		7.1		Chargeable

SOURCE: USMC **STUDENT CATEGORY:** SMCR

CFY02		FY03		FY04		FY05		FY06		
OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	
2		2		2		2		2		ATIR
2		2		2		2		2		Output
0.3		0.3		0.3		0.3		0.3		AOB
0.0		0.0		0.0		0.0		0.0		Chargeable

PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

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

IV.A. Training Hardware

IV.A.2. Training Devices

IV.B.1. Training Services

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 IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

IV.A. TRAINING HARDWARE

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

CIN, COURSE TITLE: C-670-2018, Aviator's Breathing Oxygen (ABO) Test Site Operator/Analyst (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

ITEM NO.	EQUIPMENT / TYPE OR RANGE OF REPAIR PARTS	QTY REQD	DATE REQD	GFE CFE	STATUS
TTE					
013	Liquid Oxygen Servicing Trailer, 3655-00-158-0657	1	Dec 96	GFE	Onboard
014	Nicolet Oxygen Analyzer	3	Dec 96	GFE	Onboard
GPTE					
022	Pressure Gage, 0-200 PSI	2	Dec 96	GFE	Onboard

CIN, COURSE TITLE: C-602-2028, LOX Converter Test Stand/LOX Converter and SKU Repair/OBOGS Component Repair (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

ITEM NO.	EQUIPMENT / TYPE OR RANGE OF REPAIR PARTS	QTY REQD	DATE REQD	GFE CFE	STATUS
TTE					
002	Liquid Oxygen Converter Test Stand, 59A-12D	10	Dec 96	GFE	Onboard
003	Liquid Oxygen Converter, CGU-24/A	15	Dec 96	GFE	Onboard
004	Seat Survival Kit, SKU-2	15	Dec 96	GFE	Onboard
060	Converter, LIQ OXY, C/W 219073-C1A	2	Dec 96	GFE	Onboard
061	Converter, LIQ OXY, C/W 1DC-0016-1D	2	Dec 96	GFE	Onboard
062	Converter, C/W 29044-1A1A	1	Dec 96	GFE	Onboard
063	Valve Assembly Comb, 43900-3	29	Dec 96	GFE	Onboard
065	Converter, LIQ OXY, 10C-0016-10	27	Dec 96	GFE	Onboard
066	Reducer Assembly, 216D800-1	12	Dec 96	GFE	Onboard
067	Lid Assembly, 221S200-101	10	Dec 96	GFE	Onboard
068	Hose Assembly, 33D1341-5	3	Dec 96	GFE	Onboard

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

069	Flowmeter, Cal Kit (IT-69), 59A120D9	10	Dec 96	GFE	Onboard
070	Pressure Gauge, Cal Kit (IT-69), 59A120-D4	10	Dec 96	GFE	Onboard
071	Regulator, OXY, 283028-0001	3	Dec 96	GFE	Onboard
072	Tool Kit, Press Reducer (IT-70), T216D900-1	10	Dec 96	GFE	Onboard
073	Test Stand, Oxygen (IT-71), 1455AS100-1	10	Dec 96	GFE	Onboard
074	Purging Device Kit, 50C-0001-1	4	Dec 96	GFE	Onboard
094	Oxygen Monitor, 3270023-0401	3	Dec 00	GFE	Pending
098	Oxygen Concentrator, 3261009-0105	1	Dec 00	GFE	Pending
099	Oxygen Regulator, 3260014-0401	8	Dec 00	GFE	Pending
102	Valve Regulating, 8-540	1	Dec 00	GFE	Pending
104	Oxygen Concentrator, 3261077-0101	1	Dec 00	GFE	Pending
107	Valve Regulator, 85-15560-15-580	1	Dec 00	GFE	Pending
108	Regulator Nitrogen, 8-250	1	Dec 00	GFE	Pending
110	Oxygen Cylinder, RR-C-901/1	2	Dec 00	GFE	Pending
111	Nitrogen Cylinder, RR-C-901/1	2	Dec 00	GFE	Pending
GPTE					
015	Gage, Pressure, 0-3000 PSI	1	Dec 96	GFE	Onboard
016	Gage, Pressure, 0-160 PSI	12	Dec 96	GFE	Onboard
017	Gage, Low Pressure, 0-15 PSI	2	Dec 96	GFE	Onboard
018	Oxygen Gage, 200 PSI	2	Dec 96	GFE	Onboard
019	Gage, 813095-1	5	Dec 96	GFE	Onboard
020	Gage assembly, KB-390-400	1	Dec 96	GFE	Onboard
021	Pressure Gage, 0-3000 PSI	1	Dec 96	GFE	Onboard
023	Pressure Gage, 0-160 PSI	5	Dec 96	GFE	Onboard
SPTE					
024	Gage, MD-1	15	Dec 96	GFE	Onboard

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

025	Gage, MD-2	10	Dec 96	GFE	Onboard
026	Flower Assembly	15	Dec 96	GFE	Onboard
027	Manometer, D-293	1	Dec 96	GFE	Onboard
028	Thickness Gage, 1318426-7	12	Dec 96	GFE	Onboard
029	Gage, Precision, 0-10"	2	Dec 96	GFE	Onboard
030	Regulator, R-1	11	Dec 96	GFE	Onboard
031	Gage, Differential, F-122-2-W	2	Dec 96	GFE	Onboard
032	Simulator, 62-A-116-D55	5	Dec 96	GFE	Onboard
033	Piezometer, 62-A-116-C48	5	Dec 96	GFE	Onboard
034	Manometer, JM80BA12A73A	1	Dec 96	GFE	Onboard
035	Manometer, JM20A12A7A	1	Dec 96	GFE	Onboard
036	Flowmeter, 1370-3T	2	Dec 96	GFE	Onboard
037	Altitude Controller, 00-63-6993	9	Dec 96	GFE	Onboard
038	Altitude Indicator, 10,000-40,000 ft.	1	Dec 96	GFE	Onboard
039	Altitude Indicator, 30,000-150,000 ft.	1	Dec 96	GFE	Onboard
040	Manometer, 12-26	2	Dec 96	GFE	Onboard
041	Needle Valve	3	Dec 96	GFE	Onboard
042	Vacuum Pump	1	Dec 96	GFE	Onboard
043	Guide, Spring, 0.546	15	Dec 96	GFE	Onboard
044	Guide, Spring, 0.562	15	Dec 96	GFE	Onboard
045	Guide, Spring, 0.578	15	Dec 96	GFE	Onboard
046	Guide, Spring, 0.593	15	Dec 96	GFE	Onboard
047	Guide, Spring, 0.662	15	Dec 96	GFE	Onboard
048	Guide, Spring, 0.682	15	Dec 96	GFE	Onboard
049	Guide Assembly, 14840	20	Dec 96	GFE	Onboard

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

050	Spacer, 14B65	20	Dec 96	GFE	Onboard
051	Brush Bore, 7790452	4	Dec 96	GFE	Onboard
052	Torque Wrench, TE6FUA	1	Dec 96	GFE	Onboard
053	Pressure Guard, 0-175 PSI	10	Dec 96	GFE	Onboard
054	Regulator, Pressure, 0-80 PSI	2	Dec 96	GFE	Onboard
055	Balance Wheel, 240452	10	Dec 96	GFE	Onboard
056	Tap Kit, Special, STP-1	1	Dec 96	GFE	Onboard
088	Test Set, Concentrator, 1779AS500-1	2	Dec 00	GFE	Pending
089	Heat Gun, EP-5	1	Dec 00	GFE	Pending
090	Wrench Aneroid, 3301111-1	2	Dec 00	GFE	Pending
091	Gauge lever Height, 3301113-1	2	Dec 00	GFE	Pending
092	Punch Hollow Ring, 330114-1	1	Dec 00	GFE	Pending
093	Pliers Retaining, 3301098-6001	2	Dec 00	GFE	Pending
096	Test Set Concentrator, 3300158-6101	1	Dec 00	GFE	Pending
097	Test Set, Regulator/Monitor, 3300157-6101	2	Dec 00	GFE	Pending
103	Test Set, TTU-520, 1582AS500-2	1	Dec 00	GFE	Pending
105	Barometer, 1130600-1	1	Dec 00	GFE	Pending
106	Screwdriver Aneroid, 3301112-1	1	Dec 00	GFE	Pending
109	Tool Box, 297	2	Dec 00	GFE	Pending
GPETE					
057	Multi-meter, Simpson 260	4	Dec 96	GFE	Onboard
095	Power Supply, 28VDC, 3190-4025	2	Dec 00	GFE	Pending
101	Fluke Meter, 77/BN	1	Dec 00	GFE	Pending
SPETE					
087	Test Set, Environmental Control, 1582AS300-2	1	Dec 00	GFE	Pending

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

CIN, COURSE TITLE: C-602-2027, Oxygen Systems Components Test Stand/Oxygen Regulator Repair (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

ITEM NO.	EQUIPMENT / TYPE OR RANGE OF REPAIR PARTS	QTY REQD	DATE REQD	GFE CFE	STATUS
TTE					
001	Panel Mounted Bendix, Oxygen Regulator	15	Dec 96	GFE	Onboard
075	Cleaning Tank Ultra, HT1212	2	Dec 96	GFE	Onboard
076	Generator, Ultrasonic, N1000-XHS01-120-600	1	Dec 96	GFE	Onboard
077	Regulator, MD1, 14950-26	1	Dec 96	GFE	Onboard
078	Regulator, MD1, 29255-100B9	1	Dec 96	GFE	Onboard
079	Regulator, MD1, 2894-10AB2	4	Dec 96	GFE	Onboard
080	Cleaner, Ultrasonic, SEC1825	1	Dec 96	GFE	Onboard
081	Test Stand, Oxygen, 1172AS100	9	Dec 96	GFE	Onboard
082	Regulator, Oxygen MD-1, 14950-12	33	Dec 96	GFE	Onboard
083	Regulator, Oxygen MD-2, 14800-8B	33	Dec 96	GFE	Onboard
084	Regulator, Oxygen, CRU-79, 900-002-025-05	33	Dec 96	GFE	Onboard
085	Test Stand, Oxygen, 1316AS100	1	Dec 96	GFE	Onboard
086	Truck Hand, Two Wheel, KKK-T-728	2	Dec 96	GFE	Onboard
GPTE					
015	Gage, Pressure, 0-3000 PSI	1	Dec 96	GFE	Onboard
016	Gage, Pressure, 0-160 PSI	12	Dec 96	GFE	Onboard
017	Gage, Low Pressure, 0-15 PSI	2	Dec 96	GFE	Onboard
018	Oxygen Gage, 200 PSI	2	Dec 96	GFE	Onboard
019	Gage, 813095-1	5	Dec 96	GFE	Onboard
020	Gage assembly, KB-390-400	1	Dec 96	GFE	Onboard
021	Pressure Gage, 0-3000 PSI	1	Dec 96	GFE	Onboard
022	Pressure Gage, 0-200 PSI	2	Dec 96	GFE	Onboard

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

023	Pressure Gage, 0-160 PSI	5	Dec 96	GFE	Onboard
SPTE					
024	Gage, MD-1	15	Dec 96	GFE	Onboard
025	Gage, MD-2	10	Dec 96	GFE	Onboard
026	Flower Assembly	15	Dec 96	GFE	Onboard
027	Manometer, D-293	1	Dec 96	GFE	Onboard
028	Thickness Gage, 1318426-7	12	Dec 96	GFE	Onboard
029	Gage, Precision, 0-10"	2	Dec 96	GFE	Onboard
030	Regulator, R-1	11	Dec 96	GFE	Onboard
031	Gage, Differential, F-122-2-W	2	Dec 96	GFE	Onboard
032	Simulator, 62-A-116-D55	1	Dec 96	GFE	Onboard
033	Piezometer, 62-A-116-C48	5	Dec 96	GFE	Onboard
034	Manometer, JM80BA12A73A	1	Dec 96	GFE	Onboard
035	Manometer, JM20A12A7A	1	Dec 96	GFE	Onboard
036	Flowmeter, 1370-3T	2	Dec 96	GFE	Onboard
037	Altitude Controller, 00-63-6993	9	Dec 96	GFE	Onboard
038	Altitude Indicator, 10,000-40,000 ft.	1	Dec 96	GFE	Onboard
039	Altitude Indicator, 30,000-150,000 ft.	1	Dec 96	GFE	Onboard
040	Manometer, 12-26	2	Dec 96	GFE	Onboard
041	Needle Valve	3	Dec 96	GFE	Onboard
042	Vacuum Pump	1	Dec 96	GFE	Onboard
043	Guide Spring, 0.546	15	Dec 96	GFE	Onboard
044	Guide Spring, 0.562	15	Dec 96	GFE	Onboard
045	Guide Spring, 0.578	15	Dec 96	GFE	Onboard
046	Guide Spring, 0.593	15	Dec 96	GFE	Onboard
047	Guide Spring, 0.662	15	Dec 96	GFE	Onboard

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

048	Guide Spring, 0.682	15	Dec 96	GFE	Onboard
049	Guide Assembly, 14840	20	Dec 96	GFE	Onboard
050	Spacer, 14B65	20	Dec 96	GFE	Onboard
051	Brush Bore, 7790452	4	Dec 96	GFE	Onboard
052	Torque Wrench, TE6FUA	1	Dec 96	GFE	Onboard
053	Pressure Guard, 0-175 PSI	10	Dec 96	GFE	Onboard
054	Regulator, Pressure, 0-80 PSI	2	Dec 96	GFE	Onboard
055	Balance Wheel, 240452	10	Dec 96	GFE	Onboard
056	Tap Kit, Special, STP-1	1	Dec 96	GFE	Onboard
GPETE					
057	Multi-meter, Simpson 260	4	Dec 96	GFE	Onboard

IV.B.2. CURRICULA MATERIALS AND TRAINING AIDS

CIN, COURSE TITLE: C-670-2018, Aviator's Breathing Oxygen (ABO) Test Site Operator/Analyst (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

TYPES OF MATERIAL OR AID	QTY REQD	DATE REQD	STATUS
Curriculum Outline	2	Dec 96	Onboard
Instructor Guide	2	Dec 96	Onboard
Student Guide	10	Dec 96	Onboard

CIN, COURSE TITLE: C-602-2028, LOX Converter Test Stand/LOX Converter and SKU Repair/OBOGS Component Repair (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

TYPES OF MATERIAL OR AID	QTY REQD	DATE REQD	STATUS
Curriculum Outline	2	Dec 96	Onboard
Instructor Guide	2	Dec 96	Onboard
Overhead Transparency Sets	2	Dec 96	Onboard
Student Guide	10	Dec 96	Onboard

CIN, COURSE TITLE: C-602-2027, Oxygen Systems Components Test Stand/Oxygen Regulator Repair (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

TYPES OF MATERIAL OR AID	QTY REQD	DATE REQD	STATUS
Curriculum Outline	2	Dec 96	Onboard
Instructor Guide	2	Dec 96	Onboard
Overhead Transparency Sets	2	Dec 96	Onboard
Student Guide	10	Dec 96	Onboard

IV.B.3. TECHNICAL MANUALS

CIN, COURSE TITLE: C-670-2018, Aviator's Breathing Oxygen (ABO) Test Site Operator/Analyst (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NAVAIR 06-30-501 Oxygen/Nitrogen Cryogenic Systems	Hard copy	11	Dec 96	Onboard
NAVAIR 17-15-98 Installation Operation and Maintenance Instructions, ABO Contaminant Analyzer	Hard copy	11	Dec 96	Onboard
NAVAIR AG-332AO-GYD-000 Aviator's Breathing Oxygen (ABO) Surveillance Program Laboratory Manual and Field Guide	Hard copy	11	Dec 96	Onboard

CIN, COURSE TITLE: C-602-2028, LOX Converter Test Stand/LOX Converter and SKU Repair/OBOGS Component Repair (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NAVAIR 00-25-100 Naval Air Systems Command Technical Manual Program	Hard copy	2	Dec 96	Onboard
NAVAIR 00-25-DRT-1 Automatic Distribution Requirements List	Hard copy	1	Dec 96	Onboard
NAVAIR 00-35QH-2 NAVAIR Initial Outfitting List - Flight Operational Material and Airborne Operational Equipment Replenishment Items/Spare Parts	Hard copy	1	Dec 96	Onboard
NAVAIR 00-35QH-2-4 NAVAIR Initial Outfitting List - Flight Operational Material and Airborne Operational Equipment Replenishment Items/Spare Parts	Hard copy	1	Dec 96	Onboard
NAVAIR 00-500A Equipment Applicability List	Microfiche	3	Dec 96	Onboard
NAVAIR 00-500AV Avionics Changes Cross Reference	Microfiche	3	Dec 96	Onboard
NAVAIR 00-500B Aircraft Application List	Microfiche	3	Dec 96	Onboard
NAVAIR 00-500C Directives Application List	Microfiche	3	Dec 96	Onboard

IV.B.3. TECHNICAL MANUALS

NAVAIR 00-500M Microfilm Cartridge, Cross Reference	Microfiche	3	Dec 96	Onboard
NAVAIR 00-500SE Support Equipment, Cross Reference	Microfiche	3	Dec 96	Onboard
NAVAIR 13-1-6.3 Aviation - Crew Systems Seat Survival Kits	Hard copy	2	Dec 96	Onboard
NAVAIR 13-1-6.4 Aviation - Crew Systems Oxygen Equipment	Hard copy	2	Dec 96	Onboard
NAVAIR 13-1-6.8 Aviation - Crew Systems Equipment Work Unit Code Manual	Hard copy	2	Dec 96	Onboard
NAVAIR 16-1-8 Aeronautical Support Equipment Index	Hard copy	2	Dec 96	Onboard
NAVAIR 16-1-8.1 Aeronautical Support Equipment Work Unit Code Manual	Hard copy	2	Dec 96	Onboard
NAVAIR 17-15BC-11 Handbook of Maintenance Instructions with Illustrated Parts Breakdown - Oxygen System Components Test Stand	Hard copy	2	Dec 96	Onboard
NAVAIR 17-15BC-20 Handbook of Maintenance Instructions with Illustrated Parts Breakdown - Liquid Oxygen Converter Test Stand	Hard copy	2	Dec 96	Onboard
NAVAIR 17-600-39-6-1 Pre-operational Checklist Oxygen System Components Test Stand Model 62A116E1	Hard copy	13	Dec 96	Onboard
NAVAIR 17-600-39-6-2 Periodic Maintenance Requirements Manual OTS 62A116E1	Hard copy	13	Dec 96	Onboard
NAVAIR AG-332AO-GYD-000 Aviator's Breathing Oxygen (ABO) Surveillance Program Laboratory Manual and Field Guide	Hard copy	13	Dec 96	Onboard
NAVAIRINST 13650.1 NAVAIRSYSCOM Aircraft Maintenance Material Readiness List	Hard copy	1	Dec 96	Onboard
NAVAIRINST 5215.8 (Series) NAVAIR Technical Directive System	Hard copy	1	Dec 96	Onboard
NAVEDTRA 10077 Blueprint Reading and Sketching	Hard copy	1	Dec 96	Onboard

IV.B.3. TECHNICAL MANUALS

NAVSUP 2002 Navy Stock List of Publications and Forms	Microfiche	1	Dec 96	Onboard
NAVSUP 2320 Source, Maintenance, and Recoverability Code Changes	Microfiche	1	Dec 96	Onboard
NAVSUP 4000 Introduction to Supply Catalogs and Related Publications	Hard copy	3	Dec 96	Onboard
NAVSUP P-485 Afloat Supply Procedures	Hard copy	1	Dec 96	Onboard
OPNAVINST 3750.6 (Series) Naval Aircraft Mishap Reporting Procedures	Hard copy	1	Dec 96	Onboard
OPNAVINST 4790.2 (Series) Naval Aviation Maintenance Program	Hard copy	1	Dec 96	Onboard

CIN, COURSE TITLE: C-602-2027, Oxygen Systems Components Test Stand/Oxygen Regulator Repair (Track C-602-2040)
TRAINING ACTIVITY: NATTC
LOCATION, UIC: NAS Pensacola, Florida, 63093

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NAVAIR 00-25-100 Naval Air Systems Command Technical Manual Program	Hard copy	2	Dec 96	Onboard
NAVAIR 00-25-DRT-1 Automatic Distribution Requirements List	Hard copy	1	Dec 96	Onboard
NAVAIR 00-35QH-2 NAVAIR Initial Outfitting List - Flight Operational Material and Airborne Operational Equipment Replenishment Items/Spare Parts	Hard copy	1	Dec 96	Onboard
NAVAIR 00-35QH-2-4 NAVAIR Initial Outfitting List - Flight Operational Material and Airborne Operational Equipment Replenishment Items/Spare Parts	Hard copy	1	Dec 96	Onboard
NAVAIR 00-500A Equipment Applicability List	Microfiche	3	Dec 96	Onboard
NAVAIR 00-500AV Avionics Changes Cross Reference	Microfiche	3	Dec 96	Onboard
NAVAIR 00-500B Aircraft Application List	Microfiche	3	Dec 96	Onboard

IV.B.3. TECHNICAL MANUALS

NAVAIR 00-500C Directives Application List	Microfiche	3	Dec 96	Onboard
NAVAIR 00-500M Microfilm Cartridge, Cross Reference	Microfiche	3	Dec 96	Onboard
NAVAIR 00-500SE Support Equipment, Cross Reference	Microfiche	3	Dec 96	Onboard
NAVAIR 13-1-6.3 Aviation - Crew Systems Seat Survival Kits	Hard copy	2	Dec 96	Onboard
NAVAIR 13-1-6.4 Aviation - Crew Systems Oxygen Equipment	Hard copy	2	Dec 96	Onboard
NAVAIR 13-1-6.8 Aviation - Crew Systems Equipment Work Unit Code Manual	Hard copy	2	Dec 96	Onboard
NAVAIR 16-1-8 Aeronautical Support Equipment Index	Hard copy	2	Dec 96	Onboard
NAVAIR 16-1-8.1 Aeronautical Support Equipment Work Unit Code Manual	Hard copy	2	Dec 96	Onboard
NAVAIR 17-15BC-11 Handbook of Maintenance Instructions with Illustrated Parts Breakdown - Oxygen System Components Test Stand	Hard copy	2	Dec 96	Onboard
NAVAIR 17-15BC-20 Handbook of Maintenance Instructions with Illustrated Parts Breakdown - Liquid Oxygen Converter Test Stand	Hard copy	2	Dec 96	Onboard
NAVAIR 17-600-39-6-1 Pre-operational Checklist Oxygen System Components Test Stand Model 62A116E1	Hard copy	13	Dec 96	Onboard
NAVAIR 17-600-39-6-2 Periodic Maintenance Requirements Manual OTS 62A116E1	Hard copy	13	Dec 96	Onboard
NAVAIR AG-332AO-GYD-000 Aviator's Breathing Oxygen (ABO) Surveillance Program Laboratory Manual and Field Guide	Hard copy	13	Dec 96	Onboard
NAVAIRINST 13650.1 NAVAIRSYSCOM Aircraft Maintenance Material Readiness List	Hard copy	1	Dec 96	Onboard
NAVAIRINST 5215.8 (Series) NAVAIR Technical Directive System	Hard copy	1	Dec 96	Onboard

IV.B.3. TECHNICAL MANUALS

NAVEDTRA 10077 Blueprint Reading and Sketching	Hard copy	1	Dec 96	Onboard
NAVSUP 2002 Navy Stock List of Publications and Forms	Microfiche	1	Dec 96	Onboard
NAVSUP 2320 Source, Maintenance, and Recoverability Code Changes	Microfiche	1	Dec 96	Onboard
NAVSUP 4000 Introduction to Supply Catalogs and Related Publications	Hard copy	3	Dec 96	Onboard
NAVSUP P-485 Afloat Supply Procedures	Hard copy	1	Dec 96	Onboard
OPNAVINST 3750.6 (Series) Naval Aircraft Mishap Reporting Procedures	Hard copy	1	Dec 96	Onboard
OPNAVINST 4790.2 (Series) Naval Aviation Maintenance Program	Hard copy	1	Dec 96	Onboard

PART V - MPT MILESTONES

COG CODE	MPT MILESTONES	DATE	STATUS
OPTEVFOR	Conducted OBOGS OPEVAL	Oct 83	Completed
DA	Conducted analysis of MPT Requirements for OBOGS	Dec 84	Completed
TSA	Conducted OBOGS Initial Training	Dec 84	Completed
TSA	Began Follow-on OBOGS Training at NAMTRAGRU DETs	Jan 85	Completed
DA	Achieved IOC for the OBOGS	Sep 85	Completed
DA	Achieved OBOGS MSD	FY 86	Completed
DA	Achieved OBOGS NSD	FY 87	Completed
DA	Approved Maintenance Plan for the ABO Contaminant Analyzer	Jun 93	Completed
TSA	Completed Initial Training for the ABO Contaminant Analyzer	Jul 93	Completed
DA	Delivered Curricula Materials for the ABO Contaminant Analyzer	Aug 93	Completed
TSA	Approved NTP for the ABO Contaminant Analyzer	Jan 94	Completed
DA	Achieved ABO Contaminant Analyzer MSD	Sep 95	Completed
DA	Achieved ABO Contaminant Analyzer NSD	Sep 96	Completed
TSA	Updated NTSP for the ABO Contaminant Analyzer	Feb 99	Completed
TSA	Discontinued OBOGS Training at the NAMTRAGRU DETs	Dec 99	Completed
TSA	Deliver OBOGS TTE to NATTC Pensacola	Dec 00	Completed
TSA	Begin OBOGS Follow-on Training at NATTC Pensacola	Jun 01	Completed
TSA	Updated NTSP to Include All LOX, OBOGS, and ABO Analyzer Training Requirements. Changed Title to NAOS and Resubmitted Draft NTSP for Comment	Dec 01	Completed
TSA	Develop and Submit Proposed NTSP to OPNAV for approval	Jul 02	Completed
TSA	Distribute Approved NTSP	Sept 02	Completed

PART VI - DECISION ITEMS / ACTION REQUIRED

The following are actions generated at Maintenance Training Requirements Reviews and are currently in-work.

DECISION ITEM OR ACTION REQUIRED	COMMAND ACTION	DUE DATE	STATUS
PR.97MTRR.2040.001: 1. Add no more than Five days CRU-103 to curriculum. Reduce, but do not eliminate CRU-79 training. 2. Incorporate NACES Packing Press maintainer procedures into PR "C" School. Add no more than ten days to "C" School track	CNET	FY97	In-work
PR.97MTRR.2040.002: Add OBOGS into curriculum with no increase in course length.	CNET	FY97	In-work
PRC.OOMTRR.2040.01B: Provide HABD assets to the PR "C" School	CNAL	FY00	In-work
PRC.00MTRR.2040.01A: Provide HABD assets to the PR "C" School	CNAP	FY00	In-work
PRC.00MTRR.2040.01C: Provide HABD assets to the PR "C" School	CNARF	FY00	In-work
PRC.00MTRR..2040.02: Delete CRU-88 Regulator from course. Reduce course by three days.	CNET	FY00	In-work
PRC.00MTRR.2040.01: Add HABD (SRU-40A/P, and SRU-40B/P to course. Do not exceed three days.	CNET	FY00	In-work

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