SECTION J
ATTACHMENT NO. EPP-III (PATRIOT SYSTEM) CONTRACT NO. FRAB F28(03)
SOLICITATION NO. C NSN. 2815-12-341-6896
DIESEL ENGINE

DS7031

PRESERVATION, PACKING AND MARKING INSTRUCTIONS:

ITEM NO.	QUANTITY	PROTECTION REQUIRED	PACKAGING REFERENCE (SPECIFICATION) OR (SPECIAL PACKAGING INSTRUCTION) PKG-REF	LEVEL OF PACKING LPK	QUANTITY PER UNIT PACK
4	RANGE 1-5	MILITARY	SPI#AG-00000605	MINIMAL	001

SUPPLEMENTAL REQUIREMENTS

DIESEL ENGINE SHALL BE PACKAGED IAW AG-00000605

NO CHANGES IN MATERIALS/PROCEDURES IDENTIFIED IN THE PACKAGING REFERENCE/PRESCRIPTION ABOVE ARE ALLOWED UNLESS THE FEDERAL OR MILITARY SPECIFICATIONS HAVE BEEN CANCELED & SUPERSEDED OR REPLACED BY A NON-GOVERNMENT STANDARD OR COMMERCIAL ITEM DESCRIPTION (I.E. ASTM OR CID) WHICH HAS BEEN ADOPTED/ACCEPTED BY DOD. IF OTHER THAN THE ABOVE ARE REQUESTED, THEY MUST BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH THE PACKAGING WAIVERS OR DEVIATIONS CLAUSE OR THE CONDITIONS FOR ACCEPTABILITY OF COMMERCIAL PACKAGING CLAUSE (ALTERNATE PACKAGING CLAUSE).

MARKING: ALL UNIT PACKS, INTERMEDIATE PACKS, AND EXTERIOR SHIPPING CONTAINERS SHALL BE LEGIBLY AND DURABLY MARKED IN ACCORDANCE WITH MIL-STD-129.

WHEN BOX IS CHECKED, THE APPLICABLE "SPECIAL MARKINGS" ARE REQUIRED IN ACCORDANCE WITH MIL-STD-129.

( ) PROJECT CODE ( ) WARRANTY/GUARANTEE ( ) SHELF LIFE

(X) BAR CODE. NOTE: BAR CODE MARKING IS MANDATORY UNLESS THE FOLLOWING BLOCK IS CHECKED: ( ) EXEMPT

( ) FOREIGN MILITARY SALES

SPECIAL PACKAGING INSTRUCTION

Form Approved
OMB No. 0704-0188

1. PART OR DRAWING NO.	2. CODE IDENT	3. SPI NO.
ENGINE, DIESEL	80063	AG00000605
4. NATIONAL STOCK NO	**5. DATE OF DRAWING**	**6. REVISION**
VARIOUS	03059	

7. QUP	ICQ	9.UNIT PACK WEIGHT	10.UNIT PACK CUBE	11.UNIT PACK SIZE
001	NONE			

12. PRESERVATION	18. STEPS	19. REQD	20. DESCRIPTION
MILITARY MIL-STD-2073, METHHOD 53	N/A	N/A	N/A

13. CLEANING
MIL-STD-2073, METHOD-1

14. DRYING
MIL-STD-2073

15. PACKING

a. LEVEL A
MIL-STD-2073 AND NOTE 6

b. LEVEL B
NOT APPLICABLE

16. MARKING
MIL-STD-129 AND NOTE 7

APPLICABLE DOCUMENTS

FED-STD-101	AIA NAS 847
MIL-D-3464	ASTM D 4169
MIL-PRF-21260	ASTM D 6256/D6256M
MIL-STD-129	SAE-AMS-T-22085
MIL-STD-2073	SAE-AS268609
AIA/NAS 840	TITLE 49 CFR

GENERAL REQUIREMENTS

PRESERVATION: SEE NOTE 2 IN BLOCK 17 BELOW
DESICCANT: MIL-D-3464

CONTAINER: ASTM D 6256/D6256M, TYPE 1, CLASS 2, STYLE A, TREATMENT A

17. NOTES/DRAWING

1. **PRESERVATION:**

1.1 General packaging requirement. Quantity per unit pack shall be one each.

1.2 In addition to item preservation required below, engine must be protected from rough handling, stacking, vibration, and other hazards associated with shipping, storage, and transportation.

1.3 Protection from phsical damage and mechanical malfunction is required for the method of preservation in addition to the specific environment protection provided. All cushioning and dunnage materials shall be as clean and dry as practicable to minimize item susceptibility to corrosion and contaminants. All knobs, sharp projections, greased slides, bearings and other protrusions shall be suitably wrapped or otherwise protected to prevent damage to either the item or the preservation.

1.4 Only non-corrosive wrapping, cushioning, and dunnage shall be used in contact with bare metal and critical item surfaces. Non-corrosive is defined by the test requirements of FED-STD-101, Test Method 3005.

1.5 Disassembly shall be confined to the minimum necessary to safeguard parts vulnerable to damage or that would otherwise increase cube if not removed. Disassembly shall also be confined to those parts that can be removed and reinstalled without special tools. Removed bolts, nuts, screws, washers, keys, and other fasteners shall be reinstalled in mating parts and secured to prevent loss. When not practical to reinstall hardware, items shall be preserved, packaged, and secured to the engine. Under no circumstances should the ducting be disassembled or alterations made to the engine, which would allow dust or dirt to enter the engine.

1.6 The engine may be subject to the requirements of CFR Title 49. If so, it shall be certified by the contractor or his authorized representative and marked indicating that the engine does not contain fuel and that the fuel lines have been drained, sufficiently cleaned of residue, and purged of vapors to remove any potential hazard and the engine, when held in any orientation, will not release any liquid fuel. The contractor is responsible for any additional processing of the engine or changes in the preservation necessary to ensure the engine is purged of vapors prior to sealing in the watervaporproof barrier.

2 Engine preservation.

2.1 Crankcase. At the beginning of engine preservation, engine crankcase shall be filled to operating level with preservative lubricating oil conforming to grade 10, 30, or 15-40 of MIL-PRF 21260.

2.2 Fuel system. A portable container or a supply line shall be positioned to provide preservative oil to the engine. The engine fuel supply line shall be disconnected at the most convenient point nearest the fuel tank, and a flexible line containing the preservative oil supply connected to the disconnected fuel supply line leading to the engine. Drain diesel fuel from the fuel filters and fill with preservative oil. The engine shall be started and operated at fast idle until running smoothly, but for not more than 4 minutes. Accelerate to 1/2 throttle and run for 3 minutes and then shutdown by conventional methods.

2.3 Combustion chamber processing. The engine shall be cooled to 100 degrees F. Cooling will be accomplished by induced air currents, circulation of engine coolant (for liquid-cooled engines), or by waiting the period of time required to arrive at the 100 degrees F. When ambient temperature

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Exceeds 100 degrees F, the engine should be cooled to a temperature Equivalent to the ambient. After engine has been cooled to the required Temperature, processing through combusion chamber will be started and Completed within minimum delay. Overall elapsed time for complete engine processing should not exceed 24 hours. After the engine has been cooled, an air restrictor plate shall be installed at the nearest and most convenient place to cut off the air supply to the engine. With the fuel system filled with preservative oil, MIL-PRF-21260, Grade PEI 0, the engine will be cranked for 10 seconds. Remove the preservative oil supply line and reconnect the fuel supply lines and open the fuel shut off valves. Drain filters, remove filter elements and replace with new elements and gaskets. Level A engine processing requirements for each model may contain unique engine processing requirements. These should be reviewed prior to processing engines for outside storage.

CAUTION

SPECIAL PRECAUTIONS WILL BE TAKEN TO ENSURE THAT THE AMOUNT OF OIL DRAWN INTO THE ENGINE WHILE COMPLETING 1.2.3 ABOVE WILL NOT RESULT IN A HYDROSTATIC LOCK. PRIOR TO PROCESSING ADDITIONAL ENGINES, THE FIRST ENGINE WILL BE PROCESSED AS SPECIFIED ABOVE AND ALLOWED TO STAND FOR 12 HOURS. THE ENGINE WILL THEN BE MANUALLY ROTATED, OR ROTATED BY THE STARTER IF MANUAL TURNING IS NOT POSSIBLE, TO ENSURE THAT THE AMOUNT OF OIL DRAWN INTO COMBUSTION CHAMBERS ALLOWS FREE ROTATION OF THE ENGINE.

2.4 Drain crankcase. Install new filters. Reinstall drain plug.

2.5 Upon completion of engine preservation, all openings into the engine such as crankcase breathers, oil filter caps, valve cover breather holes, oil level dipstick/tube, and openings into accessories, shall be sealed with plastic caps or plugs conforming to AIA/NAS 840 and/or AIA/NAS 847, or with tape conforming to SAE-AMS-T-22085.

2.6 A warning tag shall be prepared and attached to the engine with the deprocessing instructions in commercial format detailing how to deprocess the engine. Guidance is contained on DD Form 2258 or DA Form 1397.

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2.7 Engines, internal combustion are a hazard for transport in accordance with CFR Title 49. The contractor is responsible for ensuring that all engines preserved are purged of all flammable vapors to remove any potential hazard. Alternate procedures may be used by the contractor for engine preservation. The procedure proposed by contractor shall not cause excessive preservative lubricating oil to be left in combustion chambers and manifolds that could result in hydrostatic lockup of engine. The contractor shall furnish an engine for examination and test of his proposed procedure prior to production preservation. The proposed procedure shall be subject to prior approval of the contracting officer. Procedures previously approved for long term storage in excess of 60 months by the Government may be used to CO approval.

3 Quality Assurance Provisions.

3.1 Inspect the preservation and unit pack in accordance with MIL-STD-2073-1D.

3.2 Quality conformance shall be in accordance with MIL-STD-2073-1D.

3.3 First Article Test and Inspection of the engine in the container is not required. However, the engine in the container must meet the mechanical handling requirements of ASTM D 4169, Distribution Cycle 18, Assurance Level II, Acceptance Criteria 3. Only mechanical handling testing is required.

4 Desiccant. Follow the guidance in MIL-STD-2073-1D for determining the quantity required in the barrier bag.

5 Container. Construct container using lag bolts or other reusable hardware in the container construction. Base shall be full panel plywood with plywood panels on ends, sides, and top. Skids will be beveled with rubbing strips. Corner straps are required. Blocking, bracing, and cushioning shall be designed to protect the engine and ensure successful rough handling testing without any damage to the engine, the watervaporproof barrier, or to the container. An inspection port is required to coincide with the location of the humidity indicator to view the humidity indicator installed in the bag. Indicator shall comply with SAE AS26860, Type 11.

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6 Shipping container. The unit container will serve as the shipping container.

7 Special marking. See ASTM D 6256/D6256M for special container markings. All containers will additionally have the engine serial number marked on the container in accordance with MIL-STD-129. Any required exercising/ represervation of the engines during the storage period of 10 years shall be documented in the form of a shelf life (extendible) and the instructions provided to the Government Contracting Officer.