



INITIAL
NAVY TRAINING SYSTEM PLAN
FOR THE
JOINT COMMON MISSILE SYSTEM

N78-NTSP-A-50-0302/I

DECEMBER 2003

JOINT COMMON MISSILE SYSTEM

EXECUTIVE SUMMARY

The Joint Common Missile (JCM) is designed to replace the AGM-114 (Series) Hellfire Modular Missile System (HMMS) series, and the AGM-65 (Series) Maverick Missile System, and the Tube-Launched Optically-Tracked Wire-Guided (TOW) Missile System. The United States Marine Corps (USMC) will use the JCM on the AH-1Z helicopters. The United States Navy (USN) will use the JCM on the F/A-18E/F series fighters and the MH-60R/S helicopters. Currently the threshold aircraft for planning is defined as the AH-1Z and F/A-18E/F and MH60R/S. Initial Operating Capability (IOC) for the AH-1Z is FY09. The IOC for the F/A-18E/F is planned for FY10. The IOC for MH60R/S is FY11. JCM will provide lethal effects to destroy a broad range of target types, from armored vehicles, thin-skinned vehicles and maritime patrol craft to urban structures and field fortifications. JCM will use advanced seeker and guidance technologies combining multiple sensors to improve targeting and resistance to enemy countermeasures. JCM will incorporate advanced warhead technology to provide improved lethal effects against both heavy armored vehicles and an expanded, non traditional target set. JCM will provide extended range to improve platform survivability and lethality and to execute emerging transformational concepts that include providing mutual support to widely dispersed, friendly air and ground elements.

The JCM maintenance requirements are to be allocated to the levels of maintenance as defined in the Naval Ordnance Maintenance Management Program, Office of the Chief of Naval Operations Instruction 8000. (Series). Workload associated with the JCM is not expected to increase existing manning levels.

The JCM operator training will be provided to Fixed Wing and Helicopter Pilots, Weapon System Officers, and Air Tactical Officers at the appropriate Fleet Readiness Squadron. Organizational and intermediate level maintenance training for JCM will be taught to USN and USMC ordnance personnel at applicable Naval Maintenance Training Group Detachment (NAMTRAGRU DET) Maintenance Training Unit (MTU), and Naval Air Maintenance Training Marine Unit (NAMTRA MARUNIT) facilities. Specific armament systems maintenance and launcher courses are taught at MTU 1030 Marine Corps Air Station Camp Pendleton, California. The JCM surface training will be conducted at Fleet Training Center San Diego, California, in support of initial ship's company explosive handling personnel qualification and certification programs.

Captive Air Training Missile (CATM) assets will be required to support the JCM training. The CATM is an inert, captive flight training missile permitting realistic exercise of the actual missile. It is identical to the tactical missiles except for the warhead and rocket motor which are both inert. The CATM airborne operation provides direct comparison with actual weapon firing by simulation without expending the missile.

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JOINT COMMON MISSILE SYSTEM

LIST OF ACRONYMS

AGM	Air-to-Ground Missile
ALSP	Acquisition Logistics Support Plan
AMTCS	Aviation Maintenance Training Continuum System
AO	Aviation Ordnanceman
AOB	Average On Board
ATIR	Annual Training Input Requirement
AUR	All-Up-Round
BIT	Built-in Test
CAIMS	Conventional Ammunition Integrated Management System
CATM	Captive Carry Training Missile
CBT	Computer-Based Training
CEST	Classroom Explosive System Trainer
CIN	Course Identification Number
CMBRE	Common Munitions Bit/Reprogramming Equipment
CMC	Commandant of the Marine Corps
CNATT	Center for Naval Aviation Technical Training
CNO	Chief of Naval Operations
COMLANTFLT	Commander, U. S. Atlantic Fleet
COMPACFLT	Commander, U. S. Pacific Fleet
CWTPI	Conventional Weapons Training Proficiency Inspection
DA	Developing Agency
DOP	Designated Overhaul Point
DT&E	Developmental Test and Evaluation
DT	Developmental Test
ECP	Engineering Change Proposal
EOD	Explosive Ordnance Disposal
EODTEU	Explosive Ordnance Disposal Training and Evaluation Unit
ESAF	Electronic Safe, Arm, Fire
FRS	Fleet Readiness Squadron
FTC	Fleet Training Center
FTG	Fleet Training Group

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LIST OF ACRONYMS

FY	Fiscal Year
GEG	Guidance Electronic Group
GSG	Guidance Section Group
HCS	Helicopter Combat Support Special Squadron
HMMS	Hellfire Modular Missile System
HMT	Helicopter Marine Training Squadron
HS	Helicopter Anti-Submarine Squadron
HSI	Human Systems Integration
HSL	Helicopter Anti-Submarine Squadron Light
ILSP	Integrated Logistics Support Plan
IOC	Initial Operational Capability
IR	Infrared
JCM	Joint Common Missile
LAMPS	Light Airborne Multi-Purpose System
LDT	Load Drill Trainer
MALS	Marine Aviation Logistics Squadron
MAWTS-1	Marine Aviation Weapons and Tactics Squadron One
MCAS	Marine Corps Air Station
MCCDC	Marine Corps Combat Development Command
MOS	Military Occupational Specialty
MOTT	Mobile Ordnance Training Team
MTIP	Maintenance Training Improvement Program
MTU	Maintenance Training Unit
NA	Not Applicable
NAMTRAGRU DET	Naval Air Maintenance Training Group Detachment
NAMTRA MARUNIT	Naval Air Maintenance Training Marine Unit
NAS	Naval Air Station
NAVAIR	Naval Air Systems Command
NAVPERSCOM	Navy Personnel Command
NAVSCOLEOD	Naval School Explosive Ordnance Disposal

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LIST OF ACRONYMS

NAVAIRWARCENWPNDIV	Naval Air Warfare Center Weapons Division
NEC	Navy Enlisted Classification
NOBC	Navy Officer Billet Code
NOMMP	Naval Ordnance Maintenance Management Program
NS	Naval Station
NSAWC	Naval Strike and Air Warfare Center
NSD	Navy Support Date
NTSP	Navy Training System Plan
NWS	Naval Weapons Station
OPNAVINST	Office of the Chief of Naval Operations Instruction
OPO	OPNAV Principal Office
OT	Operational Test
PEST	Practical Explosive Ordnance Disposal System Trainer
PMA	Program Manager, Air
PQS	Personnel Qualification Standards
RFI	Ready For Issue
RFOU	Ready For Operational Use
RFT	Ready For Training
SAD	Safe Arm Device
SIST	Serviceable In-Service Time
SRA	Shop Replaceable Assembly
SWATS	Strike Weapons and Tactics
TA	Training Agency
TBD	To Be Determined
TD	Training Device
TEE	Training Effectiveness Evaluation
TFS	Total Force Structure
TGM	Training Guided Missile
TOW	Tube-Launched Optically-Tracked Wire-Guided
TSA	Training Support Agency
TTE	Technical Training Equipment
TTF	Trident Training Facility



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LIST OF ACRONYMS

USMC	United States Marine Corps
USN	United States Navy
WTU	Weapons Training Unit

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PREFACE

This Initial Navy Training System Plan (NTSP) is an early look at the Joint Common Missile (JCM) program. This is the first iteration of the Initial NTSP for the JCM program. This document explores the various employment and support alternatives currently under consideration. Since it is relatively early in the acquisition process, some definitive data was unavailable for inclusion in this version. This NTSP is a product of the Training Planning Process Methodology, as outlined in OPNAV publication P-751-3-9-97.

This NTSP will be updated and approved as required for milestone decisions, thus providing for the timely and orderly integration of JCM training.

PART I - TECHNICAL PROGRAM DATA

A. TITLE-NOMENCLATURE-PROGRAM

- 1. **Nomenclature - Title - Acronym.** JCM
- 2. **Program Element.** To be determined (TBD)

B. SECURITY CLASSIFICATION

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

C. MANPOWER, PERSONNEL, AND TRAINING PRINCIPALS

- OPNAV Principal Official (OPO) Program Sponsor CNO (N880D5)
- OPO Resource Sponsor CNO (N880D5)
- Marine Corps Program Sponsor CMC (APW-23)
- Developing Agency PEO TACAIR (PMA242)
- Training Agency COMLANTFLT
COMPAFLT
NETC
COMNAVAIRRESFOR
- Training Support Agency NAVAIR (PMA205)
- Manpower and Personnel Mission Sponsor CNO (N12)
NAVPERSCOM (PERS-4, PERS-404)
- Director of Naval Education and Training CNO (N00T)
- Marine Corps Force Structure MCCDC (C53)

D. SYSTEM DESCRIPTION

1. Operational Uses. The JCM will provide an extended range, precision guided, air to surface weapon for both rotary and fixed wing aircraft. It will provide both precision point and fire and forget targeting capability to be employed against individual point targets in day, night, obscured battlefield, and adverse weather conditions. Precision point targeting capability will be achieved by using either ground or airborne designator. The target set includes stationary and moving or re-locatable, high value threat targets to include armored vehicles, air defense systems, patrol craft, artillery, transporter erector launchers, radar sites, command and control nodes, as well as bunkers and other structures. The JCM is intended for use by the United States Marine Corps (USMC) on the AH-1Z helicopter. The United States Navy (USN) will use the JCM on the F/A-18E/F series fighters and the MH -60R/S helicopters.

2. Foreign Military Sales. TBD and addressed in updates of this NTSP.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST

1. Development Test and Evaluation. The Development Test and Evaluation (DT&E) launch phase is scheduled for 2006.

2. Operational Test. The Operational Test (OT) for the JCM is scheduled for 2007.

F. EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. The JCM System is intended to replace the Air-to-Ground Missile (AGM)-114 (Series) Hellfire Modular Missile System (HMMS) series, the AGM-65 (Series) Maverick Missile System and TOW.

G. DESCRIPTION OF NEW DEVELOPMENT. The U.S. Army is the executive service for development of the JCM system with the Navy and Marine Corps designated as participating services. The JCM will consist of a multi-mode seeker, guidance electronics unit, warhead assembly, boost/sustain propulsion unit, and a control actuation system. The JCM is an objective air to surface missile with enhanced targeting capabilities, increased lethality, and extended range. The JCM will use advanced seeker technologies to combine improved precision point target and fire and forget (both active and passive), lock on after launch, adverse weather and obscured battlefield targeting capabilities when compared to current air to ground missiles. It will destroy the most advanced threat armored vehicle and provide increased lethality against an expanded, non-traditional (other than armored vehicle) target set.

1. Functional Description. The JCM is intended to provide improved performance over that of existing missiles through increased lethality and range and an advanced seeker will be employed from attack, armed reconnaissance, and other designated aircraft.

The M-299 Guided Missile Launcher will be utilized for helicopter/rotary wing employment of the weapon. The launcher for fixed wing employment of the JCM is has not been determined at this time.

a. JCM External Configuration.. The individual sections of the JCM are described below:

(1) Laser Seeker Section. The laser seeker acquires and tracks targets designated with laser energy by using the energy reflected from the target.

(2) Warhead Section. The warhead will use a shaped charge and will be detonated by an electromechanical fuze.

(3) Fuze. Safing, arming, and detonating functions for the warhead will be provided by an electro-mechanical device. The fuze requires the application of electrical power in conjunction with forward acceleration in order to arm.

(4) Guidance Section Group. The Guidance Section Group (GSG) consists of an autopilot electronic assembly, gyros, battery, and a gas accumulator. The GSG receives information from the laser seeker and provides commands to the control section. It also provides missile trajectory control prior to seeker lock-on during the indirect firing mode. The GSG provides electrical and pneumatic power requirements for the missile after launch.

(5) Propulsion Section. The propulsion section, including rocket motor, provides thrust to separate the missile from the launch rail, the acceleration profile necessary to arm the warhead fuze, and the impulse which enables the missile to be launched outside the target's gun defense range with minimum flight time to target.

(6) Control Section. The control section accepts commands from the GSG and positions control surfaces as required for missile stabilization and control.

2. Physical Description. The JCM will have a maximum mass of 108 lbs, maximum length 70 inches, and nominal diameter 7 inches. Total diameter with external features (including control surfaces) while on the launcher shall not exceed 12.96 inches.

3. New Development Introduction. The IOC for the AH-1Z is FY09. IOC for the F/A-18E/F is planned for FY10, and the IOC for MH60R/S is FY11.

4. Significant Interfaces. M-299 Guided Missile Launcher provides the electronic and mechanical interface between the missile and helicopter avionics. The launcher is a four-rail configuration capable of carrying and launching from one to four missiles. The M-299 Guided Missile Launchers is described in Integrated Logistic Support Plan (ILSP) Number ARM-078. Common Rack and Launcher Test Set (CRALTS) is required to test the M299 launcher. Future variant Built-in Test (BIT) and reprogramming will be accomplished using the AN/GYQ-79

Common Munitions Bit and Reprogramming Equipment (CMBRE) AN/GYQ-79 Digital Computer Set. Currently BIT and software reprogramming utilizing CMBRE is being accomplished for a variety of air launched munitions and guided missiles. Plans are for the AN/GYQ-79 CMBRE to interface with the JCM future variant. Slight modifications are required to the CMBRE to perform BIT and JCM software reprogramming. AN/GYQ-79 CMBRE were procured by PMA-201 through Alliant Defense Electronics Systems, Inc., Clearwater FL, and provided to aircraft carriers and intermediate level maintenance training schools. CMBRE is delivered with common executive software on a write-protected Personal Computer Memory Card International Association (PCMCIA) memory card. The common executive software on the PCMCIA card provides power-up, self-test, fault isolation for the CMBRE, and MIL-STD-1553 drivers, for control and monitoring.

5. New Features, Configurations, or Material. N/A

H. CONCEPTS

1. Operational Concept. The JCM will be designed to be launched by the USMC on the AH-1Z helicopter. The USN will use the JCM on the F/A-18E/F series fighter and the MH-60R/S helicopter. Currently the threshold aircraft for planning is defined as the AH-1Z, F/A-18E/F and the MH-60R/S. Flight crew will employ the JCM against targets acquired and designated by ground observers or an airborne laser target designator.

2. Maintenance Concept. The JCM maintenance concept is organizational to depot maintenance. JCM employed on the USMC and USN aircraft is accomplished using the basic maintenance philosophy outlined in Office of the Chief of Naval Operations Instruction (OPNAVINST) 4790. (Series), and specific weapons maintenance instructions outlined in OPNAVINST 8000. (Series). The JCM will be under an organizational to depot maintenance concept.

a. Organizational. Organizational maintenance units will receive the JCM as an All-Up-Round (AUR). Organizational maintenance is performed by Work Center 230 Navy Aviation Ordnanceman (AO) personnel with Navy Enlisted Classifications (NEC) 8378 for all H-60 helicopters. The MH-60R helicopter community often detach to various smaller vessels (i.e., destroyers and frigates). When assigned to these ships, organizational maintenance tasks are performed by squadron detachment maintenance personnel, which consist of various ratings. Marine Corps personnel with Military Occupational Specialties (MOS) 6511 and 6531 perform organizational level maintenance for the AH-1Z Organizational level maintenance units will receive the JCM as an AUR.

The AN/AWM-92 Aircraft Weapons Circuit Test Set is used at the organizational level to functionally test the aircraft's weapons circuits prior to loading the missile. The AN/AWM-54 Firing Circuit Test Set and W-30 Igniter Adapter are used at the organizational level to perform stray voltage tests on the launcher igniter connector on helicopter/rotary wing

aircraft. The AWM-103 tests the 1760 interface and LAU-127 release and control system on F/A-18E/F aircraft. The AWM-102 bomb rack cartridge and stray voltage tester is also used on F/A-18E/F aircraft. Organizational level maintenance is primarily limited to missile inspection, uploading, and downloading, with minimum tasks as follows:

- Aircraft and weapon system inspections
- Visually inspect for damage and corrosion
- Aircraft and weapon system release and control checks
- Weapon uploading and downloading
- Weapon arming and dearming
- On-aircraft weapon test
- Discrepancy reporting
- Complying with technical directives
- Record keeping and reporting

b. Intermediate. Intermediate maintenance is the responsibility of and is performed by designated maintenance activities that support user organizations. The Intermediate level maintenance mission is to enhance and sustain combat readiness and mission capability by providing quality and timely material support to supported activities. The purpose of Intermediate maintenance is to ensure airborne weapons maintenance functions are performed at the level that ensures optimum economic use of resources. The A/E37T-35 Common Rack and Launcher Test Set (CRALTS) is used at intermediate level activities to functionally test the M299 launcher and fault isolate to a Shop Replaceable Assembly (SRA). JCM maintenance is performed by Weapons Department Navy AOs with Navy Enlisted Classification (NEC) 6801 and Marine Corps personnel with Military Occupational Specialty (MOS) 6541. When MH-60R Helicopters are on detachment and assigned to various smaller vessels (i.e., destroyers and frigates), Ordnance Handling Team performs intermediate level maintenance tasks. This Team consists of various ships company personnel, such as Torpedomen and Sonar Technicians. Intermediate maintenance tasks for the JCM consist of the following:

- Inspect and stow containers and AUR
- De-canning and canning AUR
- Visual inspection for damage and corrosion
- Clean missile
- Clean Seeker Window
- Perform touch-up paint and minor corrosion control
- Ready service inspection
- Record keeping and reporting
- Preparing AUR for shipping or storage
- Delivering AUR to organizational level
- Perform off-aircraft BIT
- Reprogram JCM resident software CMBRE

c. Depot Level. The JCM will be, under an organizational to depot maintenance concept whereby when a missile fails BIT it is shipped directly to the Designated Overhaul Point (DOP) for repair. This document uses the terms as described in the OPNAVINST 8000. (Series). Anniston Army Depot, Anniston Alabama, or the prime contractor to be dictated by the Level of Repair Analysis (LORA) will be the Depot level AUR maintenance activity for the JCM. Depot level AUR maintenance tasks include:

- Visual inspection for damage and corrosion
- Fault isolation by AUR test to faulty section
- Repair by replacement of failed sections and external components
- Performing corrosion control procedures
- Decanning and canning of AUR
- Containerizing AUR for storage or loadout
- Technical directive implementation
- Re-certifying AUR by retest
- Record keeping and reporting
- Complete container repair

The DOP is responsible for maintenance beyond the capabilities of the depot level AUR activities, including major overhaul or complete replacement, and rebuild of sections or subassemblies required to restore defective sections and repairable SRAs to original acceptance standards. DOP maintenance will be performed on seeker, control, warhead, propulsion, and guidance section groups at a facility located within the Anniston Army Depot, Alabama, or a contractor facility to be determined.

d. Interim Maintenance. The Navy Support Date (NSD) for the JCM is TBD.

e. Life-Cycle Maintenance Plan. The Serviceable-In-Service-Time (SIST) is the length of time the AUR weapons are considered serviceable for use at operational activities. The SIST for the JCM is TBD. Load Drill Trainer (LDT) and Captive Air Training Missile (CATM) assets will have no SIST or Service Life requirements.

3. Manning Concept. The JCM will have no impact on existing manpower requirements. Pilot and aircrew manpower is driven by seat factor and crew ratio. Manning for USN and USMC fleet squadrons, Fleet Readiness Squadrons (FRSs), and intermediate maintenance activities is based on the total assigned workload. Skills required to support the JCM will be considered to be within the capability of existing NECs and MOSs.

4. Training Concept. The training concept for the JCM will be, divided into organizational and intermediate maintenance based on Naval Ordnance Maintenance Management Program (NOMMP), OPNAVINST 8000. (Series). Organizational level training is provided to operator and maintenance personnel.

The established training concept for most aviation maintenance training divides “A” School courses into two or more segments called Core and Strand. The “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” School, graduates 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 for E-5 and above personnel to enhance skills and knowledge within their field.

a. Initial Training. Initial training will be conducted approximately 90 days prior the planned IOC. Current IOC timeframes are: FY08 for AH-1Z, FY09 for F/A-18E/F, and FY10 for MH60R. Developmental Test (DT) and OT instruction for operators and maintainers will be completed under the auspices of NAVAIR PMA205.

b. Follow-on Training. Follow-on training for the JCM will available as part of courses taught at FRS, Naval Air Maintenance Training Group Detachment (NAMTRAGRU DET) Maintenance Training Unit (MTU), and Naval Air Maintenance Training Marine Unit (NAMTRA MARUNIT) facilities. JCM training for AH-1Z Helicopter will be conducted at Helicopter Marine Training Squadron (HMT)-303, Marine Corps Air Station (MCAS) Camp Pendleton, California. The JCM causes no change in student throughput or chargeable student billets. Follow-on training courses will be modified to include the JCM and are currently on-line.

(1) Operator Training. Pilots are trained at the appropriate FRS for specific aircraft operation. Operator skills in tactics and ordnance delivery are further enhanced through on-board proficiency training. Training Devices (TDs) required for follow-on and proficiency operator training include the LDT/CATM.

The following table lists the applicable operator training courses. The JCM source material will be incorporated in these courses with minimal impact. The JCM will require no change in student throughput or chargeable student billets. Courses listed reflecting current model aircraft will be titled for appropriate series aircraft.

COURSE NUMBER	COURSE TITLE	JCM RFT
R-050-6201	HH-60H Aircrew System/Fundamental	FY07
R-050-6203	HH-60H Aircrewman Weapons Tactics (Advanced)	FY07
D/E-2C-2501	SH-60B Category I Fleet Replacement Pilot	FY07
D/E-2C-2502	SH-60B Category II Fleet Replacement Pilot	FY07

COURSE NUMBER	COURSE TITLE	JCM RFT
D/E-2C-2503	SH-60B Category III Fleet Replacement Pilot	FY07
D/E-2C-2504	SH-60B Category IV Fleet Replacement Pilot	FY07
D/E-2C-2506	SH-60B Fleet Replacement Squadron Instructor Training	FY07
D/E-050-2501	SH-60B Fleet Replacement Light Airborne Multi Purpose System (LAMPS) MK III Aircrew Category I	FY07
D/E-050-2502	SH-60B Fleet Replacement Aircrew Training Category II	FY07
D/E-050-2505	SH-60B Fleet Replacement Aircrew Instructor	FY07
D/E-050-2506	SH-60B Fleet Replacement Aircrew Category V	FY07
None USMC	AH-1W Pilot Basic	FY07
None USMC	AH-1W Pilot Transition	FY07
None USMC	AH-1W Pilot Conversion	FY07
None USMC	AH-1W Pilot Refresher	FY07
None USMC	AH-1W Modified Refresher	FY07
A-4H-0111	Surface Warfare Officer Prospective Commanding Officer	FY07
A-4H-0112	Surface Warfare Officer Prospective Executive Officer	FY07
A-4H-0107	Surface Warfare Officer Department Head	FY07
A-4H-0118	Surface Warfare Officer Division Officer	FY07
K-2G-0033	Tactical Action Officer	FY07
A-493-0038	Laser System Safety Officer (Category 1)	FY07
A-493-0067	Laser System Safety Officer (Category 2)	FY07

COURSE NUMBER	COURSE TITLE	JCM RFT
C-602-3770	Laser Safety Fundamentals	FY07
D/E-2A-0601	F/A-18 Fleet Replacement Pilot Category 1	FY07
D/E-2A-0602	F/A-18 Fleet Replacement Pilot Category 2A	FY07
D/E-2A-0603	F/A-18 Fleet Replacement Pilot Category 2H	FY07
D/E-2A-0605	F/A-18 Fleet Replacement Pilot Category 2F	FY07
D/E-2A-0604	F/A-18 Fleet Replacement Pilot Category 3	FY07
D/E-2A-0606	F/A-18 Fleet Replacement Pilot Category 4	FY07
M13P4B3	F/A-18 Fleet Replacement Pilot Basic and Transition	FY07
M13P3V3	F/A-18 Fleet Replacement Pilot Refresher	FY07
M13P3W3	F/A-18 Fleet Replacement Pilot Modified Refresher	FY07
M13P4C3	F/A-18 WSO Basic and Transition	FY07
M13P3R3	F/A-18 WSO Refresher	FY07
M13P3S3	F/A-18 WSO Modified Refresher	FY07

(2) Organizational Maintenance. Organizational level maintenance personnel are trained at the appropriate MTU or NAMTRA MARUNIT for specific aircraft maintenance. Weapon loading skills are further enhanced through on-board proficiency training. TDs required for follow-on and proficiency training include the LDT/CATM.

- **Load Drill Trainer.** The LDT is an inert missile with mass properties and an external configuration representative of the tactical missiles. It is a training device to facilitate instruction and familiarization for transporting, handling, loading, and visual inspection procedures.

The JCM will be taught in Aviation Ordnanceman Common Core Class A1 school.

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
AO 6801	C-646-2011, Aviation Ordnanceman Common Core Class A1 C-646-2013, Aviation Ordnanceman Weapons Department Strand Class A1
MOS 6541	C-646-2011, Aviation Ordnanceman Common Core Class A1 C-646-2012, Aviation Ordnanceman Airwing Strand Class A1

The JCM System source material will be incorporated in the following organizational level maintenance training courses with minimal impact. The JCM causes no change in student throughput or chargeable student billets. Courses listed reflecting current model aircraft will be titled for appropriate series aircraft.

COURSE NUMBER	COURSE TITLE	JCM RFT	TRACK NUMBER
C-646-3346	AH-1 Navy Armament and Control Delivery System (NARCADS) Intermediate Maintenance	FY07	M-602-5811
C-198-9351	AH-1W Tow/Hellfire Control and Display System Integrated Organizational Maintenance	FY07	M-102-2024
C-646-9361	H-1 Armament Systems Maintenance	FY07	
C-646-9407	SH-60 Armament and Related Organizational Level Maintenance	FY07	D/E-646-0840
C-646-9408	SH-60F Conventional Weapons Loading	FY07	Stand Alone
C-646-9409	SH-60B Conventional Weapons Release and Control and Weapons Loading	FY07	Stand Alone
C-646-9412	SH-60 Conventional Weapons Release and Control and Weapons Loading	FY07	D/E 646-0840
K-050-2131	LAMPS Aviation Ordnance Handling	FY07	
D/E-646-0640	F/A-18 Conventional Weapons Loading	FY07	
D/E-646-0647	F/A-18 Conventional Release Systems Test	FY07	

(3) Intermediate Maintenance. Intermediate maintenance training is available for Navy and Marine Corps Aviation Ordnance personnel through the appropriate NAMTRAGRU DET MTU, Fleet Training Center (FTC), and NAMTRA MARUNIT activity. The Fleet Training Center (FTC) San Diego, California, has been identified as the course model manager for JCM capable frigate type ship's company handling and storage training. Subsequently, LAMPS Aviation Ordnance Handling Course K-050-2131 has been identified for incorporation of JCM shipboard handling and storage training. The TD required for intermediate maintenance training is the LDT.

The following courses will be updated to include JCM system data:

Title **Air Launched Guided Missiles Intermediate Maintenance**
CIN C-122-3111 (part of D/E-646-7007)
Model Manager... MTU 4030 NAMTRU NAS Norfolk, Virginia
Description This course provides ordnance personnel with knowledge of the Sidewinder, Sidearm, Harpoon, Standoff Land Attack Missile, High-Speed Anti-Radiation Missile, Tactical Air-Launched Decoy, and Air Nitrogen Purifier Units.
Location MTU 4030 NAMTRAGRU DET, NS Mayport
 MTU 4032 NAMTRAU, NS Norfolk
 MTU 4033 NAMTRAU, NAS North Island
 MTU 4035 NAMTRAU, NAS Whidbey Island
Length 12 days
RFT date Currently available
Skill identifier AO 6801 awarded upon completion of track D/E-646-7007
TTE/TD LDT
Prerequisite C-646-2011, Aviation Ordnanceman Common Core Class A1
 C-646-2012, Aviation Ordnanceman Weapons Department Strand Class A1

Title **Aviation Ordnance Intermediate Maintenance Technician**
CIN C-646-3105 (part of M-646-7026)
Model Manager .. NAMTRA MARUNIT, MCAS Cherry Point
Description Course provides ordnance personnel with knowledge required by USMC personnel working on ordnance/armament in the Aircraft Intermediate Maintenance Department environment.
Location NAMTRA MARUNIT, MCAS Cherry Point
Length 73 days
RFT date Currently available
Skill identifier MOS 6541 awarded upon completion of track M-646-7026
TTE/TD LDT
Prerequisite C-646-2011, Aviation Ordnanceman Common Core Class A1
 C-646-2012, Aviation Ordnanceman Airwing Strand Class A1

Title Air Launched Weapons Ordnance Supervisor Course
CIN C-646-4108 (part of D/E-646-7007)
Model Manager.. MTU 4032 NAMTRAU NS Norfolk
Description..... Upon completion officers and senior enlisted personnel will have sufficient knowledge of Naval Air Station (NAS), CV/CVN and Amphibious Aviation Ordnance administration and the Improved Rearming Rate System (IRRS), including all conventional munitions, associated equipment, magazines, handling procedures and related safety precautions to perform as supervisors on a NAS, CV/CVN or Amphibious Weapons Department.
Locations MTU 4030, NAMTRAGRUDET, NS Mayport
 MTU 4032, NAMTRAU, NS Norfolk
 MTU 4033, NAMTRAU, NAS North Island
 MTU 4035, NAMTRAU, NAS Whidbey Island
Length..... 17 Days
RFT date Currently Available
Skill identifier.. 6801
TD/TTE..... LDT
Prerequisite AO (ClassA1) School or equivalent or designated striker

Title **Weapons Department General Aviation Ordnance**
CIN C-646-4109 (stand-alone course)
Model Manager MTU 4033, NAMTRAU NAS North Island
Description..... Provides training to the first tour Aviation Ordnanceman, Gunner's Mate, and Torpedoman's Mate. Upon completion of personnel assigned to Shipboard, and Shore Weapons Departments as conventional weapons handlers, will have the sufficient knowledge and skills of procedures and safety requirements for receiving, transferring and storing conventional weapons, assembly and disassembly of bombs and rockets, loading and unloading flare and rocket launchers and the linkless ammunition loading system, and the canning and decanning of miscellaneous ordnance, in accordance with applicable publications, while working under minimum supervision in a shipboard or shore environment.
Locations MTU 4030, NAMTRAGRU DET, NS Mayport
 MTU 4032, NAMTRAU, NS Norfolk
 MTU 4033, NAMTRAU, NAS North Island
 MTU 4035, NAMTRAU, NAS Whidbey Island
Length..... 10 days
RFT date Currently available
Skill identifier.. N/A

TD..... LDT
Prerequisite AO (ClassA1) School or equivalent or designated striker

(4) Depot Level Training. The JCM system depot level training will be designed for personnel assigned to the DOP and consisted of advanced intermediate level maintenance and depot level maintenance courses. The prime contractor of the JCM will conduct this training.

(5) Explosive Ordnance Disposal Training. Explosive Ordnance Disposal Training is conducted at Naval Explosive Ordnance Disposal School Eglin Air Force Base (AFB), Florida. EOD Training and Evaluation Unit (EODTEU) One at San Diego California and EODTEU Two at Fort Story Virginia provide additional advanced and specialized EOD training. The TDs required for EOD training are the Practical Explosive Ordnance Disposal System Trainer (PEST) and the Classroom Explosive System Trainer (CEST):

- **Practical Explosive Ordnance Disposal System Trainer.** The PEST is a full-scale model fabricated from actual hardware, having approximately the same weight and center of gravity as the tactical missile. The PEST is used for teaching Rendering Safe Procedure.
- **Classroom Explosive System Trainer.** The CEST is an inert cut-away model displaying locations and types of explosive and hazardous materials, initiators, igniters, and fuze.

The following table lists the applicable EOD training courses. The JCM system source material will be incorporated in these courses with minimal impact. This will cause no change in student throughput or chargeable student billets

EXPLOSIVE ORDNANCE DISPOSAL COURSES		
COURSE NUMBER	COURSE TITLE	RFT DATE
A-431-0011	Explosive Ordnance Disposal (EOD) Phase II (Navy)	FY07
A-431-0012	Explosive Ordnance Disposal (EOD) Phase II	FY07
G-431-0001	EOD Pre-deployment Team Training	FY07

c. Student Profiles

NEC or MOS	TITLE
AO 6801	Air Launched Weapons Technician
AO 6802	Strike Intermediate Armament Maintenance
AO 8341	F/A-18E/F System Organizational Maintenance Technician
AO 8841	F/A-18E/F System Organizational Apprentice Maintenance Technician
MOS 6541	Aviation Ordnance Intermediate Maintenance Technician

d. Training Pipelines. The following training tracks apply and are available in OPNAV Aviation Training Management System (OATMS):

TRACK NUMBER	TRACK TITLE
D/E-646-7007	General Shipboard/NAS Weapons Department Aviation Ordnance Maintenance
M-646-7026	Aviation Ordnance Technician Intermediate Maintenance

I. ON-BOARD (IN-SERVICE) TRAINING

1. Proficiency or Other Training Organic to the New Development. Pilot, Weapons System Operator, and Aviation Tactical Officer weapons proficiency training is accomplished in three steps: Academic, Simulator, and Captive Carry:

- **Academic.** Aircrews receive academic training within their respective squadrons from the weapon subject matter expert. Selected squadron aircrew receive additional classroom weapon training from HS-1 NAS Jacksonville and HS-10 NAS North Island.
- **Simulator.** The appropriate weapon tactical trainer is set up by the squadron for the aircrew to gain required proficiency prior to captive carry of the selected weapons.
- **Captive Carry.** The selected training weapons are loaded on an aircraft at which time the aircrew will gain proficiency and final qualification on the selected weapons.

a. Maintenance Training Improvement Program. The Maintenance Training Improvement Program (MTIP) is used to establish an effective and efficient training system responsive to fleet training requirements. MTIP is a training management tool that, through diagnostic testing, identifies individual training deficiencies at the organizational and intermediate levels of maintenance. MTIP is the comprehensive testing of one's knowledge. It

consists of a bank of test questions managed through automated data processing. The Deputy Chief of Staff for Training assisted in development of MTIP by providing those question banks (software) already developed by the Navy. MTIP was implemented per OPNAVINST 4790. (Series). MTIP allows increased effectiveness in the application of training resources through identification of skills and knowledge deficiencies at the activity, work center, or individual technician level. Refresher training is concentrated where needed to improve identified skill and knowledge shortfalls. MTIP will be replaced by the Aviation Maintenance Training Continuum System (AMTCS). Current planning is for AMTCS to begin full implementation for fleet deployment on August 2004.

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

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

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

Upon receipt of direction from OPNAV (N889H), AMTCS is to be implemented and the new tools integrated into the daily training environment of all participating aviation activities and supporting elements. AMTCS will serve as the standard training system for aviation maintenance training within the Navy and Marine Corps, and is planned to supersede the existing MTIP and Maintenance Training Management and Evaluation Program (MATMEP) programs.

2. Personnel Qualification Standards. OPNAVINST 8023.2C outlines requirements for Personnel Qualification Standard (PQS), NAVEDTRA 43202 series. All personnel who handle Non-nuclear Explosive Ordnance (Shipboard Handling and Stowage) require this PQS.

3. Other On-Board or Inservice Training Packages. The Conventional Weapons Technical Proficiency Inspection (CWTPI) is a graded inspection administered every 24 months by Commander Helicopter Squadron Wings Atlantic NAS Jacksonville, Florida, and Commander Helicopter Squadron Wings Pacific NAS North Island. A five-day training course is provided by, MTU 1066 NAMTRAGRU DET NS Mayport and MTU 1067 NAMTRAU NAS North Island prior to the actual CWTPI. The inspection evaluates a squadron’s ability to correctly wire-check, upload, and download conventional ordnance. The CWTPI determines the need for further conventional weapons load training of squadron AO personnel and weapons loading team members.

Marine Corps on-board training is based on the current series of Marine Corps Order (MCO) P4790.12, Individual Training Standards System 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 addressed with remedial training.

Headquarters, Marine Corps, schedules the USMC activities yearly for Marine Corps Combat Readiness Evaluation. Marine Corps activities participate in war exercises and are evaluated. Training is an on-going Marine Corps evolution that culminates with the Combat Readiness Evaluation. The evaluation determines the need for further conventional weapons load training of squadron personnel.

The United States Navy Explosive Safety Policies, Requirements, and Procedures (Department of the Navy Explosives Safety Policy Manual) OPNAVINST 8023.2 (Series), promulgates the Explosives Handling Personnel Qualification and Certification program. The Explosives Handling Personnel Qualification and Certification program is designed to ensure that all Navy, Marine Corps, and civilian personnel required to handle explosives or explosive devices are fully trained and qualified to perform all functions and tasks safely.

J. LOGISTICS SUPPORT

1. Manufacturers. TBD

CONTRACT NUMBER	MANUFACTURER	ADDRESS
TBD	TBD	TBD

2. Program Documentation. Acquisition Logistics Support Plan (ALSP) TBD.

3. Technical Data Plan. Applicable information from Army technical manuals will be used as source data for development of Navy technical manuals.

4. Special Test Sets, Tools, and Test Equipment. The AN/AWM-92 Aircraft Weapons Circuit Test Set is used at the organizational level to functionally test helicopter/rotary wing aircraft weapons circuits prior to loading the missile. The AN/AWM-54 Firing Circuit Test Set and W-30 Igniter Adapter is used at the organizational level to perform stray voltage tests on the launcher igniter connector on helicopter/rotary wing aircraft. The AWM-103 is used to test the 1760 interface and LAU-127 release and control system on F/A-18E/F aircraft. The AWM-102 bomb rack cartridge and stray voltage tester is used for used on F/A-18E/F aircraft. The CMBRE (AN/GYQ-79) is used for BIT and software reprogramming. The CRALTS (A/E37T-35) is used at intermediate level activities to functionally test the M299 launcher and fault isolate to an SRA.

5. Repair Parts. Supply support of Navy peculiar parts for the missile is provided through the Ships Parts Control Center, Mechanicsburg, Pennsylvania. Principal item spares procured are through United States Army Missile Command and are stocked at the DOP. Supply support for the launcher is available through the Naval Inventory Control Point.

6. Human Systems Integration (HSI). Human Systems Integration (HSI) elements include manpower, personnel, training, habitability, personnel survivability, health, safety, environmental, and human factors. This NTSP addresses manpower, personnel, and training in detail. Habitability is not an applicable HSI element for JCM; however, the remaining HSI elements are addressed in the following paragraphs.

a. Personnel Survivability. Airborne weapons generally affect personnel survivability in two broad categories: handling (ordnance personnel) and employment (aircrew).

(1) Handling. During handling operations, employing technology to mitigate the explosive nature of missile warheads can maximize survivability. JCM will have safety interlocks to eliminate inadvertent arming.

(2) Employment. JCM will use advanced seeker and guidance technologies combining multiple sensors to improve targeting and resistance to enemy countermeasures. JCM will incorporate advanced warhead technology to provide improved lethal effects against both heavy armored vehicles and an expanded list of non-traditional targets. JCM will provide extended range to improve platform survivability and lethality and to execute emerging transformational concepts that include providing mutual support to widely dispersed, friendly air and ground elements. Procedures for hung missiles will be in place, as well as emergency jettison procedures.

b. Health. Health factors generated by missiles are generally categorized into direct-contact health hazards, e.g., solvents, lubricants, etc., and proximity health hazardous material, e.g., heavy metals, irradiated metals, etc. The JCM program will minimize the number

of direct-contact health hazards for maintenance personnel, and these hazards will be readily identified in the loading and maintenance manuals. JCM does not contain any proximity health hazardous materials.

c. Safety. Airborne weapons generally affect safety in two broad categories: handling (ordnance personnel) and employment (aircrew).

(1) Handling. There are no special hazards involved with handling or storing JCM. During handling operations, general ordnance safety standards (NAVSEA OP 4 OP5, OP 2165 and OP 3347 and OPNAVINST 8023.3) will be employed. Inspections will be designed to detect potential problems and resolve them. In the event of a fire, cook-off times and evacuation (withdrawal) distances will be developed.

(2) Employment. The aircrew safety concerns include missile/target blast fragmentation and hung missiles. JCM will use advanced seeker and guidance technologies combining multiple sensors to improve targeting and resistance to enemy countermeasures. JCM will incorporate advanced warhead technology to provide improved lethal effects against both heavy armored vehicles and an expanded list of non-traditional targets. JCM will provide extended range to improve platform survivability and lethality and to execute emerging transformational concepts that include providing mutual support to widely dispersed, friendly air and ground elements. Procedures for hung missiles will be in place, as well as emergency jettison procedures.

d. Environmental. The JCM program employs a contractor depot for missile repairs and includes demilitarization. The contractor is responsible for meeting any federal/state environmental requirements/compliance. Other than these situations, only live-fire exercises present environmental concerns.

e. Human Factors. Human interaction with airborne weapons generally fall into three categories: unpacking/assembly, loading and employment.

(1) Unpacking/Assembly. The JCM design is an AUR. There is no assembly of the missile. It comes RFI from the container. There will be two JCMs per container. JCM can be lifted from the container either by hand or with an appropriate weapons carrier and positioned on a transport skid. JCM can be delivered to the flight deck/line in the container or on a transport skid.

(2) Loading. All ordnance loading personnel will be fully trained, qualified, and certified to perform JCM loading. Ordnance loading on to the aircraft launcher will be accomplished in accordance with the approved Loading Technical Manuals. JCM can be loaded on to the aircraft from the transport skid or loaded directly on to the aircraft from the container.

(3) Employment. The aircrew interface with the missile largely through the digital displays and readouts in the cockpit. The JCM symbology incorporated into the aircraft will be designed in conjunction with input from a pilot-formed design advisory group. JCM symbology will be reviewed and adjusted as needed as aircraft software loads are updated.

7. Training Effectiveness Evaluations. An individual Training Effectiveness Evaluation (TEE) plan is not required for any air -to-ground weapons courses. The TEE is addressed by each user community as follows:

a. Aircrew/Plot Training. This training drives training and readiness for aircrew/pilot weapons employment. Various means are used to evaluate training effectiveness including events from the Training & Readiness (T&R) matrix. These events include air to ground weapons employment, both simulated and live fire, and are used to evaluate the combat readiness of aircrew, squadron and air wing. The training effectiveness of air to ground weapons employment is further evaluated during Fleet and Joint-Service exercises, e.g., Marine Corps Combat Readiness Evaluation (see paragraph I.3.b). Significant training deficiencies that are identified, they are prioritized at the annual Naval Aviation Training Systems Advisory Group (NATSAG) meetings.

b. Squadron/Organizational-level Maintenance. AOs at the organizational-level use several training effectiveness measures in accordance with The CWTPI (see paragraph I.3.a). These inspections evaluate how well the individual, load crew, and squadron perform weapon loading. The Explosives Handling Personnel Qualification and Certification program (see paragraph I.3.c) is implemented to minimize the probability of mishap. The potential for personnel errors are controlled through training (qualification) coupled with a management process designed to prevent inadequately trained personnel from performing ammunition and explosives jobs/tasks (certification). The Maintenance Training Improvement Program (MTIP) (see paragraph I.1.a), Marine Aviation Training Management Evaluation Program (MATMEP) (see paragraph I.3.a), and AMTCS (see paragraph I.1.a) are used to collect data and identify training deficiencies.

c. Weapons Department/Intermediate-level Maintenance. AOs at the intermediate-level use several training effectiveness measures, such as the Explosives Handling Personnel Qualification and Certification program (see paragraph I.3.c). The program is implemented to minimize the probability of mishap. The potential for personnel errors are controlled through training (qualification) coupled with a management process designed to prevent inadequately trained personnel from performing ammunition and explosives jobs/tasks (certification). The AMTCS (see paragraph I.1.a) is used to collect data and identify training deficiencies. Additionally, courses go through an annual Formal Course Review (FCR) and are further improved via the Training Feedback System.

K. SCHEDULES

1. Schedule of Events

a. Installation/Delivery Schedules. The JCM deliveries will begin in FY06 to meet planned IOC. Current IOC timeframes are: FY08 for AH-1Z, FY09 for F/A-18E/F, and FY10 for MH60R. Specific pertinent schedules and definitive milestones to satisfy manpower and training objectives is TBD and will be addressed in updates of this NTSP.

b. Ready for Operational Use. The Ready for Operational Use (RFOU) date will coincide with the delivery of JCM. Current IOC timeframes are: FY08 for AH-1Z, FY09 for F/A-18E/F, and FY10 for MH60R. Specific and definitive schedules to satisfy manpower and training objectives is TBD and will be addressed in updates of this NTSP.

c. Time Require to Install at Operational Sites. Not Applicable (NA)

d. Foreign Military Sales. TBD and will be addressed in updates of this NTSP.

e. Training Device and Technical Training Equipment Delivery Schedule

(1) Practical Explosive Ordnance Disposal System Trainer. TBD.

(2) Training Device and Delivery Schedule. TBD. As training asset are delivered they will be entered in the Conventional Ammunition Integrated Management System (CAIMS), so that current status and asset locations can ill be obtained.

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

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENTOR NTSP NUMBER	PDA CODE	STATUS
Hellfire Modular Missile System	N88-NTSP-A-50-8311B/A	PMA242	March 2000
AGM-65 Maverick Missile	N78-NTSP-A-50-0128/D	PMA242	May 2002
H-1 Upgrades Program (AH-1Z and UH-1Y)	N88-NTSP-A-50-9603A/A	PMA299	Draft December 2002

DOCUMENT OR NTSP TITLE	DOCUMENTOR NTSP NUMBER	PDA CODE	STATUS
F/A-18 Aircraft NTSP	N88-NTSP-A-50-7703I/D	PMA265	October 2002
SH-60R Multi-Mission Helicopter Upgrade	N88-NTSP-A-50-9403/I	PMA299	November 2000

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