

## WORK PACKAGE

### TECHNICAL PROCEDURES

## BASIC EXPEDITIONARY AIRFIELD RESOURCES (BEAR) POWER UNIT (BPU)

### PROGRAMMED DEPOT MAINTENANCE

EFFECTIVITY: All

#### LIST OF EFFECTIVE WP PAGES

TOTAL NUMBER OF PAGES IN THIS WP IS 6 CONSISTING OF THE FOLLOWING:

\*Zero in this column indicates an original page.

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#### REFERENCE MATERIAL REQUIRED

Publication Number

SWP 009 02

Publication Title

REMOVE AND REPLACE ENCLOSURE COMPONENTS

## REFERENCE MATERIAL REQUIRED – Continued

<u>Publication Number</u>	<u>Publication Title</u>
SWP 009 04	REMOVE AND REPLACE ENGINE AND COMPONENTS
SWP 009 05	REMOVE AND REPLACE AC COMPONENTS
SWP 009 06	REMOVE AND REPLACE COOLING SYSTEM COMPONENTS
SWP 009 07	REMOVE AND REPLACE FUEL SYSTEM COMPONENTS
SWP 009 08	REMOVE AND REPLACE AIR INTAKE COMPONENTS
SWP 009 09	REMOVE AND REPLACE EXHAUST SYSTEM COMPONENTS
TO 38G1-160-1	Operation and Maintenance Manual K38, K50, QSK38, and QSK50
TO 38G1-160-2-1	Service Manual K38, K50, QSK38, and QSK50 Volume 1
TO 38G1-160-2-2	Service Manual K38, K50, QSK38, and QSK50 Volume 2
TO 38G1-160-2-3	Service Manual K38, K50, QSK38, and QSK50 Volume 3
TO 38G1-160-8-1	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60 CM850 Modular Common Rail System Volume 1
TO 38G1-160-8-2	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60 CM850 Modular Common Rail System Volume 2
TO 38G1-160-8-3	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60 CM850 Modular Common Rail System Volume 3
TO 38G1-160-8-4	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60 CM850 Modular Common Rail System Volume 4
TO 38G1-160-8-5	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60 CM850 Modular Common Rail System Volume 5
WP 007 00	SCHEDULED MAINTENANCE
WP 008 00	FAULT ISOLATION

## APPLICABLE TCTOs

None

## CONSUMABLE MATERIALS

<u>Nomenclature</u>	<u>Specification/Part No.</u>	<u>CAGE Code</u>
Cleaning solvent	SAFETY-KLEEN MIL-PRF-680, Type II	30530
Lubricating grease	SHC 220	77988

## APPLICABLE SUPPORT EQUIPMENT

None

## 1 ACRONYMS AND ABBREVIATIONS.

BPU	BEAR Power Unit
COTS	Commercial Off The Shelf
WP	Work Package

at a Depot maintenance level. The Commercial Off The Shelf (COTS) engine manuals listed in Table 1 should be referenced when performing maintenance on the BEAR Power Unit (BPU) engine. Table 2 lists the required Depot level maintenance and the respective hour intervals.

## 2 GENERAL.

This Work Package (WP) contains instructions for removal, disassembly, inspection, cleaning, assembly, and installation

**Table 1. Commercial Off The Shelf Manuals.**

Publication Number	Publication Title
TO 38G1-160-1	Operation and Maintenance Manual K38, K50, QSK38, and QSK50
TO 38G1-160-2-1	Service Manual K38, K50, QSK38, and QSK50 Volume 1
TO 38G1-160-2-2	Service Manual K38, K50, QSK38, and QSK50 Volume 2
TO 38G1-160-2-3	Service Manual K38, K50, QSK38, and QSK50 Volume 3
TO 38G1-160-8-1	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60, CM850 Modular Common Rail System Volume 1
TO 38G1-160-8-2	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60, CM850 Modular Common Rail System Volume 2
TO 38G1-160-8-3	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60, CM850 Modular Common Rail System Volume 3
TO 38G1-160-8-4	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60, CM850 Modular Common Rail System Volume 4
TO 38G1-160-8-5	Troubleshooting and Repair Manual QSK38, QSK50, and QSK60, CM850 Modular Common Rail System Volume 5

## 3 DEPOT LEVEL MAINTENANCE.

Use Table 2 for a list of maintenance tasks to be performed, at 24000 hours, during overhaul.

**Table 2. Depot Level Maintenance.**

Inspect	Procedure
Switchgear	Inspect breaker connections. Grease charging motor gear box and trip latch IAW paragraph 3.1.
Cooling fan motor	Replace bearings IAW paragraph 3.2.
Engine	Overhaul engine and replace coupler bushing IAW paragraph 3.3.
Fuel transfer pump assembly	Remove and replace fuel transfer pump assembly (SWP 009 07).
Alternator	Overhaul alternator IAW paragraph 3.4.

### 3.1 Switchgear Maintenance.

- a. Inspect breaker connections.



**CLEANING SOLVENT, SAFETY-KLEEN  
MIL-PRF-680, TYPE II**

- b. Wipe grease from charging motor gear teeth and contact surfaces of trip latch, and clean with solvent, SAFETY-KLEEN MIL-PRF-680, type II.



## LUBRICATING GREASE, SHC 220

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- c. Apply lubricating grease, SHC 220, to charging motor gear teeth and contact surfaces of trip latch.

**3.2 Cooling Fan Motor Maintenance.** The cooling fan motor bearings will be replaced.

- a. Remove cooling fan motor (SWP 009 06).
- b. Remove and replace cooling fan motor bearings (SWP 009 06).
- c. Replace cooling fan motor (SWP 009 06).

**3.3 Engine Maintenance.** The AC alternator is removed during engine maintenance. AC alternator maintenance will be performed before reinstalling the AC alternator.

- a. Drain coolant (WP 007 00).
- b. Drain oil (WP 007 00).
- c. Remove switchgear (SWP 009 05).
- d. Remove rear roof section (SWP 009 02).
- e. Remove middle roof section (SWP 009 02).
- f. Remove AC alternator enclosure interior (SWP 009 02).
- g. Remove AC alternator enclosure cross-members (SWP 009 02).
- h. Remove AC alternator enclosure top panels (SWP 009 02).
- i. Remove air intake assembly (SWP 009 02).
- j. Remove DCS enclosure (SWP 009 02).
- k. Remove AC alternator (SWP 009 05).
- l. Remove flexible exhaust pipes (SWP 009 09).
- m. Remove exhaust elbows (SWP 009 09).
- n. Remove enclosure panel (SWP 009 02) inside BPU above fuel tank (not shown).
- o. Remove step (SWP 009 06).
- p. Remove aspiration tube (SWP 009 08).
- q. Remove engine (SWP 009 04).

- r. Overhaul engine, using manuals listed in Table 1, by removing and replacing following components.

- Starters
- Injectors
- Fuel supply tubes
- Fuel lift pump
- Turbochargers
- Viscous vibration dampers
- Lubricating oil pump
- Water pump
- Pistons and cylinder liners
- Heads and rocker assemblies
- Bearings and cams
- Thermostats
- Battery-charging alternator

- s. Remove coupler (SWP 009 05).
- t. Replace engine (SWP 009 04).
- u. Install step (SWP 009 06).
- v. Install enclosure panel (SWP 009 02) inside BPU above fuel tank (not shown).
- w. Install exhaust elbows (SWP 009 09).
- x. Install flexible exhaust pipes (SWP 009 09).

### NOTE

Ensure AC Alternator Maintenance is completed, IAW paragraph 3.4, before continuing.

- y. Replace coupler (SWP 009 05).
- z. Install AC alternator (SWP 009 05).
- aa. Install DCS enclosure (SWP 009 02).
- ab. Install air intake assembly (SWP 009 02).
- ac. Install aspiration tube (SWP 009 08).
- ad. Install AC alternator enclosure top panels (SWP 009 02).
- ae. Install AC alternator enclosure cross-members (SWP 009 02).
- af. Install AC alternator enclosure interior (SWP 009 02).
- ag. Install middle roof section (SWP 009 02).
- ah. Install rear roof section (SWP 009 02).
- ai. Install switchgear (SWP 009 05).
- aj. Fill oil (WP 007 00).

- ak. Fill coolant (WP 007 00).

### 3.4 AC Alternator Maintenance.

#### **NOTE**

The AC alternator is removed during engine maintenance.

- a. Perform engine maintenance IAW paragraph 3.3 before continuing.
- b. Remove main rotor (SWP 009 05).
- c. Clean and inspect alternator.
- d. Remove each AC lternator bearing (SWP 009 05).
- e. Replace each AC alternator bearing (SWP 009 05).
- f. Test insulation resistance (WP 008 00).
- g. Remove six diodes (SWP 009 05).
- h. Replace six diodes (SWP 009 05).
- i. Remove rectifier surge suppressor (SWP 009 05).
- j. Replace rectifier surge suppressor (SWP 009 05).
- k. Install main rotor (SWP 009 05).
- l. Continue with engine maintenance IAW paragraph 3.3, Step y.