

STATEMENT OF WORK

SOW Number: E6-PN-313A-09

Date: 28 Jan 2010

**Subj: CFM 56-2A-2 Preservation/Depreservation (365 Day) -
Off ACFT**

WUC: 27000

References: a) CFM International CFM-56-2A-2
b) CFM Engine Shop Manual 72-00-00
c) A1-E6AAB-270-300

Cancellation: None

Background

After engines are removed from wing and after depot repair, they require 365 day preservation. This process is written with anticipation the CLS contractor will be executing these procedures and will be planning for these engine preservations on a recurring basis.

Detailed Instructions

I. Following Steps 1 through 5 are for engines without the QEC installed if QEC is installed go to Part II.

1. Core engines are placed in CLS Supply without Quick Engine Change (QEC) parts installed on the engine. Some of these parts (Starter, Fuel Flow Transmitter, associated tubing/ clamps, etc.) may be required for CLS to perform the 365-day preservation. The following provides a list of some QEC components required to perform the preservation. Follow component installation/removal instructions in the references listed above.

2. QEC components that may be required for installation:

NOTE

Some of the items below may already be installed. Check the core engine before requisitioning.

NOTE

Engine components required to motor engine for preservation purposes will be installed and removed by Navy personnel and verified by L-3 Support Equipment personnel.

NOTE

If engine will be motored without IDG's installed, follow steps 3 thru 5.

a) Starter installation parts requirements:

Noun	Part Number	Quantity
Starter	36E162-2B	1 ea.
Seal	SY6196	1 ea.
Clamp	9070M64G01	1 ea.
Support	9009M29P01	1 ea.
Bolt	J816P014b	2 ea.
Bolt	9009M26P01	1 ea.
Packing	R1316P007	1 ea.
Washer	9816M38P01	1 ea.
Adapter	9070M65P02	1 ea.
Screw	NAS1102E6-16	8 ea.
Coupling	2496839	1 ea.
Packing	645001RR216	1 ea.
Packing	649-393-161-0	1 ea.
V-Band Clamp	S33d162-5	1 ea.

b) Fuel Flow Transmitter:

Noun	Part Number	Quantity
Flowmeter	9-196-02	1 ea.
Gasket	718115-12	2 ea.
Bolt	BACB30LE3U6	8 ea.
Washer	BACW10BP3ACU	8 ea.

c) Inlet Fuel Tube:

Noun	Part Number	Quantity
Tube Assembly	332D1900-13	1 ea.

d) IDG Plugs:

Noun	Part Number	Quantity
Hyd. Pump Pad Cover	305-111-900-0	1 ea.
Aluminum IDG Pad Blanking Cover	305-336-802-0	2 ea.
Bolts	J816P014A	12 ea.
Aluminum IDG Cover O-Ring	J221P172	2 ea.
Washer	649-341-013-0	12 ea.

Support Equipment (Optional):

P/N 21C8516G01 Fuel System Preservation Cart w/
Fittings and Oil Tube

INITIALS / STAMP
MECH / INSP

3. Install Aluminum IDG Blanking Covers and O-rings - P/N
305-336-802-0 and J221P172

4. Secure with bolts and torque to 375 inch lbs

5. Plug the IDG Cavity Drains

**II. Following steps are for 365 day preservation for engines with QEC
already installed.**

1. If installed, remove aircraft hydraulic pump from AGB
and Install Aluminum Pad Cover - Part # 305-111-900-0.

2. Service oil tank with approved mixture of 47.5 quarts
of engine oil, (MIL-PRF-23699, NSN: 9150-00-985-7099).

2a. Add 5% by volume (2.5 quarts), preservative oil CP 2259,
MIL-L-6085, NSN: 9150-00-223-4129).

NOTE

**After servicing oil tank with approved mixture of engine
oil, oil may not be visible in the oil tank sight glass.**

NOTE

**If engine is to be motored with IDG's installed, make sure
IDG oil level is within the silver bands on each IDG sight
glass.**

NOTE

**Ensure starter oil level is within indicator markings of
oil level dipstick.**

3. Make certain that the Main Engine Control (MEC) fuel
shutoff lever is closed.

3a. Remove starter air tube and install starter air adapter.
Torque clamp to 60-70 inch-pounds.

CAUTION

**During the motoring process, a technician must remain at
the Air Start Unit control panel to shut down the unit in
the event of an emergency.**

4. Using a SE Air Start Unit, apply bleed air to the
Starter Air adapter Tube.

NOTE

The Navy has obtained a Fuel System Preservation Cart to use for supplying oil to Fuel Pump Inlet. This cart can be used to supply oil to the Fuel Pump during motoring.

5. (Optional) To use the Fuel System Preservation Cart Figure 1 connect oil tubes using connection and tubes provided and follow operating instruction IAW figure 1 (Otherwise go to step 6).

6. Make certain the oil supply-Approximately 6 quarts (MIL-L-6081 Grade 1010, NSN: 9150-00-273-2388) is available at the fuel pump inlet. During the motoring process of step 7 below, open the fuel shut off lever on the MEC for approximately ten seconds or when oil vapor is indicated out of the tail pipe.

7. Motor engine at maximum motor speed for four minutes.

8. Shut down SE Air Start Unit and terminate motoring process to allow engine to coast down.

9. Disconnect SE Air Start Unit, remove starter air adapter tube.

10. Reinstall S/C/V to starter air tube. Torque clamps to 60-70 inch-pounds and safety wire clamps as applicable.

11. Close Variable Bleed Valve (VBV) doors by applying rotation to the exposed drive end of the VBV actuator at the 2:30 o'clock Position.

12. Cover VBV grills with vapor barrier film.

13. Seal the engine openings, particularly struts, piping, and accessory opening with caps or plugs and vapor barrier film as required. It is recommended that desiccant be placed on either side of the engine, but not in contact with the engine hardware.

NOTE

Vapor barrier film requirement (excluding step 9) is for outdoor storage only.

NOTE

The desiccants should be replaced at regular intervals based upon the atmospheric and weather conditions. Therefore, they should be placed so that they will perform adequate protection to the engine and still be accessible for replacement while disturbing the minimum amount of engine protective covering.

14. Cover the entire engine with a waterproof protective cover and secure it tightly in place.

15. Tag the engine to alert that the engine fuel system has been preserved per CFMI Engine Shop Manual 72-00-00, section 1201 Engine Storage Instructions. _____

16. Tag the engine oil tank to alert that the oil tank contains 5% by volume, corrosion inhibitor MIL-PRF-6085 in accordance with CFMI Engine Shop Manual 72-00-00. _____

CONTINUOUS INSPECTION WORK SHEET

ITEM	DISCREPANCY	CORRECTIVE ACTION	INITIALS	CDI /QAR STAMP

Use additional CONTINUOUS INSPECTION WORK SHEET sheets as necessary.

SIGN-OFF SHEET

PART 1

All employees performing tasks on this Work Instruction must enter their names, signature, and initials.

EMPLOYEE NAME (PRINT)	EMPLOYEE SIGNATURE	EMPLOYEE INITIALS

PART 2 (CLOSE OUT)

	DATE:	CORRECTED BY (SIGNATURE)	SUPERVISOR (SIGNATURE)	CDI /QAR STAMP
WORK INST. COMPLETE				
F.O.D. CHECK				
TOOL BOX INVENTORY				
LOGS / RECORDS COMPLETE				

17. Unusual circumstances, additional work and/or additional information will be provided by a memorandum for attachment to this statement of work.

18. E6 FST-Tinker engineering can be reached at [REDACTED]. POC is [REDACTED].



Figure 1: Fuel System Preservation Cart that may be used for 365 Engine Preservation.

**FUEL SYSTEM PRESERVATION CART (21C8516G01)
OPERATION INSTRUCTION MODIFIED FOR CFM56-2A USE.**

1. FILL RESERVOIR (10) WITH MIL-L-6081 OIL. (10 GALLONS TO TOP OF SIGHT GAGE (9)).
2. CONNECT POWER CORD (15) TO 115 V 60 POWER SUPPLY.
A) USE POWER CORD ADAPTER (13) FOR TESTCELL J-BOX USE.
B) USE TWIST LOCK ADAPTER (16) FOR ENGINE SHOP POWER RECEPTICLE USE.
3. CONNECT HOSE ASSEMBLY (6) TO OIL SUPPLY FITTING (5).
4. TURN REGULATING VALVE (7) COUNTER CLOCKWISE.
5. CONNECT OIL LINES TO ENGINE USING HOSE AND FITTING PROVIDED
6. ENERGIZE MOTOR STARTER (17) TO START PUMP.
7. TURN REGULATING VALVE (7) CLOCKWISE TO INCREASE PRESSURE TO NO MORE THAN 50 PSI.
8. PRESERVE ENGINE FUEL SYSTEM PER INSTRUCTIONS IN THIS PROCEDURE

MAINTANANCE AND CALIBRATION INSTRUCTIONS

CHECK FILTER (8) HI- Δ P INDICATOR DURING OPERATION AND REPLACE ELEMENT (SCHRODER P/N TF-1-1A-3V-P-X-D) IF WARNING FLAG IS VISIBLE. DRAIN TANK (10) THROUGH (11) IF FILTER IS REPLACED OR AFTER 6 MONTH OPERATION. CALIBRATE GAGE (4) AT 6 MONTH INTERVAL.

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Figure 2: Instructions for Fuel system Preservation Cart.