



DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380

2

IN REPLY REFER TO
ROC-24-A-avs
4 FEB 1983

AD A 126180

From: Commandant of the Marine Corps
To: Distribution List

Subj: Required Operational Capability (ROC) No. LOG 1.56 for an Expeditionary Aircraft Maintenance Shelter

Ref: (a) MCO 3900.4B

Encl: (1) Required Operational Capability (ROC) No. LOG 1.56 for an Expeditionary Aircraft Maintenance Shelter

1. This letter establishes and promulgates ROC No. LOG 1.56 for an Expeditionary Aircraft Maintenance Shelter. The ROC contained in the enclosure has been developed in accordance with the reference.

2. The Commanding General, Marine Corps Development and Education Command (Director, Development Center) is the Marine Corps point of contact for the development efforts pertaining to the Expeditionary Aircraft Maintenance Shelter.

Eugene B. Russell

Eugene B. RUSSELL
DEPUTY CHIEF OF STAFF FOR RD&S

Distribution:
(See attached)

DTIC FILE COPY

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <i>Per Ltr. on file</i>	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
<i>A</i>	

DTIC
COPY
INSPECTED
2

DTIC
ELECTE
S MAR 30 1983 D

D

83 03 07 030

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DISTRIBUTION LIST
(REQUIRED OPERATIONAL CAPABILITY)

Marine Corps

CG, FMFLANT, Norfolk, VA 23511 (5)
CG, FMFPAC, Camp Smith, HI 96861 (2)
CG, MCDEC, Quantico, VA 22134 (Attn: DevCtr D037) (27)
CG, I MAF, Camp Pendleton, CA 92055 (1)
CG, III MAF, FPO San Francisco, CA 96606 * (5)
CG, 2nd FSSG, FMFLANT, MCB, Camp Lejeune, NC 28542 (3)
CG, 1st MarDiv, Camp Pendleton, CA 92055 (5)
CG, 2d MarDiv, Camp Lejeune, NC 28542 (5)
CG, 3d MarDiv, FPO San Francisco, CA 96602 * (5)
CG, 4th MarDiv, 4400 Dauphine St, New Orleans, LA 70146 (1)
CG, 1st MAW, FPO San Francisco, CA 96603 * (1)
CG, 2d MAW, MCAS, Cherry Point, NC 28533 (1)
CG, 3d MAW, MCAS, El Toro, CA 92079 (5)
CG, 4th MAW, 4400 Dauphine St, New Orleans, LA 70146 (1)
CG, 1st MarBDE, FMF, FPO San Francisco, CA 96607 * (3)
CG, LFTCLANT, U.S. Naval Phib Base, Norfolk, VA 23521 (2)
CG, LFTCPAC, U.S. Naval Phib Base, San Diego, CA 92155 (2)
CG, 1st FSSG, Camp Pendleton, CA 92055 (1)
CG, 3d FSSG, FPO San Francisco, CA 96604 * (1)
CG, 4th MAB, FPO New York, NY 09502 * (1)
CG, MCAGCC, 29 Palms, CA 92278 (1)
CG, MCLSB, Albany, GA 31704 (1)
CO, MAWTS-1, Yuma, AZ 85369 (1)
CO, MAD, PMTC, Pt. Mugu, CA 93042 (1)
CO, MAD, NAS, Patuxent River, MD 20670 (2)
CO, MCC&E School, MCAGCC, 29 Palms, CA 92278 (1)
CO, AIRTEVRON Four, NAS, Pt. Mugu, CA 93042 (1)
CO, AIRTEVRON Five, China Lake, CA 93555 (1)
MarCor Aide, ASN(RE&S), Rm 4E736, The Pentagon, Washington, (1)
DC 20350
MCLNO, USA Abn Elect & Spec Warfare Bd, Ft. Bragg, NC 28307 (1)
MCLNO, USA Armor & Eng Bd, Ft. Knox, KY 40121 (1)
MCLNO, RDT&E, DCD, USAFAS (ATSF-CD-A), Ft. Sill, OK 73503 (1)
MCLNO, USA Avn Test Bd, Ft. Rucker, AL 36360 (1)
MCLNO, USA Elect Prov Grnd, Ft. Huachuca, AZ 85613 (2)
MCLNO, USA Inf Bd, Ft. Benning, GA 31905 (2)
MCLNO, USA Elect Cmd, Ft. Monmouth, NJ 07703 (2)
MCLNO, USA Missile Cmd, USAMICOM (Code DRSMI-XV), Redstone (1)
Arsenal, AL 35809
MCLNO, USA Tank-Automotive Cmd, Warren, MI 48090 (2)
MCLNO, USA Test&Eval Cmd, Aberdeen Proving Ground, MD 35897 (1)
MCLNO, USA Armament Material Readiness Cmd (MCLNO-LMC), Rock (1)
Island, IL 61299

MCLNO, USA CbtDev Experimentation Cmd, Ft. Ord CA 93941 (1)
MCLNO, USA Natick R&D Cmd, Natick, MA 01760 (2)
MCLNO, NTEC, (Code N-00M), Orlando, FL 32813 (1)
MCLNO, NWL/DL (Code DC-06), Dahlgren, VA 22448 (2)
MCLNO, Attn: ATCD-ZX, USA TRADOC, Ft. Monroe, VA 23651 (7)
MCLNO, NWC, China Lake, CA 93555 (1)
MCLNO, NCEL, Port Hueneme, CA 93403 (1)
MCLNO, NOSC, San Diego, CA 92152 (1)
MCLNO, Op Test & Eval Agency, 5600 Columbia Pike, Falls Church, VA 22041 (1)
MCLNO, HQ USA Mat Dev & Readiness Cmd, 5001 Eisenhower Ave, Alexandria, VA 22333 (1)
MCLNO, Naval Air DevCtr (015M), Warminster, PA 18974 (1)
MCLNO, USA Combat Development Activity, Ft. Richardson, AK 99505 (1)
MCLNO, Directorate of Combat Developments, USA Air Defense School, Ft. Bliss, TX 79916 (1)
MCRep, U.S. Naval Academy, Annapolis, MD 21402 (1)
MCRep, U.S. Military Academy, West Point, NY 10996 (1)
MCRep, U. S. Army War College, Carlisle Barracks, PA 17013 (1)
MCRep, Naval Post Graduate School, Monterey, CA 93940 (1)
MCRep, USA Armor School, Ft. Knox, KY 40121 (1)
MCRep, USA Intel School, Ft. Huachuca, AZ 85613 (1)
MCRep, USA Cmd & Gen Staff College, Ft. Leavenworth, KS 66027 (1)
MCRep, USN War College, Newport, RI 02840 (1)
MCRep, Armed Forces Staff College, Norfolk, VA 23511 (1)
MCRep, National War College, Washington, DC 20315 (1)
MCRep, Industrial College of the Armed Forces, Ft. McNair, Washington, DC 20315 (1)
MCRep, Engineer School, Ft. Belvoir, VA 22060 (1)
MCRep, Nuclear Wpns Trng Ctr Pac, NAS North Island, San Diego, CA 92135 (1)
MCRep, Elec Comp Anal Center, N. Severn, Annapolis, MD 21402 (1)
MCRep, USAF Academy, Colorado Springs, CO 80840 (1)
(UNCLASS ONLY)
CNA, Dir, MCOAG, 2000 N. Beauregard St, Alexandria, VA 22311 (1)
Dir, MCOTEA, Quantico, VA 22134 (2)

Army

DC/S for RD&A (DAMA-WSZ-B) DA, Washington, DC 20310 (2)
DC/S Oper & Plans (DMO-RQR) DA, Washington, DC 20310 (2)
Chief of Eng, DA, Rm 1E668, The Pentagon, Washington, DC 20310 (2)
Cmndt, USA C&SC (Attn: Acquisitions Library Div), Ft. Leavenworth, KS 66027 (1)
Cdr, CAC & Ft. Leavenworth (CACDA), Ft. Leavenworth, KS 66027 (2)
Cdr, USA Missile Command, Redstone Arsenal, AL 35809 (2)
Cdr, Attn: ATZI-DCD, Ft. Benjamin Harrison, IN 46216 (1)

Cmdt, Headquarters, U.S. Army Signal School, Ft. Gordon, GA 30905 (1)
 Cmdr, USA, MatDevCmd & Readiness, 5001 Eisenhower Ave, Alexandria, VA 22304 (1)
 Cmdr, USA, R&D Cmd, Natick, MA 01760 (Attn: DRXNM-EM) (1)

Navy

CNR, Code 100M, 800 N. Quincy St, Arlington, VA 22217 (4)
 Dir, Office of Program Appraisal, Rm 4D730, The Pentagon, Washington, DC 20350 (1)
 CNO (OP-05), Rm 4E409, The Pentagon, Washington, DC 20350 (1)
 CNO (OP-987), Rm 5D760, The Pentagon, Washington, DC 20350 (1)
 CNO (OP-506), Rm 4E366, The Pentagon, Washington, DC 20350 (1)
 CNM (NMAT OOM (1), O8LM (1), Washington, DC 20360 (2)
 Cdr, Naval Air Sys Cmd, (JP-2, Rm 250) Washington, DC 20360 (1)
 Cdr, Op Test & Eval Force, Norfolk, VA 23511 (1)
 Cdr, Nav Elec Sys Cmd (Code PME 154), (NC-1, Rm 5520) Washington, DC 20360 (1)
 Cdr, Naval Sea Sys Cmd, (Bldg 3, CM, Rm 815) Washington, DC 20360 (1)
 Cdr, Naval Supply Sys Cmd (Code 06), Washington, DC 20360 (1)
 Chief of Naval Ed & Trng, NAS, Pensacola, FL 32508 (1)
 Cdr, Naval Surface Force, U.S. PacFlt, San Diego, CA 92155 (1)
 Cdr, Naval Surface Force, U.S. AtlFlt, Norfolk, VA 23511 (1)
 CO, U.S. Navy Res Lab, Washington, DC 20375 (1)
 Cdr, David W. Taylor Nav Ship R&D Ctr, Bethesda, MD 20034 (1)
 Cdr, Naval Surface Wpns Ctr (Code 730), White Oak, MD 20910 (2)
 Cdr, Naval Wpns Lab, Dahlgren Lab, Dahlgren, VA 22448 (2)
 Cdr, Naval Air Test Ctr, Patuxent River, MD 20670 (1)
 Cdr, NOSC, San Diego, CA 92152 (1)
 Cdr, USN Underwater Sys Ctr, Newport, RI 02844 (1)
 CO, USN Civ Engr Lab, Port Hueneme, CA 93043 (1)
 CO, USN Explosive Ord Lab, Indian Head, MD 20640 (1)
 CO, Naval Coastal Sys Lab, Panama City, FL 32401 (1)
 Cdr, PMTC, Pt. Mugu, CA 93042 (1)
 CO, USN Wpns Eval Fac (Code SW), Kirtland AFB, Albuquerque, NM 97117 (1)
 CO, Naval Personnel R&D Ctr, San Diego, CA 92152 (1)
 CO, Naval Wpns Ctr (Code 3903), China Lake, CA 93555 (1)
 CO, Naval Air Engr Ctr, Lakehurst, NJ 08733 (1)
 CO, Naval Trng Equip Ctr (Code N-3), Orlando, FL 32813 (1)
 CO, Naval Medical R&D Cmd, NNMCMC, Bethesda, MD 20014 (3)

CO, Naval Submarine Medical Research Lab, Naval Submarine (1)
 Base, New London, Groton, CT 06340
 OIC, Annapolis Lab, NavShip R&D Ctr, Naval Station, (1)
 Annapolis, MD 21402
 OIC, USN Biosciences Lab, NavSupCtr, Oakland, CA 93401 (1)
 MGR, NARDIC, 5001 Eisenhower Ave, (Rm 8558) Alexandria, (2)
 VA 22333
 MGR, NARDIC, 1030 E. Green St, Pasadena, CA 91106 (2)

Air Force

C/S, USAF (AFRDQ), Room 4E342, The Pentagon, Washington, (2)
 DC 20330
 Cdr, TAC (DRDR), Langley AFB, VA 23365 (1)
 Cdr, USAF Sys Cmd, Andrews AFB, VA 20331 (1)
 Dir, Air Univ Library, Maxwell AFB, AL 36112 (Attn: (2)
 AUL3T-66-598)
 Hq, ESD/DCM (Stop 51), Hanscom AFB, MA 01731 (1)

Department of Defense

USDR&E, Room 3E1044, The Pentagon, Washington, DC 20350 (2)
 (Attn: DepDir for Tac Warfare Prog)
 Administrator, DDC, Cameron Station, Alexandria, VA 22314 (2)
 Dir, TRITAC Off, Ft. Monmouth, NJ 07702 (Attn: Require- (2)
 ments Review)
 Dir, National Security Agency (Code R2) (7)
 Fort George G. Meade, MD 20755

CMC Codes:

A
 L
 P
 RP
 C4
 INT

REQUIRED OPERATIONAL CAPABILITY (ROC) FOR AN
EXPEDITIONARY AIRCRAFT MAINTENANCE SHELTER

1. STATEMENT OF NEED. There is an urgent requirement for a reliable, quickly erectable and easily maintainable shelter which will protect equipment from adverse weather conditions when maintenance is required on Marine Corps aircraft, to include the CH-53E. This shelter will be constructed of materials that will not deteriorate in storage, will not rot or mildew, and will be easy to handle when wet or subjected to extreme temperatures. The Initial Operational Capability (IOC) required for this system is FY 1985.

2. THREAT AND OPERATIONAL DEFICIENCY

a. Threat. Potential enemy threats confronting the United States are described in the Marine Corps Long-Range Plan (MLRP), the Marine Corps Mid-Range Objectives Plan (MMROP), Soviet Army Doctrine, Tactics, Organization and Operation Concepts Projections: The Soviet Division of the year 2000 (ATC-PD-2610-017-81), and Air Threat to Central Europe, 1980-1990 and beyond (ATC-PD-1300-164-80). To counter predicted threats and to meet worldwide contingencies, the Marine Corps must be capable of conducting quick response amphibious operations, to include necessary maintenance during subsequent operations ashore, with units up to and including Marine Amphibious Force (MAF) size.

(1) The Marine Corps has no truly expeditionary shelter large enough to perform scheduled and unscheduled maintenance on any of its aircraft.

(2) Current developments underway to provide large maintenance facilities will require extensive engineer support, site preparation, and a number of days to erect.

(3) The wide variety of climatic extremes in which the Marine Corps is tasked with operating, and the sensitive and critical nature of aircraft maintenance require that the maintenance area be free of blowing sand or snow, be climatically controlled, and be capable of being used in a blackout condition. There is no U.S. item available or under development that can satisfy this requirement in a timely fashion.

3. OPERATIONAL AND ORGANIZATIONAL CONCEPTS

a. Operational Concept. The Shelter will be used by aircraft squadrons and possibly other units requiring a large, easily erectable shelter for maintenance, storage, and any other Combat Service Support function that will require a large, environmentally protected shelter in a semi-static environment.

b. Organizational Concept. Thirty-five shelters will be issued to each Marine Aircraft Wing and 15 shelters will be issued to the aviation combat element of the 1st Marine Brigade.

The unit of issue for other organizations will be determined during OT II.

c. Training and Support Requirements

(1) No formal specialized training will be required for the user.

(2) The basic Shelter will require no scheduled maintenance other than cleaning.

(3) Intermediate maintenance activities will require the appropriate materials for repair of the Shelter. No unusual tools or machines will be required for repairs.

(4) Training requirements for maintenance personnel will be equivalent to current Military Occupational Speciality (MOS) 1181, Fabric Repairman, and MOS 6060, Flight Equipment Marine. Any ancillary equipment must be able to be repaired by intermediate maintenance activities without any special training, tools or equipment.

(5) Introduction of the shelter will require no additional manpower.

4. ESSENTIAL CHARACTERISTICS. Each Shelter will:

a. Have a minimum inside height of 40 ft (12.2m) at the centerline and be 145 ft (44.23m) long. At the sides of the Shelter, at the 19 ft (5.8m) height level, the minimum inside dimensions of the Shelter will be 90 ft (27.45m) wide and 120 ft (36.0) long.

b. Have an opening at one end of the Shelter at least 90 ft (27.45m) wide and 30 ft (9.1m) high. The opening shall take no longer than ten minutes to be opened or closed by a four man crew.

c. Be made of materials impervious to rot and mildew.

d. Be fire resistant.

e. Be blackout capable.

f. Be made of materials that are infrared reflective.

g. Be capable of withstanding a steady windspeed of 100 mph (161 kph) and gusts to 120 mph (193 kph) erected and a steady windspeed of 55 mph (86 kph), and gusts to 60 mph (97 kph) when in a partially erected state or when the aircraft access doors are open.

h. Be capable of withstanding snowloads of 40 lb/ft² as defined in AR 70-38.

i. Be made of materials that retain their characteristics in temperatures down to -25°F (-32°C).

j. Be made of materials that will not emit hazardous fumes if exposed to flame.

k. Be capable of accepting heated/cooled filtered air.

l. Be capable of providing sufficient exhaust ports for Ground Support Equipment (GSE).

m. Be capable of accepting electrical power distribution system and pneumatic power hoses required for lighting and tools.

n. Maintain uniformity in all hardware such as nuts, bolts, and washers in all components. All hardware must be in either U.S. or metric units of measure.

o. Have a minimum service life of 15 years while experiencing a minimum of 60 erections/strikings and relocations during the 15 year period.

p. Be resistant to POL contamination.

q. Be easily decontaminated with standard decontaminants and procedures.

r. Be compatible when in the shipping configuration with the International Organization for Standardization (ISO) container system. (Maximum 2 - 8' x 8' x 20' (2.44m X 2.44m X 6.1m) containers required; 1 - desired.)

s. Be of dark brown color to facilitate camouflage in most terrain.

t. Be capable of accepting the current camouflage screening system.

u. Require no more than 150 man-hours to erect and 75 man-hours to strike with a crew of 15 trained Marines. Two erection/striking cycles will constitute training.

v. Have no center poles or other obstructions that would interfere with usable workspace.

w. Have additional man openings at each end of the Shelter.

x. Have an additional opening to allow the passage of GSE in and out of the Shelter. Minimum dimensions: 10 ft (3.1m) wide x 11 ft (3.4m) high.

y. Be designed so that the Shelter can be easily and quickly erected or struck on concrete, asphalt, AM-2 matting or natural

ground surfaces without special tools or with equipment common or readily available to the using unit.

5. OTHER WARFARE AREAS CONCERNED. The introduction of this equipment will primarily affect Mission Area 224.2 (Air Warfare Support (Supply and Maintenance)), and 216.2 (Combat Service Support (Supply and Maintenance)).

6. RELATED EFFORT. The Navy Operational Requirement (OR) for Expeditionary Aircraft Maintenance Hanger (OR # Y-1077-SL) dated 18 April 1978, states a similar requirement, but is not truly "expeditionary" in Marine Corps terms. No other proposed or approved documents are known of that could satisfy the characteristics of this requirement.

7. TECHNICAL FEASIBILITY, ENERGY-EFFECTIVENESS IMPACT, AND COST FORECAST

a. Technical Feasibility. The shelter is technically feasible.

b. Energy-Effectiveness Impact. Not applicable.

c. Cost Forecast. The following are estimated costs for RDT&E and procurement of the Shelter in constant FY 1983 dollars.

	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>
(1) RDT&E -	\$600,000	\$10,000	0

(2) PMC - \$150,000 per shelter; a total of \$18,000,000. This figure includes associated erection equipment, if required.