

DEPARTMENT OF THE NAVY  
HEADQUARTERS UNITED STATES MARINE CORPS  
WASHINGTON, D.C. 20380-0001

NORMAL

MI-96-13200/00  
1 APRIL 1999

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U.S. MARINE CORPS MODIFICATION INSTRUCTION

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**INSTALLATION INSTRUCTIONS FOR  
MODIFICATION OF GENERATOR SET,  
DIESEL ENGINE DRIVEN, TACTICAL, SKID MOUNTED  
TUBULAR FRAME, 3KW, 3 PHASE,  
60 HZ, 120/208 VOLTS AC, MODEL MEP-O16B  
NSN 6115-01-150-4140**

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1. **PURPOSE OF MODIFICATION INSTRUCTIONS.** The purpose of this MODIFICATION INSTRUCTION (MI) is to repower the diesel engine driven, skid mounted, tubular frame generator sets to a more reliable diesel engine driven, skid mounted, tubular frame generator sets for improved generator efficiency and logistic support.
2. **EQUIPMENT IN USE (INCLUDING EQUIPMENT IN SUPPLY OR MAINTENANCE ACTIVITIES AND ADMINISTRATIVE STORAGE).** All equipment in use or storage will be modified. This MI is to be applied to all existing Model MEP- 016B generator sets in the field.
3. **Technical Manuals Affected.** TM 05926B/06509B/3,SL-4-05926B/06509B-24P/2,TM 5-6115-615-24P, TM 5-6115-615-34,NAVFAC P-8-646-24P,NAVFAC P-8-646-34,TO 35C2-3-386-34,TO 35C2-3-386-32.

4. Major Items Affected.

| Description  | NSN              | TAM No. |
|--|------------------|---------|
| Generator Set, Diesel Engine Driven<br>Tactical, Skid Mounted, Tubular Frame<br>3kw, 3 Phase, 60hz, 120/208 Volts AC<br>Model Mep-016B | 6115-01-150-4140 | B0730   |

New Model

|          |                  |       |
|----------|------------------|-------|
| Mep-016E | 6115-01-456-5046 | B0730 |
|----------|------------------|-------|

5. Material Affected.

a) Material Required

| Description              | NSN              | Part Number | Quantity |
|--------------------------|------------------|-------------|----------|
| Kit, Retrofit, Powerpack | 2920-01-418-0970 | GSA-247     | 1 Each   |

b) Material Discarded

| Description         | NSN              | Part Number | Quantity |
|---------------------|------------------|-------------|----------|
| Engine, Diesel, 3KW | 2815-10-274-6803 | Q106DL10399 | 1 Each   |

6. MI KIT/PARTS AND THEIR DISPOSITION.

- a) **Kit/Parts Required To Accomplish This MI.** The new parts required to accomplish this MI are contained in a modification kit composed of the items listed in Table 1. One kit is required for each Model MEP-016B generator set. The National Stock Number (NSN) for the kit is 2920-01-418-0970.
- b) **Distribution and Issue Instructions.** Modification kit/parts will be requisitioned from Commander General, Bldg. 3700, Code 837-1, MCLB, Albany, Ga. 31704. The requisition will specify the nomenclature and Serial Number of each Model Mep 016B generator set and the number of this MI.
- c) **Bulk and Consumable Materials.** Fuel-diesel, Oil-10W30, Loctite and Teflon tape.
- d) **Parts Disposition.** Parts will be disposed of in accordance with current Marine Corps directives

TABLE 1. MODIFICATION

| ITI | QT | DESCRIPTION                     | PART NUI                | NATIONAL STOCK NUI |
|-----|----|---------------------------------|-------------------------|--------------------|
| 1   | 1  | Engine,Diesel,3kw Generator     | GS-2515                 | N/A                |
| 2   | 1  | Oil Drain Adapter               | CW-0071                 | 4730-01462-8782    |
| 3   | 1  | Stop Lever Bracket              | GS-85                   | 2815-01-463-1855   |
| 4   | 1  | Throttle Solenoid Return Spri   | GS-291                  | 5360-01-462-9713   |
| 5   | 1  | Engine Mount Bracket            | GS-2470                 | 2815-01-463-1826   |
| 6   | 1  | Key, Machine                    | GS-2476                 | 5315-01-462-9949   |
| 7   | 1  | Drive Hub                       | GS-2477                 | 2990-01-463-1829   |
| 8   | 1  | Throttle Solenoid               | GS-2479                 | 2990-01-463-1860   |
| 9   | 1  | Intake Air Hose, Diesel Engin   | GS-2481                 | 4720-01-463-0865   |
| 10  | 1  | Intake Air Hose, Air Filter Sic | GS-2483                 | 4720-01463-0864    |
| 11  | 1  | Adapter, Intake Hose            | GS-2503                 | 4720-01-463-0861   |
| 12  | 1  | Coil Timer Assembly             | GS-2491                 | 5950-01-462-9335   |
| 12a | 1  | Coil Timer(w/o terminal ends    | Cage 7838;<br>P/N SA-46 | 5950-01-462-9335   |
| 13  | 1  | Bracket Assembly                | GS-2493                 | 2815-01-463-1864   |
| 14  | 1  | Fuel Hose, Pump To Filter       | GS-2495                 | 4720-01-463-0858   |
| 15  | 1  | Fuel Hose, Filter To Injection  | GS-2497                 | 4720-01-463-0855   |

TABLE 1. MODIFICATION KIT (continued)

| ITEM | QTY. | DESCRIPTION                             | PART NUMBER     | NATIONAL STOCK NUMBER |
|------|------|---|-----------------|-----------------------|
| 16   | 1    | Oil Drain Hose                          | GS-2499         | 4720-01-463-0856      |
| 17   | 1    | Exhaust Pipe                            | GS-2501         | 2815-01-463-1888      |
| 18   | 1    | Gasket, Exhaust Pipe                    | 183671-13211    | 2990-01-464-6872      |
| 19   | 1    | Wiring Harness                          | GS-2505         | 2815-01-463-1885      |
| 20   | 1    | Jumper Wire Assembly                    | GS-2507         | 2815-01-463-1882      |
| 21   | 1    | Fuel Filter Drain Hose                  | GS-2509         | 4720-01-463-0857      |
| 22   | 1    | Speed Lever Modification                | GS-2517         | 2815-01-463-1875      |
| 23   | 1    | Throttle Solenoid Pusher                | GS-3607         | 2990-01-463-1857      |
| 24   | 1    | Flywheel Housing                        | GS-3609         | 2815-01-463-0819      |
| 25   | 1    | Fuel Pump                               | MS51321-2-24N1  | 2910-00-930-9367      |
|      |      | Hardware required for Throttle Solenoid |                 |                       |
| 26   | 1    | Screw, Cap, Hexagon Head                | B1821BH025C100N | 5305-00-225-3843      |
| 27   | 1    | Washer, Flat                            | NAS1149F0463P   | 5310-00-141-1795      |
| 28   | 1    | Washer, Lock                            | MS35338-44      | 5310-00-582-5965      |
| 29   | 1    | Hex Spacer                              | H10375          | 5340-01-464-1079      |

7. SPECIAL TOOL; TOOL KITS; JIGS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED. A General Mechanic's Tool Kit and a Common Number One Tool Kit is required.
8. MODIFICATION PROCEDURES.
9. First part of the Modification Instructions covers the Generator Set Disassembly (pages 1-17). The second part of the Modification instructions covers the Retrofit Kit Installation Instructions (pages 1-23).

**WARNING**

. Remove watches, rings, and all other jewelry while working on or near this equipment. Wearing these items could result in injury or death to personnel or damage to equipment.

. Operation of this equipment presents a noise hazard to personnel in the area. The noise level exceeds the allowable limits for unprotected personnel. Wear earmuffs or earplugs that were fitted by a trained professional.

10. Instruction Plate Removal.

a) Removal

Remove instruction data plate by pushing out or prying out four rivets.

Note 1: Maintain old data plate until old serial number is stamped on new data plate.

b) Installation

Install new data plate and secure with four rivets.

11. Instruction to Maintenance Management

a) The Maintenance Management shall inscribe the old serial number as the new serial Number on the new data plate.

12. Generator Set Function Check (use the Test Data Sheet)

a) Load bank installation:

- i) Connect load bank to generator set.
- ii) Set all load switches to the off position.

13. Start generator set in accordance with generator starting procedure.

14. After generator set is sufficiently warmed up , perform the following functional checks:

- a) Voltage
- b) Frequency
- c) Percentage load-using load bank, load generator set as follows:
  - 25 %
  - 50 %
  - 75 %
  - 100 %
- d) Load duration shall be no longer than five minutes.
- e) Record test results on the Test Data Sheet

TEST DATA SHEET

**FUNCTIONAL AND OPERATIONAL  
TEST**

Item \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Date \_\_\_\_\_

Operator \_\_\_\_\_

Serial No. \_\_\_\_\_

**1. Electrical Control Box**

**Functional Test:**

YES

NO

COMMENTS

|                           |       |       |       |
|---------------------------|-------|-------|-------|
| . voltage selector switch | _____ | _____ | _____ |
| . current selector switch | _____ | _____ | _____ |
| . frequency adjust        | _____ | _____ | _____ |
| . percent load meter      | _____ | _____ | _____ |
| . voltage meter           | _____ | _____ | _____ |
| . frequency meter         | _____ | _____ | _____ |
| . voltage adjust          | _____ | _____ | _____ |
| . circuit breaker         | _____ | _____ | _____ |

**2. Operational Test  
(Load Bank Hookup) :**

YES

NO

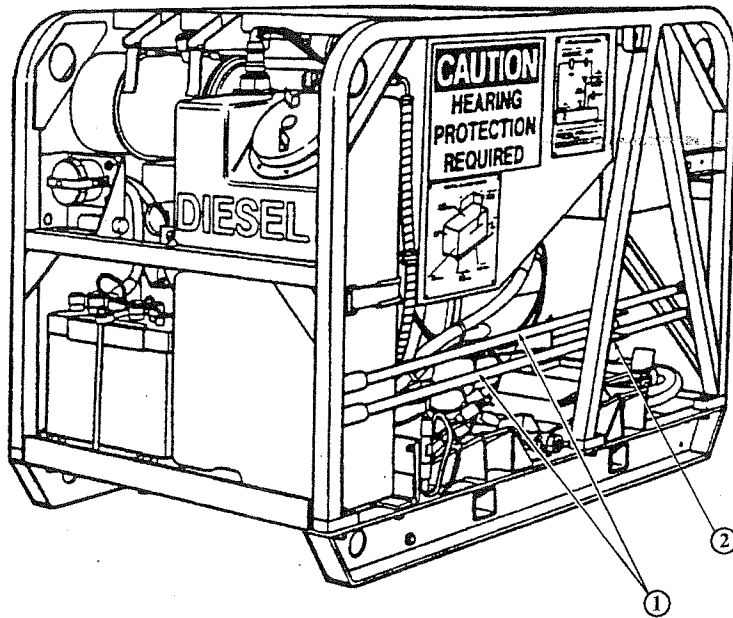
COMMENTS

|                         |       |       |       |
|-------------------------|-------|-------|-------|
| . voltage at 28/120/240 | _____ | _____ | _____ |
| . frequency 60/400 Hz   | _____ | _____ | _____ |
| . load duration         |       |       |       |
| 25 %                    | _____ | _____ | _____ |
| 50 %                    | _____ | _____ | _____ |
| 75 %                    | _____ | _____ | _____ |
| 100 %                   | _____ | _____ | _____ |

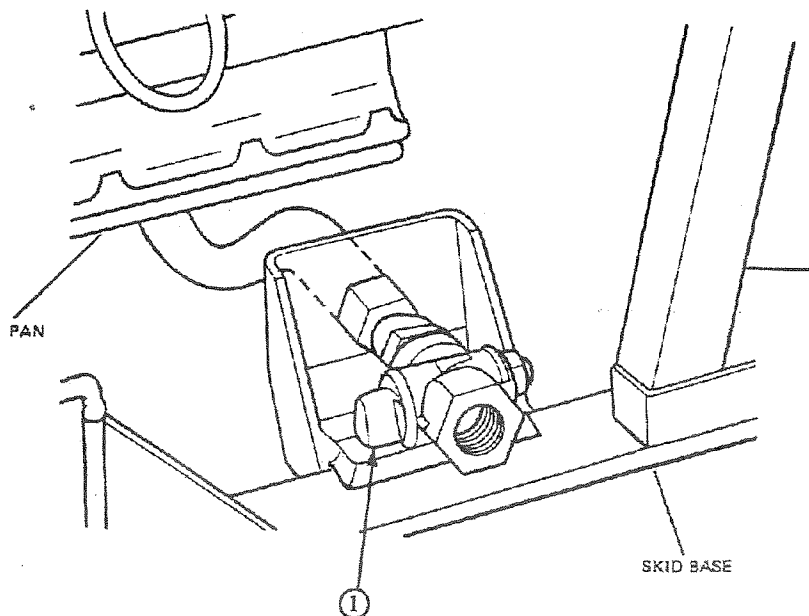
3. Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## I. GENERATOR SET DISASSEMBLY

1. Remove ground rods (1), if applicable, from cage by loosening 1/2 inch bolt on clamp (2) with a wrench or socket. Removal of clamp is not required.

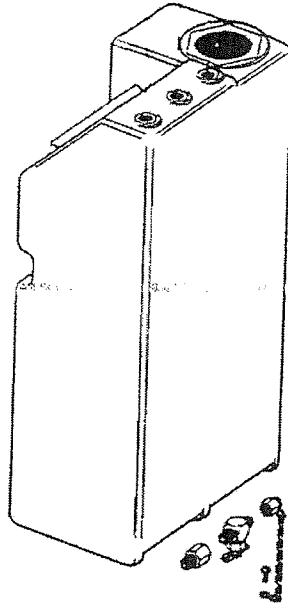


2. Prepare engine for disassembly by draining fluid:  
A. oil - Turn valve (1) 90°. After draining, close valve.





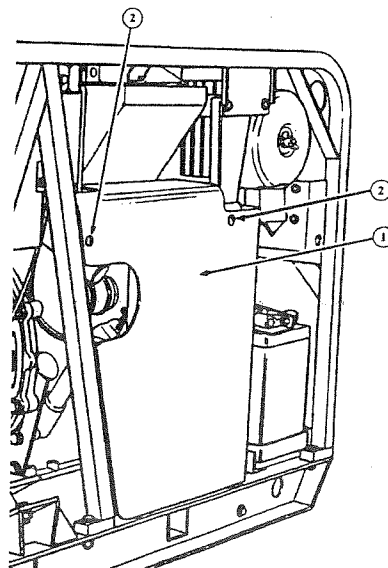
fuel - Remove fuel drain cap from petcock from base of fuel tank using a 5/8" open end wrench. Open petcock and drain fuel.



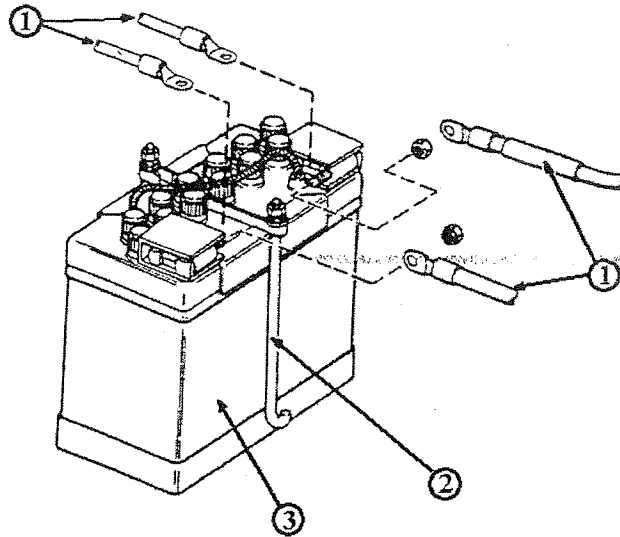
After draining fuel tank close petcock.

Note: Use proper containers and clean-up procedures.

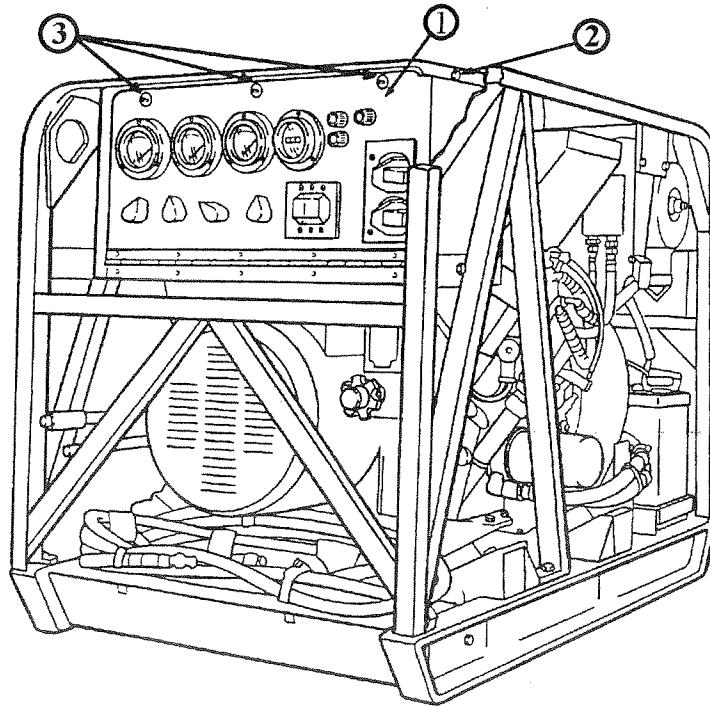
3. Remove engine access cover (1) by removing two screws (2) with flat tip screwdriver.



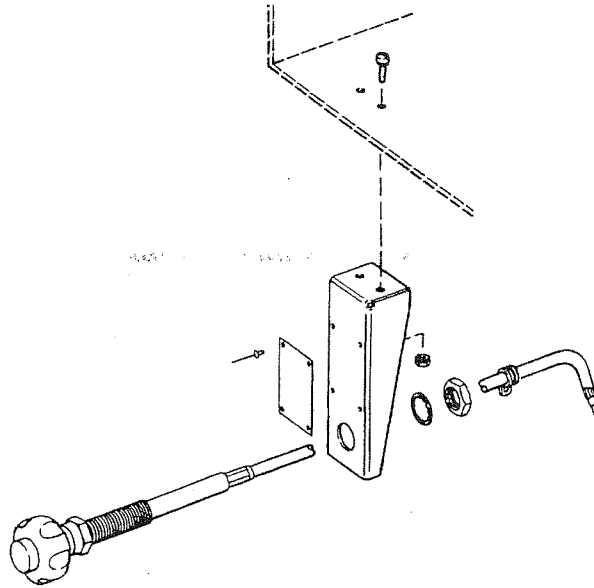
4. Disconnect battery cable (1) using 9/16 inch open end wrench. Remove battery bracket using 1/2 inch wrench. Remove the bracket (2) and battery (3) from generator set.



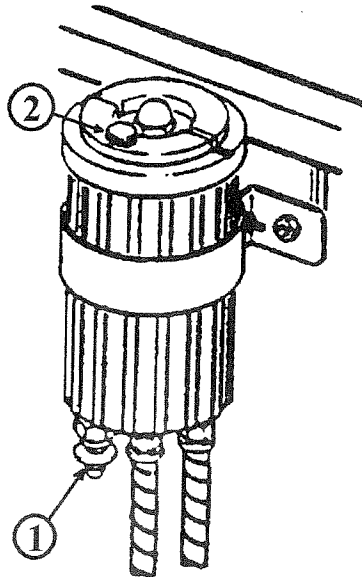
5. Open control panel (1) by using a 7/16 inch wrench to remove two bolts (2) (one bolt on each side of control panel), then use a flat tip screwdriver to unlock three screws (3).



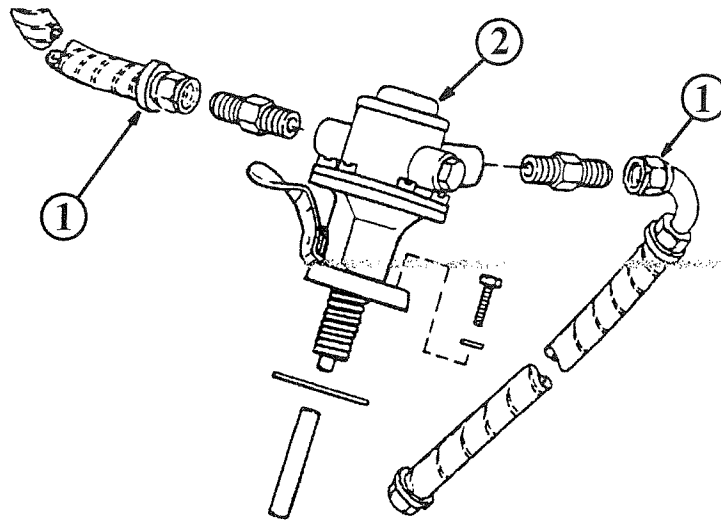
6. Locate cap screw holding hand throttle bracket. Remove hand throttle and bracket using flat tip screwdriver and 7/16 inch wrench. Replace nut and bolt on bracket for future use.



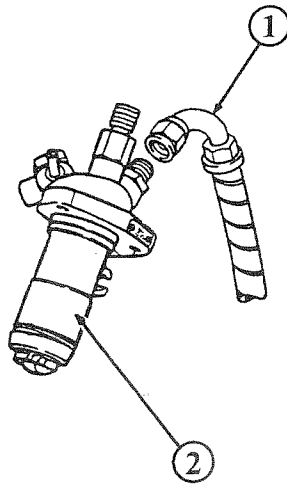
7. Drain fuel filter by pushing -up on drain fuel spout (1) and unscrew bleeder valve (2). Drain into proper container.



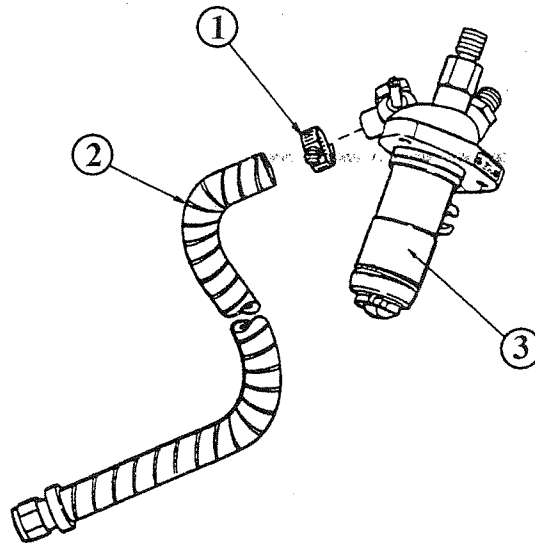
8. Remove two fuel lines (1) from fuel transfer pump (2) using a 5/8 inch and a 9/16 inch wrench.



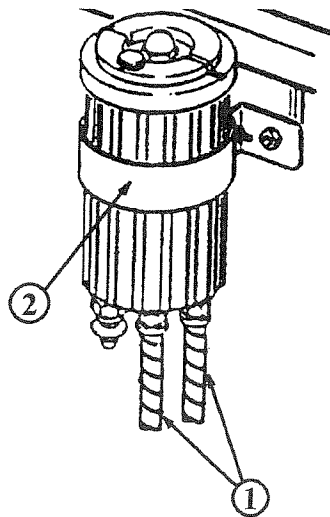
9. Remove fuel line (1) from fuel injection pump (2) using a 9/16 inch open end wrench. Use proper container to capture excess fuel and clean up spill.



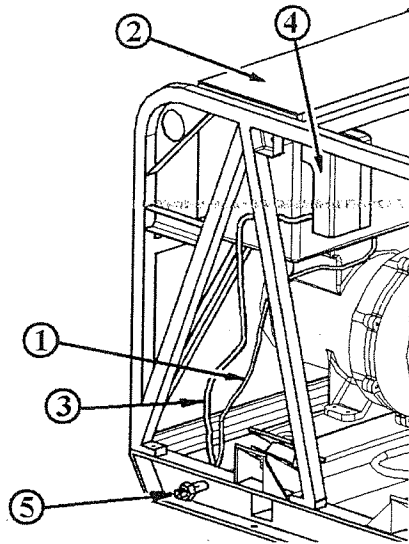
10. Loosen hose clamp (1). Remove fuel return line (2) from fuel injection pump (3) using a flat tip screwdriver. Retain fuel line and clamp for reassemble.



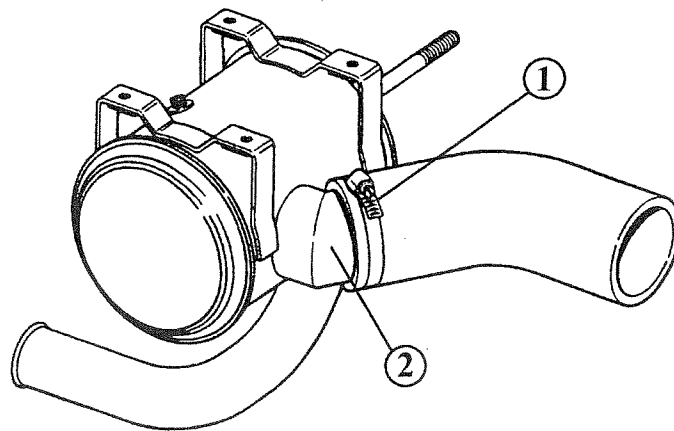
11. Remove two fuel lines (1) from fuel filter (2) using a 9/16 inch open end wrench. Discard after removal.



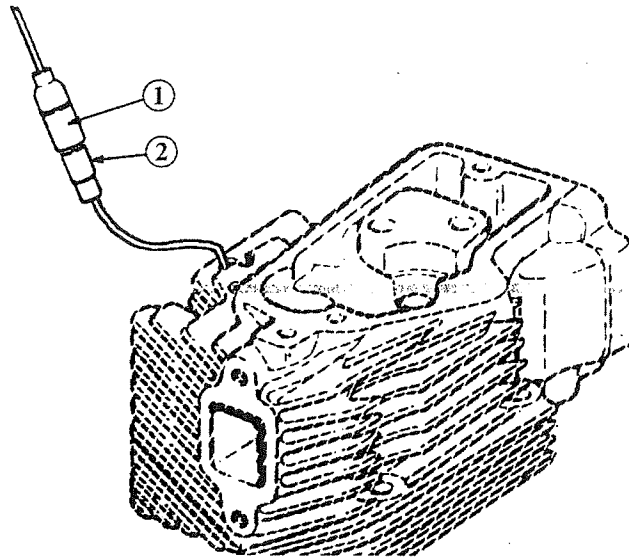
12. Disconnect ground wires (1) and (3) from grounding terminal (5) using two 7/16 inch wrench. Replace nut and washer on grounding terminal.



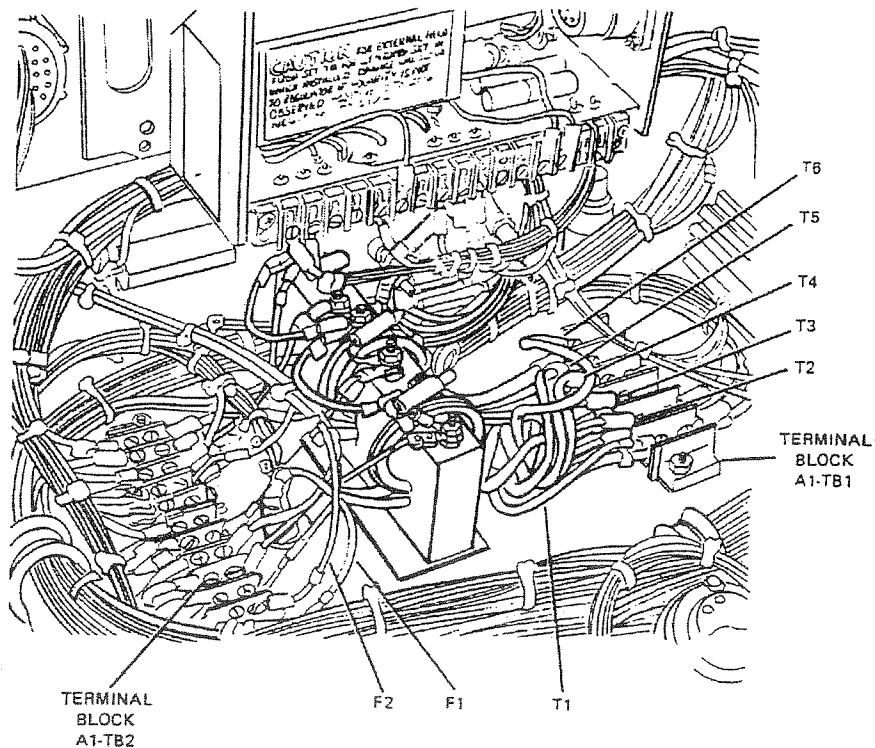
13. Disconnect hose clamp (1) at air cleaner (2) using flat tip screwdriver.



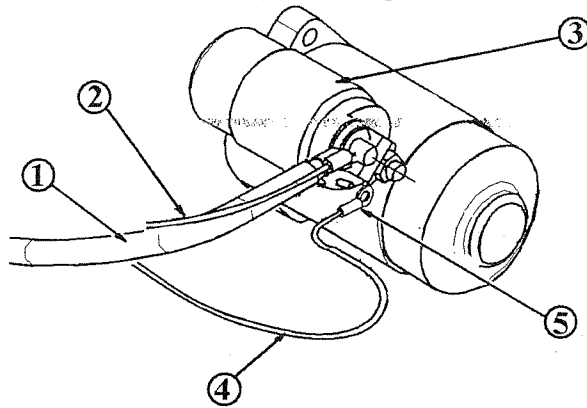
14. Disconnect glow plug wire male (1) from female plug (2) and identify and mark glow plug connector (1) for reassemble.



15. Disconnect T1 through T6 wires from terminal board TB1 using a small flat tip screwdriver. Disconnect F1 and F2 wire from terminal board TB2 using a small flat tip screwdriver. Individually mark and tag wires, if necessary.

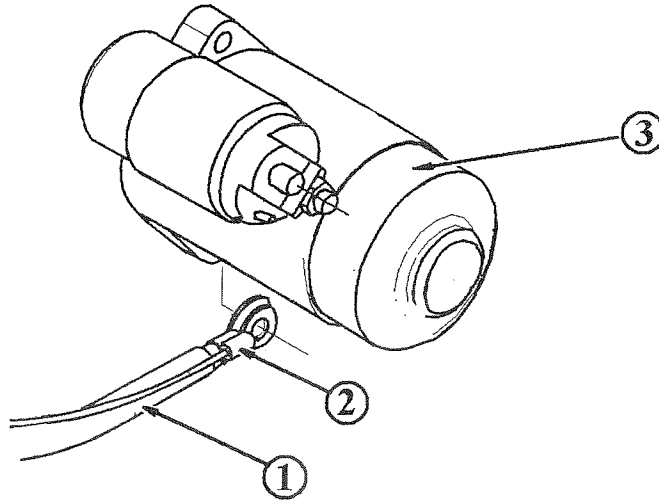


16. Disconnect positive battery wire (1) and small wire (2) from starter solenoid (3) using a 8mm and 12mm wrench. Identify and tag small positive wire for reassemble. Disconnect ignition wire (4) from starter solenoid using an phillips screwdriver or a 5/16 inch wrench. Clip terminal lug (5) from ignition wire (4). Identify and tag for reassembly.



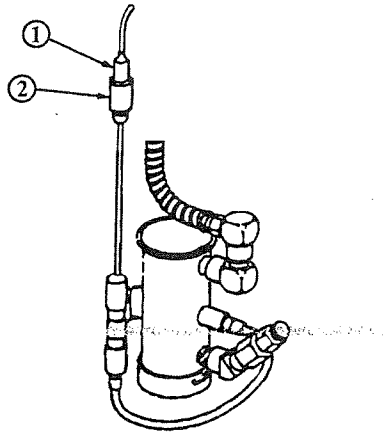
Note: There is no need to remove starter solenoid and starter solenoid negative wire.

17. Disconnect battery ground wire (1) and small wire (2) on starter (3) using a 15mm wrench. Remove and retain both battery cable and small wire. Replace nut and washer on the starter.

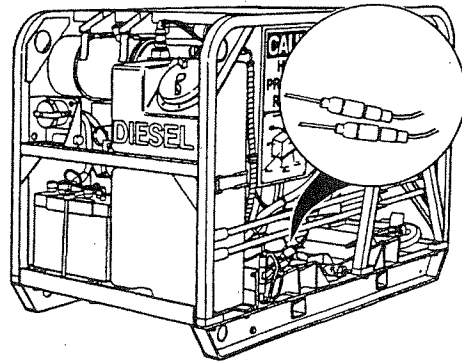




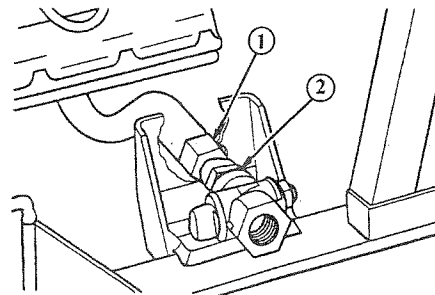
18. Unplug auxiliary fuel pump wire male plug (1) from female plug (2).



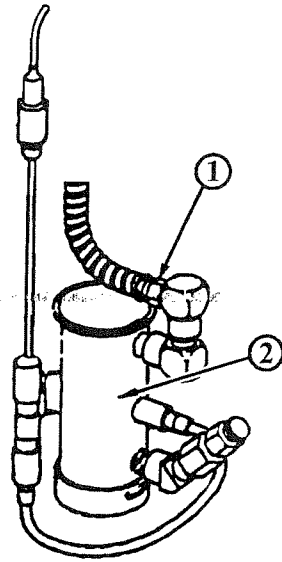
19. Disconnect the two male wire connectors from engine stator underneath starter from the two female connectors in existing wiring harness located near auxiliary fuel pump.



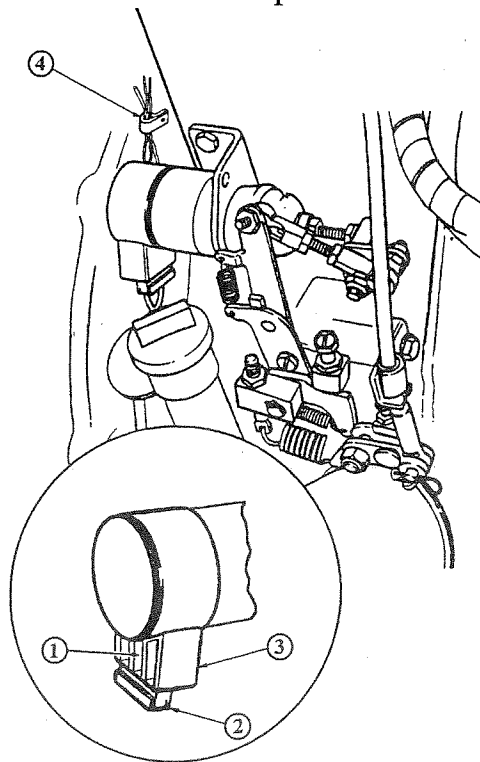
20. Disconnect oil drain line (1) from drain valve (2) using a 11/16 inch open end wrench.



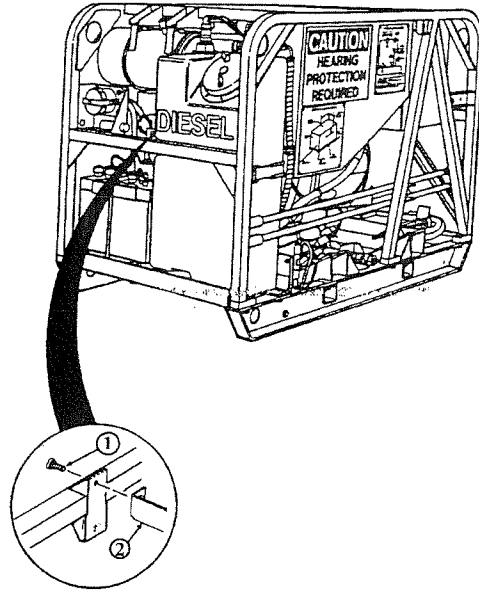
21. Disconnect fuel line (1) on top of auxiliary fuel pump (2) using a 9/16 open end wrench.



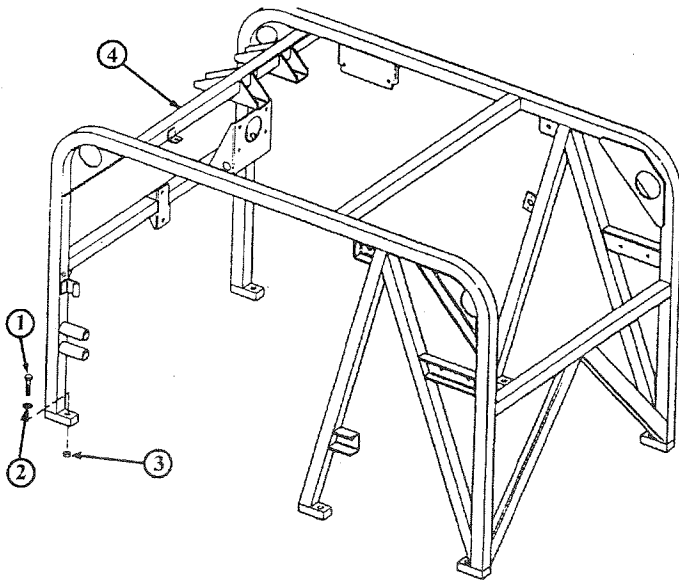
22. Disconnect fuel solenoid wires by using a small flat tip screwdriver to depress retaining tab (1) to unplug wire plug (2) from solenoid. (Be sure to pull wire free of engine so the cage can be removed.) Remove wire clamp (4) using a 10mm wrench or socket. Replace wire clamp after disassembly.



23. Remove screw (1) from fuel tank bracket (2) beside fuel tank using a flat tip screwdriver.



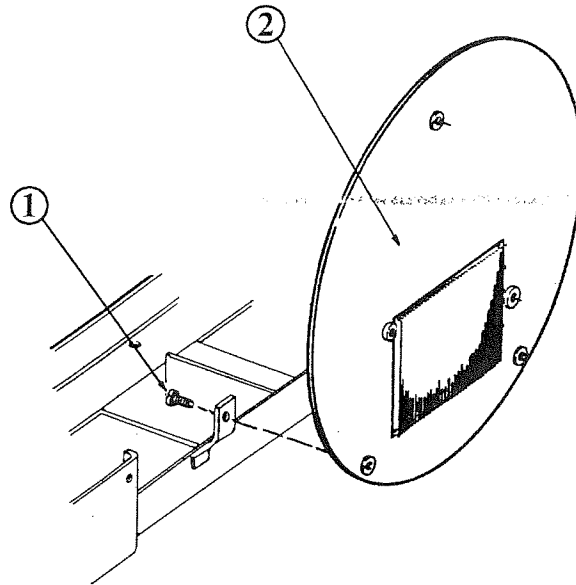
24. Remove six bolts (1), washers (2) and nuts (3) from cage (4) using two 1/2 inch box ends wrench. Retain bolts, washers and nuts for reassemble.



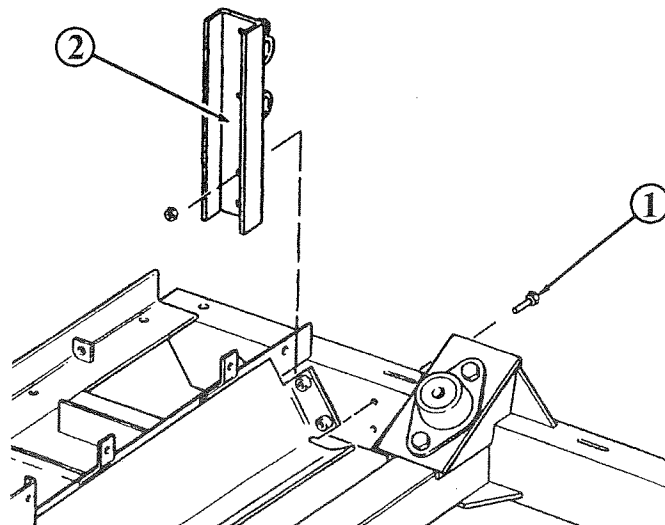
25. Lift cage off frame.

**Caution should be taken to ensure wires that was disconnected in control box are not broken.**

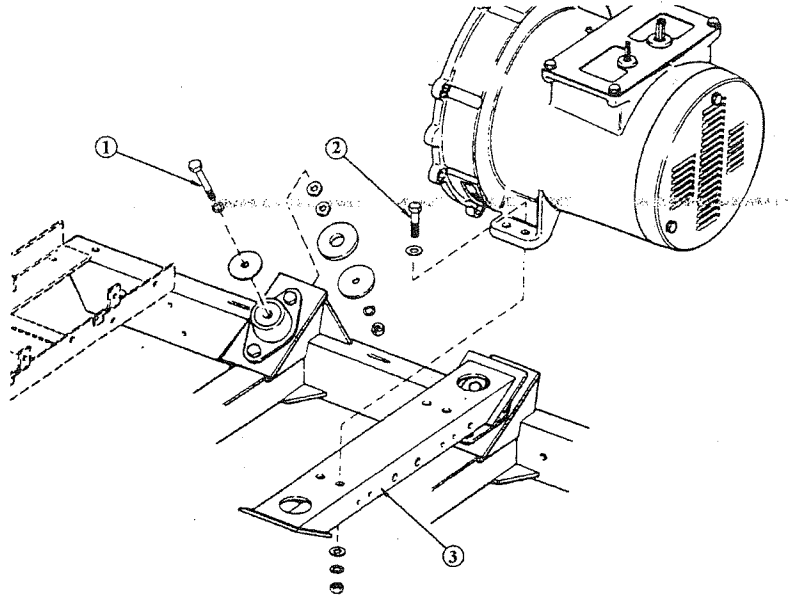
26. Remove two screws (1) from air baffle plate (2) using a flat tip screwdriver. Replace two screws on baffle plate.



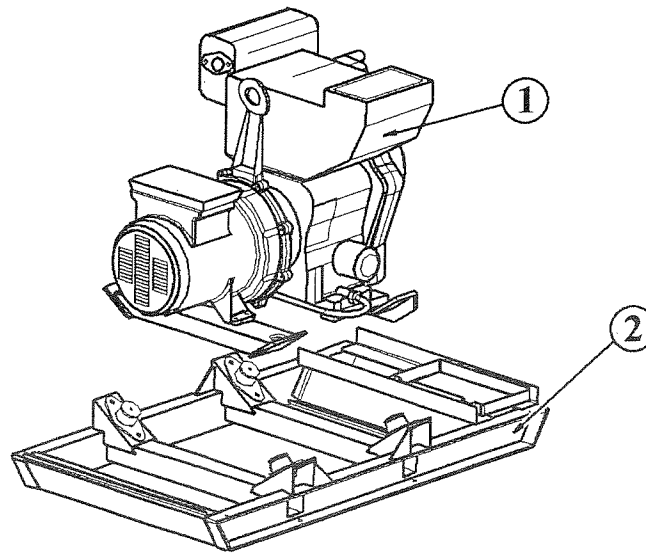
27. Remove two screws (1) from oil-cooler bracket (2) using a 7/16 inch wrench. Replace two screws on bracket.



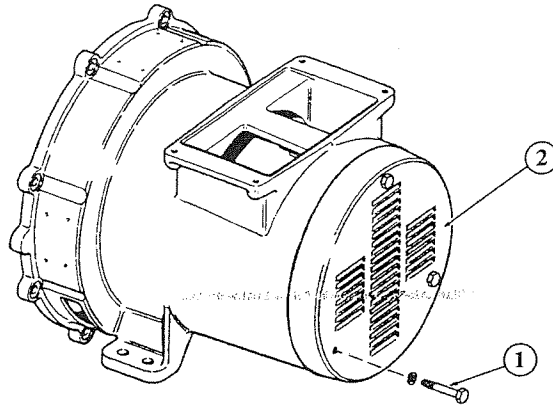
28. Remove two motor mount bolts (1) using a 9/16 inch box end wrench and socket. Remove four bolts (2) from generator mounting bracket (3) using an 11/16 inch wrench and 3/4 inch wrench. Retain bolts, washers, and nut for reassembly.



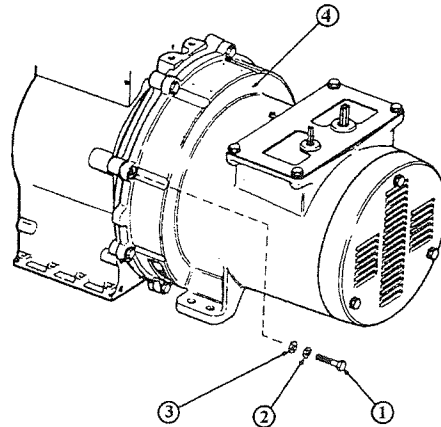
29. Remove engine/generator (1) from base (2).



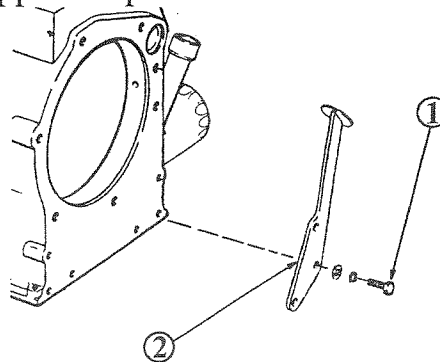
30. Remove three capscrews (1) on housing end cover (2) of generator using a 7/16 inch wrench.



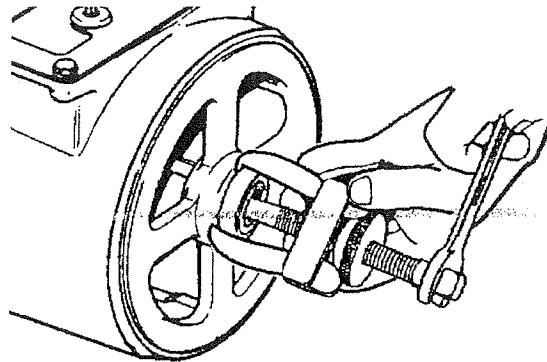
31. Remove eight bolts (1), lockwashers (2), and washers (3), from generator housing (4) assembly using a 13mm wrench or socket. Retain hardware for reassemble.



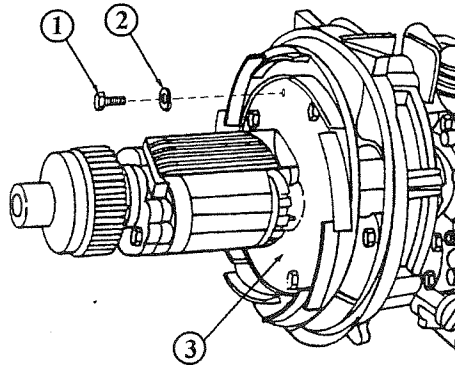
32. To support engine during generator removal, remove bolt (1) from engine support (2). Rotate engine support to the down position. Install bolt (1) to lock engine support in place.



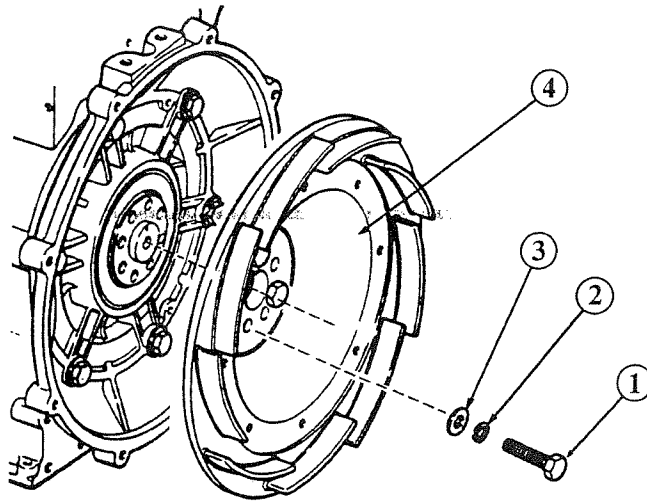
33. Utilizing a two jaw gear pulley at rear of generator housing assembly bearing, disconnect the housing from the generator rotor assembly.



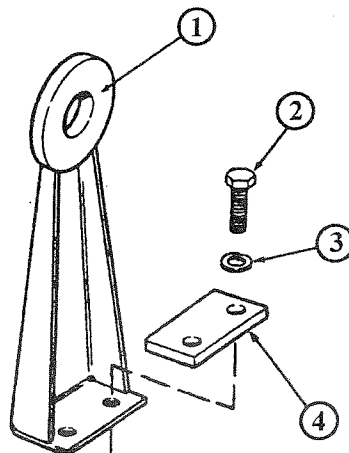
34. Remove eight capscrews (1) and washers (2) from armature coupling plate (3), using a 7/16 inch wrench. Retain hardware for reassemble.



35. Remove rotor fan (4) by removing four bolts (1), lockwashers (2), and washers (3) using a 16mm wrench. Replace bolts, lockwashers, and washers on engine. Retain rotor fan for reassemble.



36. Transfer engine to secure area and remove engine lifting eye (1) by removing two capscrews (2), lockwasher (3) and spacer plate (4) using a 16mm socket. Retain hardware for reassemble on new engine.





## II. RETROFIT KIT INSTALLATION INSTRUCTIONS

1. Open the engine container and remove the box containing the retrofit hardware. Install lifting eye (1) with two capscrews (2), lockwasher (3) and spacer (4) using a 16-mm socket. Remove the engine from the container.

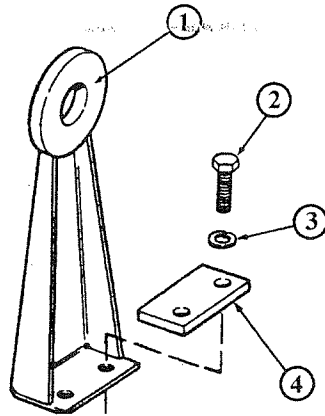


Figure 1

**NOTE:** Clean four (4) mating surfaces.

- a. Inside surface of rotor fan (1)
- b. Back surface of rotor fan (2)
- c. Outer edge of coupling plate (3)
- d. Outer edge of generator housing assembly (4)

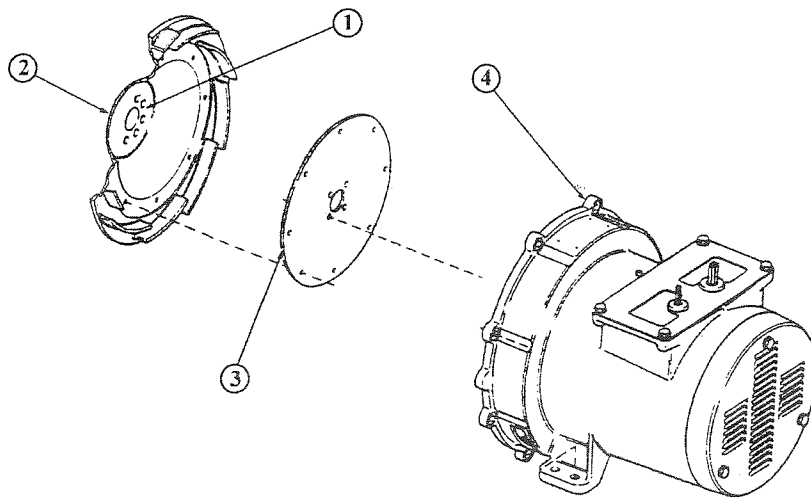


Figure 2

2. Install the fan (1) on crankshaft adapter (2). Use four new bolts 3/8-x 1/2 inch (3), lock washers (4), and flat washer (5) provided in kit. Use locktite on the bolt threads. Tighten using a 9/16-inch socket. The torque setting is 51 to 55 foot-pounds.

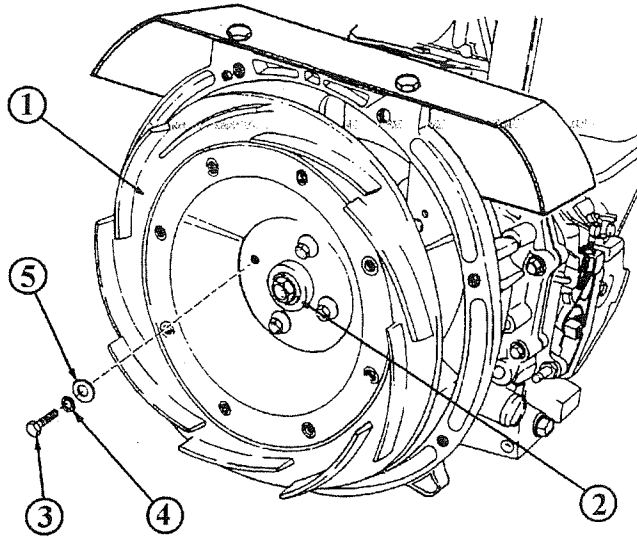


Figure 3

3. Install generator rotor assembly (1) with eight existing 1/4-x 3/4-inch bolts (2) using a 7/16-inch socket. Torque to 8 foot pounds.

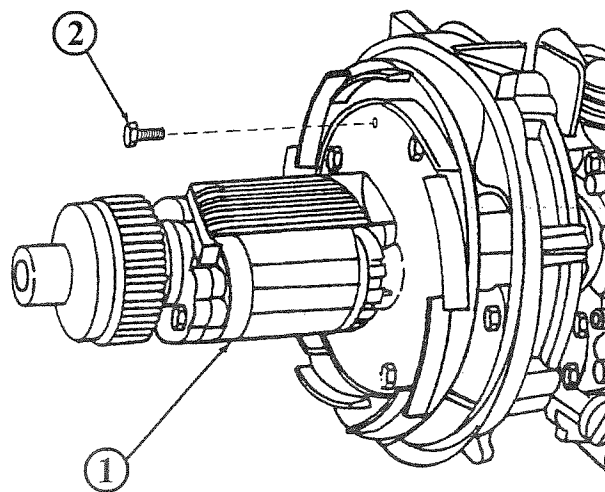


Figure 4

4. Install the generator housing assembly (4) over generator rotor assembly. Use eight existing bolts (1), lockwasher (2) and flat washer (3) and tighten with 13 mm wrench or socket. Use rubber mallet if necessary to seat housing. Note make sure the motor mount and the generator mount are aligned.

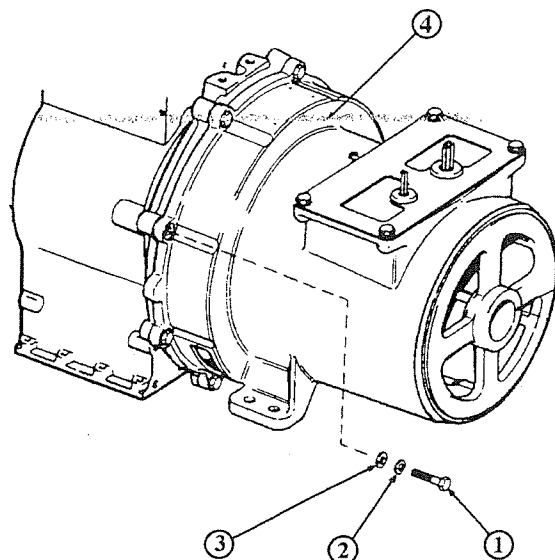


Figure 5

5. Install housing end cover (1) on generator housing (2) with three existing 7/16-inch bolts (3) and lockwasher (4). Make sure grill is facing down toward bottom of generator.

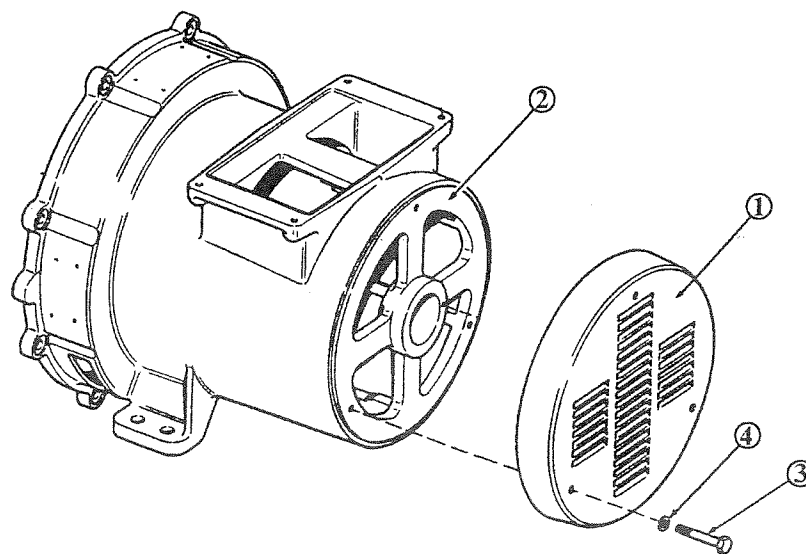


Figure 6

6. Install engine (1) and generator (2) onto base skid (3). Attach the engine (1) using two existing bolts (4), lockwasher (5), washer (6), rubber mount (7), washers 8, rubbers spacer (9) and nut (10) using a 9/16 inch box end wrench and socket. For the generator, use four existing bolts (11), washers (12), lockwashers (13), and nuts (14). Tighten using a 5/8 inch wrench or socket on the bolt and an 11/16 inch wrench or socket on the nut. *Get bolt pattern from S/L.*

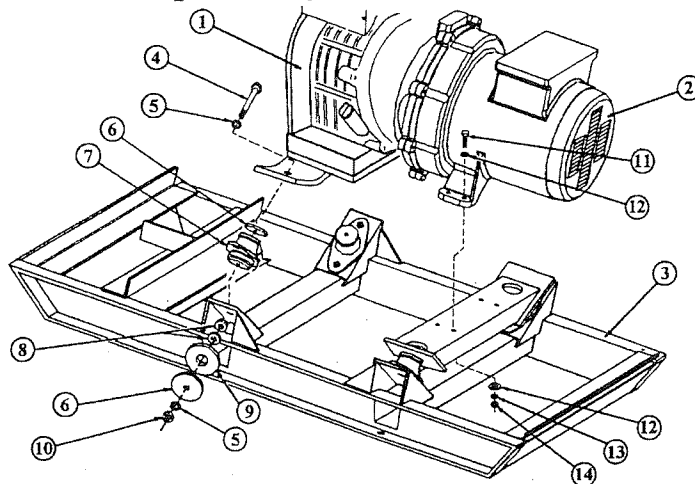


Figure 7

7. Install the new fuel pump assembly (1), P/N GS-2493 provided in kit, on the eng/gen skid assembly (2). Use the two holes that held the oil-cooler hoses bracket with two 1/4 x 1 1/4 inch bolts, two flat washers and two lock washers provided in kit, using a 7/16 inch wrench or socket.

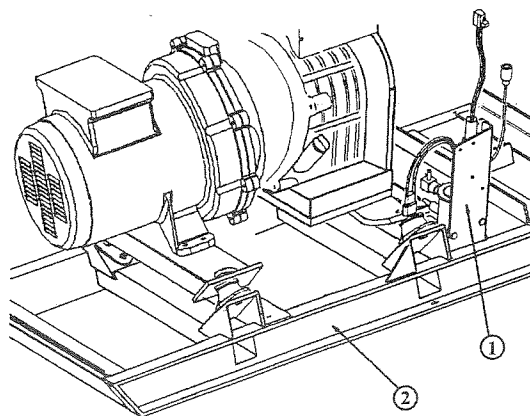


Figure 8

8. Remove the oil pan plug (1) on fuel pump side using a 17-mm wrench. **CAUTION: Some oil may drip.** Remove the gasket (2) from plug and install on the hex fitting (3), P/N M16-3/8 NPT/ CW-0071 supplied in kit. Install hex plug in engine using 1-inch wrench.

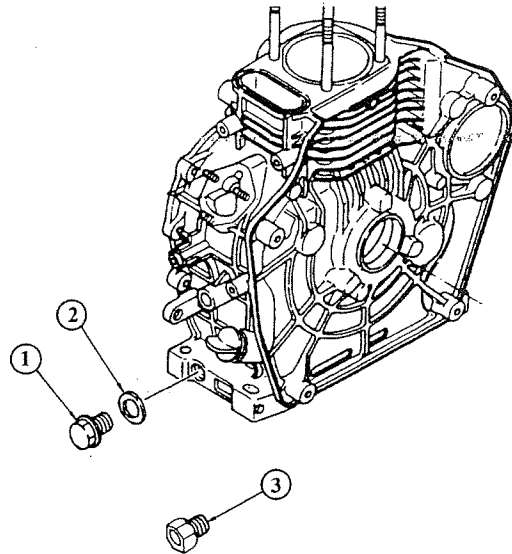


Figure 9

9. Install the oil drain hose (1) P/N GS-2499 supplied in the kit into hex fitting (2) on the engine, (use thread sealer or tape) and tighten with a 11/16 inch wrench.

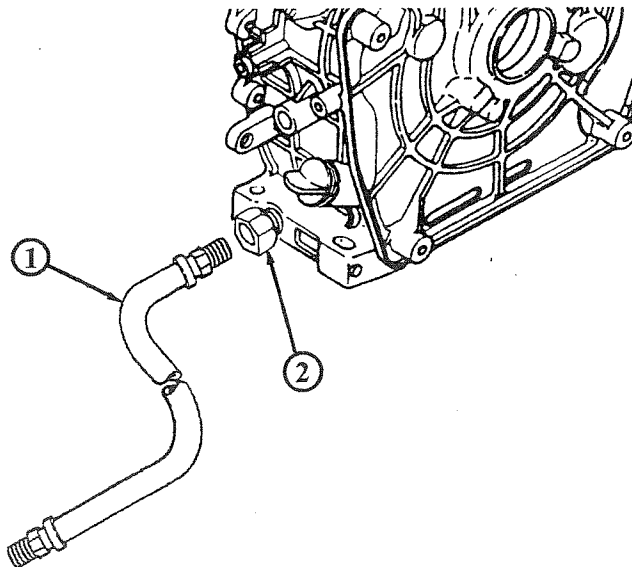


Figure 10

10. Connect other end of the oil drain hose (1) to the bulkhead of oil drain cock (2) on the other side of eng/gen skid assembly using an 11/16-inch wrench.

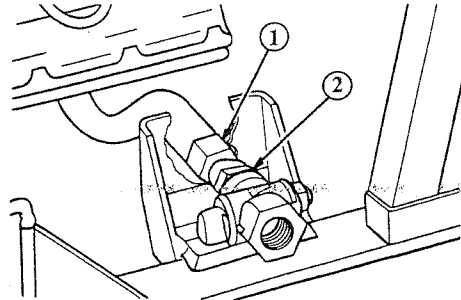


Figure 11

11. Remove the protective plug (1) from the exhaust muffler (2).

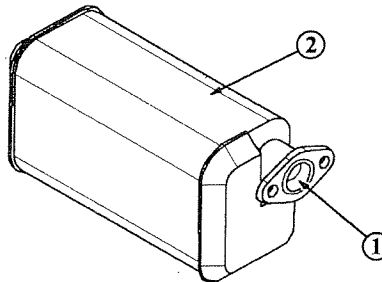


Figure 12

12. Using the new exhaust gasket (1) P/N 183671-13210 provided in the kit, then install the new exhaust pipe (2) (P/N GS-2501) provided in the kit, (down and out) with two (2) socket head bolts 8mx25mm and two (2) lock washers (8mm). Use a 6-mm allen wrench to tighten.

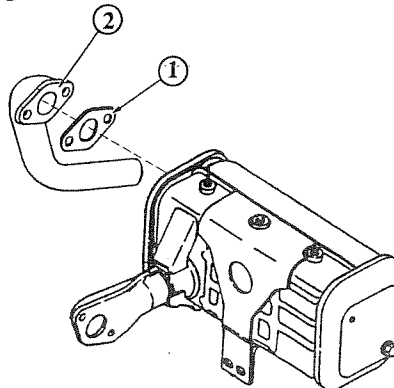


Figure 13

13. Install the new outlet fuel line (2) (P/N GS-2497) provided in the kit, onto the fuel filter (1) on cage assembly. **NOTE:** Outlet is the center fitting on fuel filter. Tighten using a 9/16-inch wrench.
14. Install the new inlet fuel line (3) (P/N GS-2495) provided in the kit, onto the fuel filter (1) on cage assembly. **NOTE:** Inlet is the remaining flare fitting on the fuel filter. Tighten using a 9/16-inch wrench.
15. Install the new fuel filter drain hose (4) (P/N GS-2509) provided in the kit, onto the fuel filter drain spout using a hose clamp and tighten with a flat head screwdriver. **NOTE:** this line is used to prevent fuel from spilling on fuel pump assembly during purging of system.

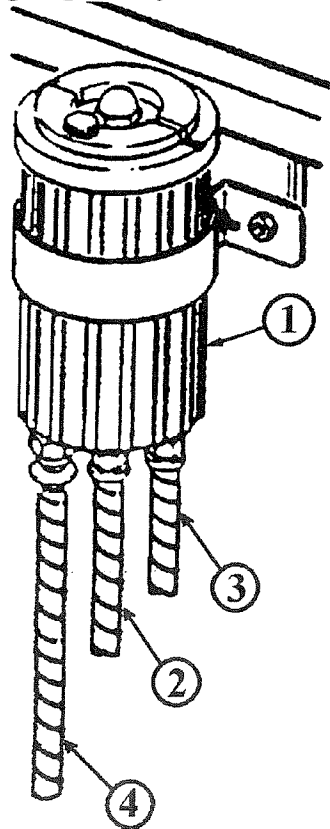
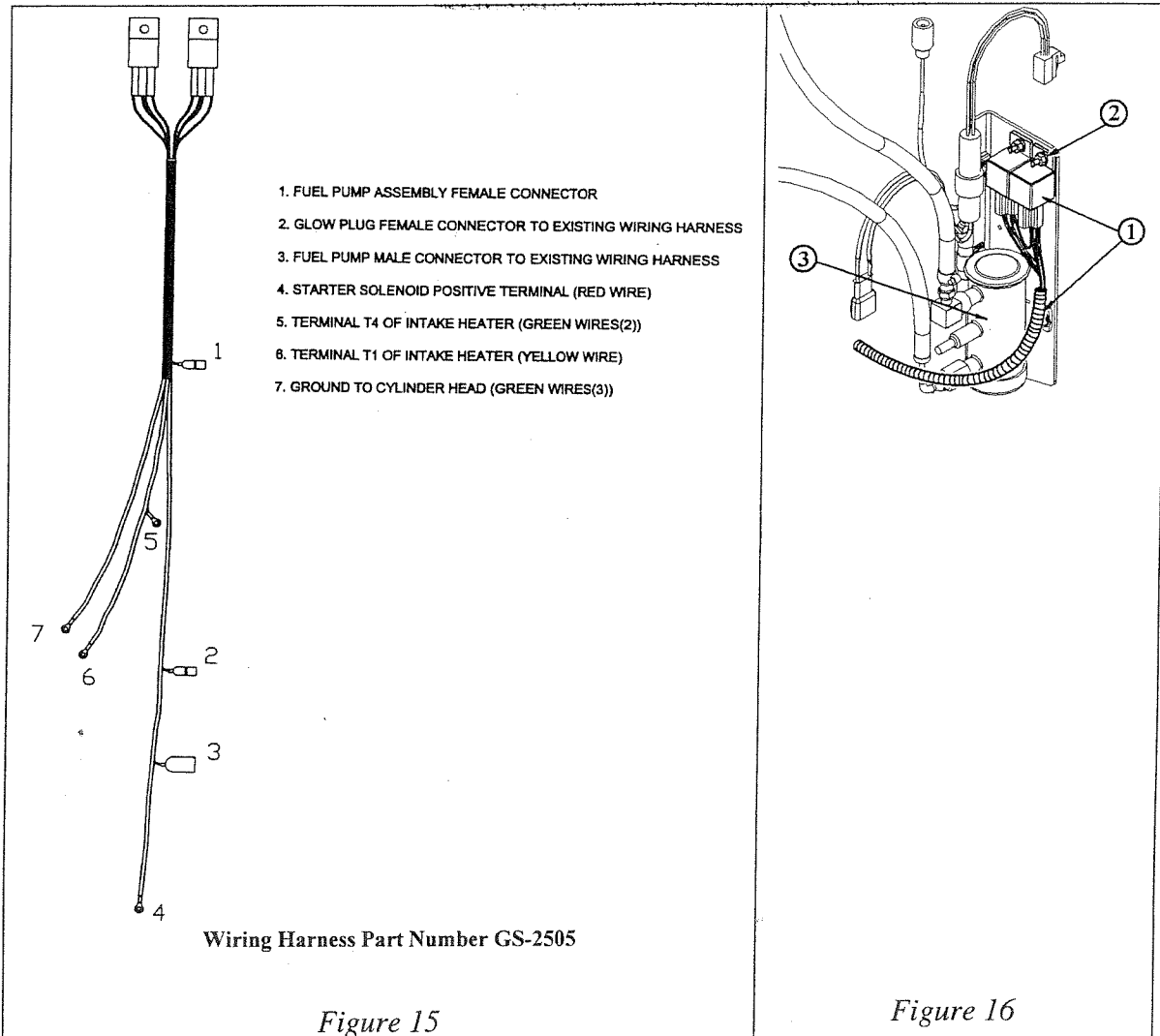


Figure 14

16. Install the main wiring harness (1), P/N GS-2505, provided in the kit into the inside surface of fuel pump assembly, P/N GS-2493, (previously installed). Use two hex head screws, nuts, lock washer, and washer, provided in the kit. Tighten with 3/8 and 5/16 inch wrenches.





17. Route the wiring harness between the air intake manifold and the pull start assembly to starter solenoid.

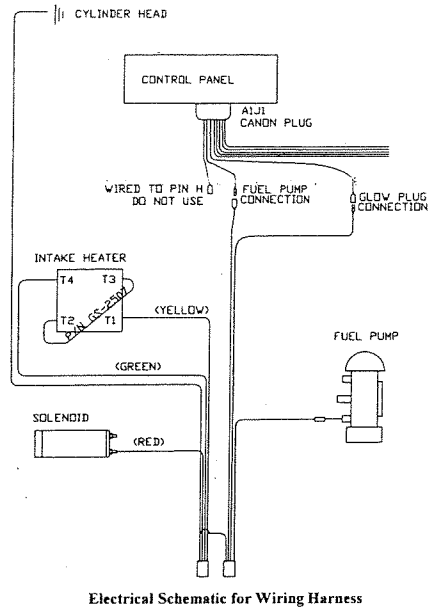


Figure 17

18. Install **red** wire (1) (**HOT**) from the wiring harness to the positive post on the starter solenoid (2). Place washer and nut on terminal stud. Do not tighten.

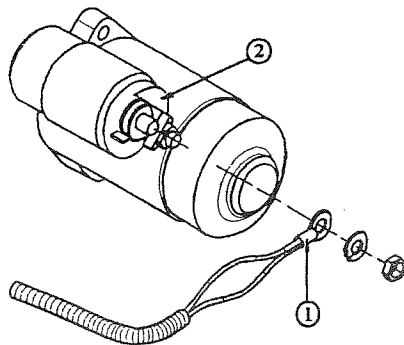


Figure 18

19. Looking from the fuel tank end, locate the intake heater head (1) with terminal marked T1 through T4. (Hardware installed).

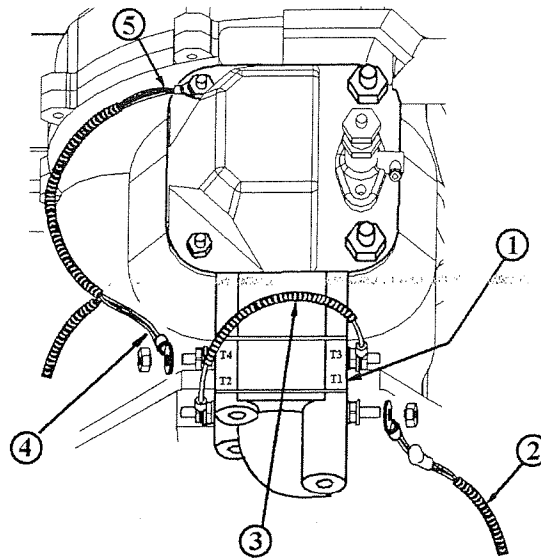


Figure 19

20. Install the **yellow** hot wire (2) (with boot) from the wiring harness to terminal T1 of the intake heater. Tighten using a 10mm wrench.
21. Install jumper cable (3) (wire), P/N GS-2507, provided in the kit over the **top** of the intake heater to terminals T2 and T3. Tighten using a 10mm wrench.
22. Install the **green** ground wire (4) from the wiring harness (with two wires) to terminal T4.
23. Install the **green** ground wire (5) from the wiring harness (with three wires) to the top of the cylinder head using one (1) bolt, 8mm x 20mm and one flat washer and lock washer. Use a 13mm wrench or socket to tighten.

**NOTE: SHOCK HAZARD**

24. Install the cage (1) on the eng/gen skid assembly (2) using six existing bolts (3), lockwasher (5), washer (4), and nuts (6).

Tighten with a 1/2-inch wrench. If the fuel tank was removed, make sure chain for the drain cap is installed. Also thread wires, T1 through T6 and F1 and F2, to the control box. Make sure all hoses and wires are free of obstruction and not bound in reassemble.

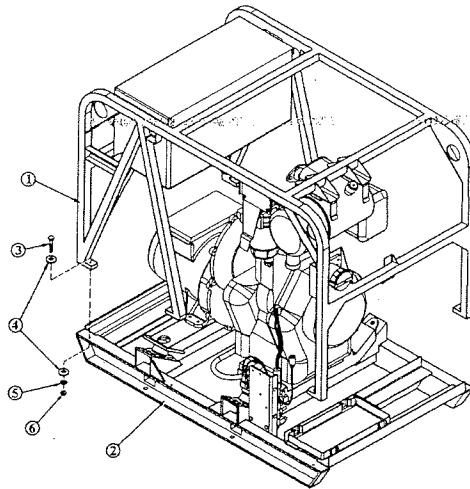


Figure 20

25. Connect F1 and F2 wires to TB2 terminal board inside control cabinet. Connect T1 through T6 wires to TB1 terminal board inside control cabinet.

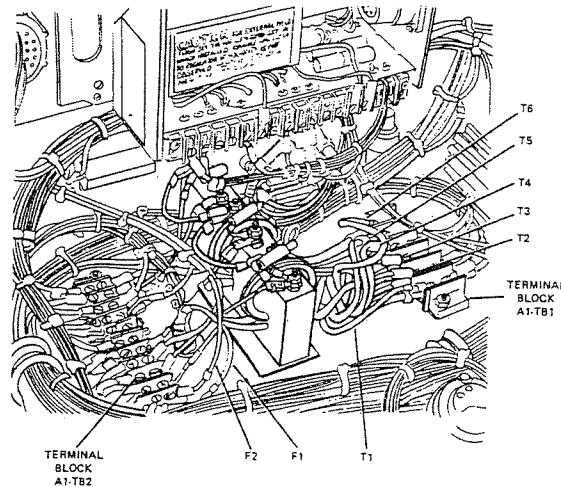


Figure 21

26. Connect the fuel line to the auxiliary fuel pump using 9/16-inch open-end wrench.

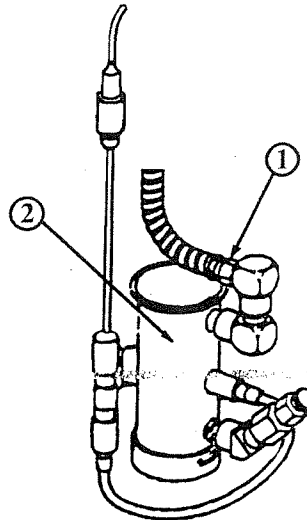


Figure 22

27. Connect two male wire connectors (1) from the engine stator assembly underneath the starter (2) to the two female wire connectors (3) from existing wiring harness located near the auxiliary fuel pump.

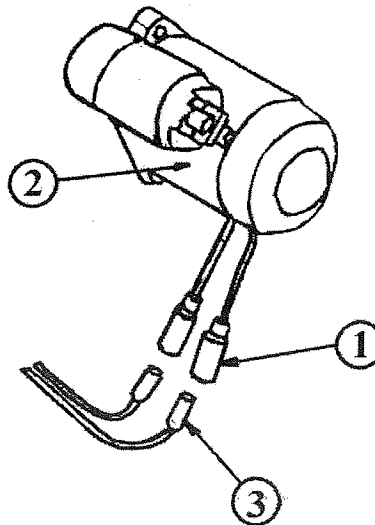


Figure 23

28. Connect the fuel suction line (1) from the fuel tank (2) to the bottom port (inlet) of new the electric fuel pump (2) using a 9/16-inch open-end wrench.

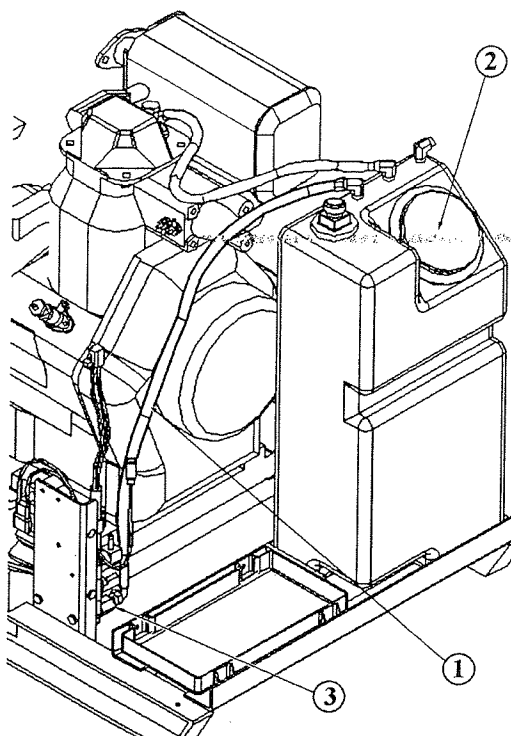


Figure 24

29. Connect the new outlet fuel line (1) from the fuel filter (2) to the injector (3) with a hose clamp using a flat tip screwdriver. (The outlet fuel line from fuel filter is the middle line).

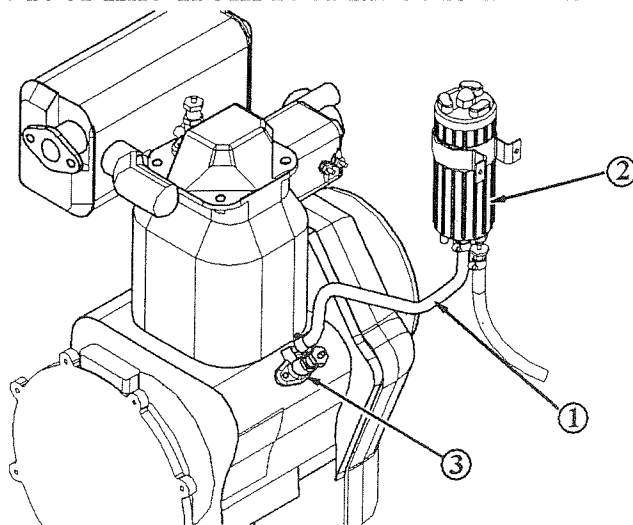


Figure 25

30. Connect the new inlet fuel line from fuel filter to top port (outlet) of electric fuel pump using a 9/16-inch open-end wrench. (The inlet fuel line from fuel filter is the outside line).

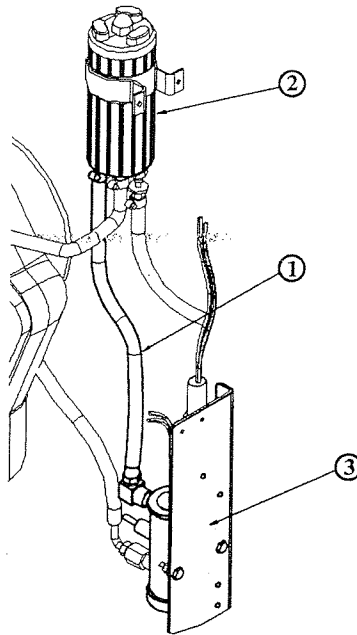


Figure 26

31. Connect the fuel return line (1) from the fuel tank (2) with a hose clamp onto the fuel injection (3) on cylinder head using a flat head screwdriver. Secure the hose in place by attaching the hose to the cylinder head using one bolt, 8mm x 20mm, flat washer, lock washer and 5/8 inch loom clamp provided in kit. Use a 13mm wrench or socket to tighten.

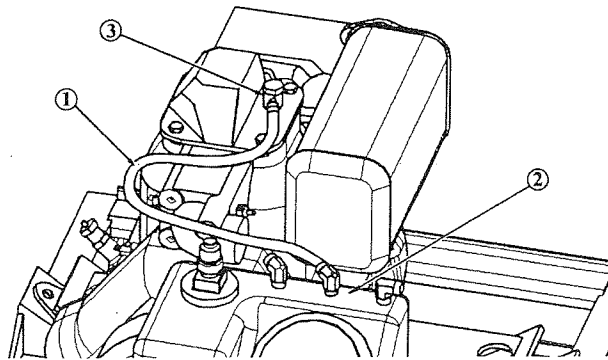


Figure 27

32. Connect the positive battery cable (1) and the small positive wire (2) to the large terminal lug on the starter solenoid terminal (3). Tighten using a 13-mm wrench or socket.

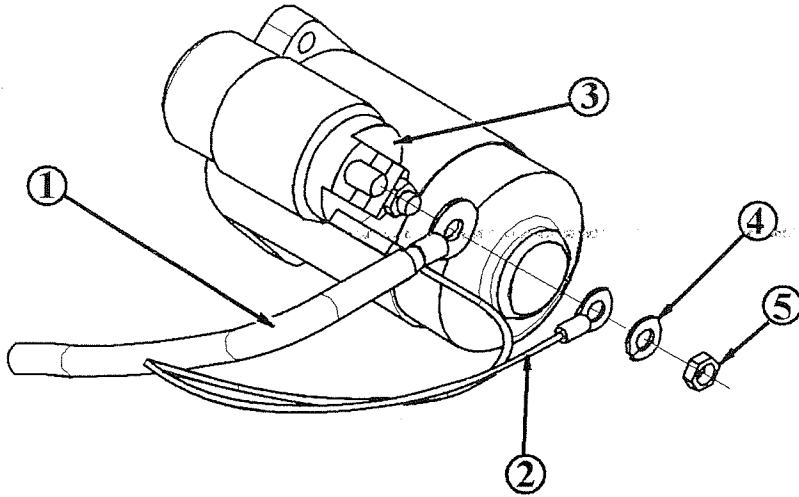


Figure 28

33. Cut the terminal lug (1) off of the ignition wire (2) (identified by number K14012 on wire) from starter solenoid (3) and install new female terminal lug and plastic cover (4), P/N DC925745 provided in the kit onto the ignition wire.

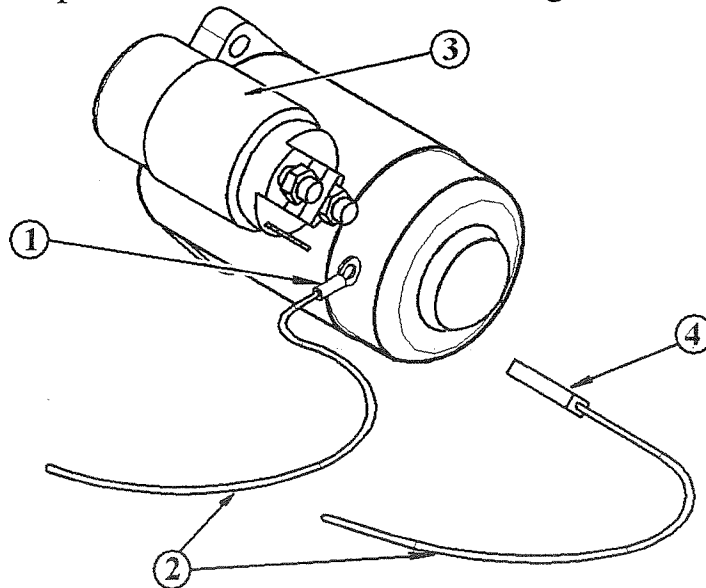
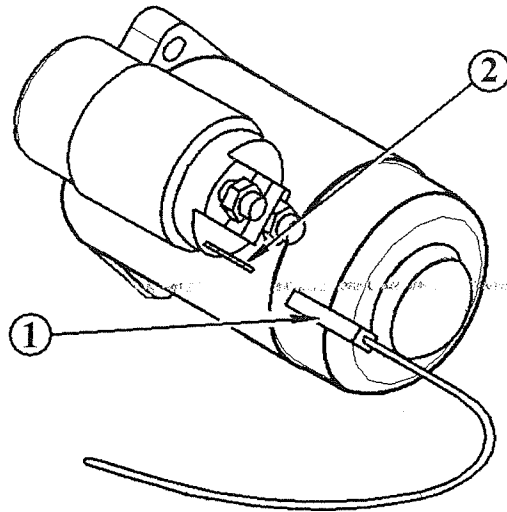


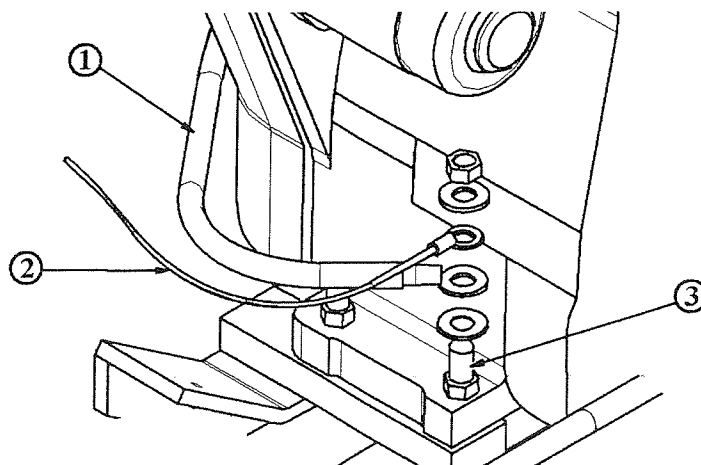
Figure 29

34. Connect the new female terminal lug installed in step 33 (1), P/N DC925745 to the tab on starter solenoid (2).



*Figure 30*

35. Install the battery ground cable (1) and the small ground wire (2) between two washers onto the left rear motor mount bolt (3). Using a 11/16 inch wrench to tighten. (Hardware on engine)



*Figure 31*



36. Install the male connector on auxiliary fuel pump to the female connector on the wiring harness.

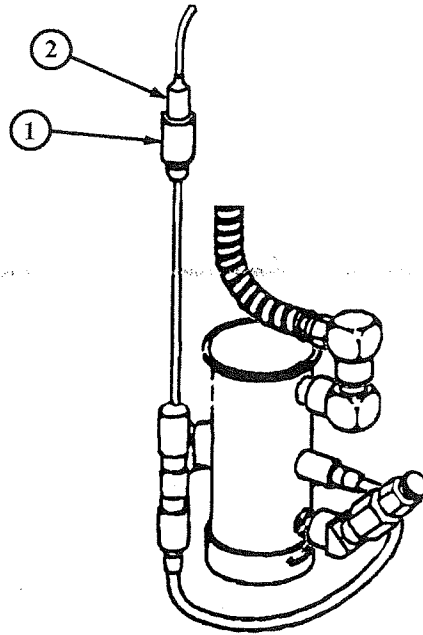


Figure 32

37. Connect the ground wire (1) from the control panel box (2) and the ground wire (3) from the load terminal box (4) to the grounding terminal (5) on the eng/gen skid base assembly using a 7/16 wrench.

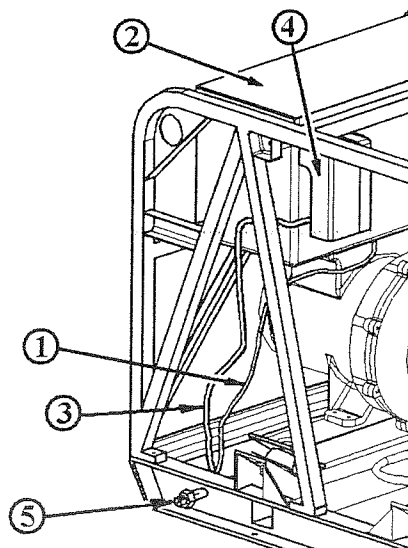


Figure 33

38. Connect the female connector on the wire marked "FUEL PUMP" (1) from the existing wiring harness to male connector on the fuel pump wire in new wiring harness.

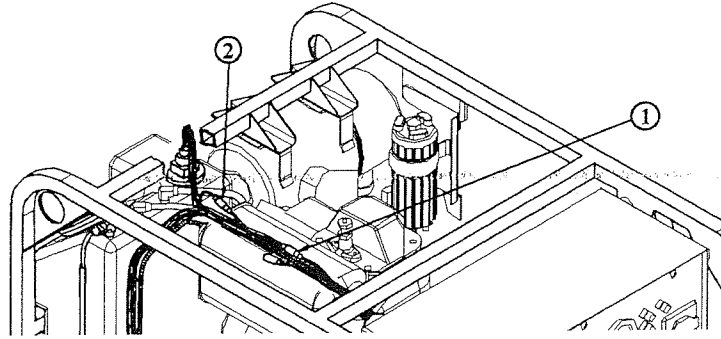


Figure 34

39. Connect the male connector on the wire marked "GLOW PLUG" (2) from existing wiring harness to female connector on the remaining white wire in the new wiring harness. (This wire runs to the relays mounted on the new fuel pump bracket.)
40. Install the female plug (1) from new wiring harness to the male plug (2) on the fuel pump assembly (3).

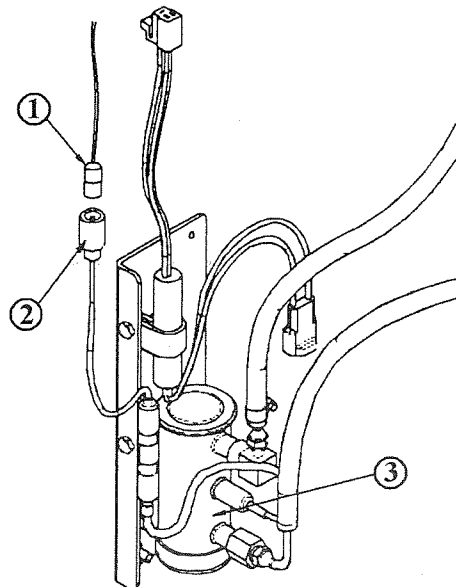


Figure 35

42. Install the WHITE female connector (1) from the command timer to the males plug (2) on the run-stop solenoid (3). Install the GRAY female connector (4) to the male connector on the existing wiring harness (5).

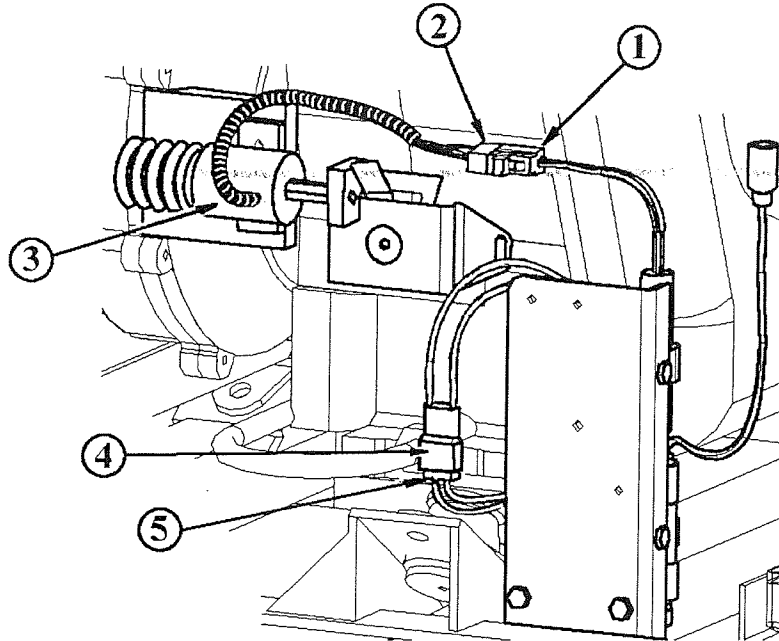


Figure 36

43. Install the cannon plug (1) from the existing wiring harness onto the top of fuel tank (2).

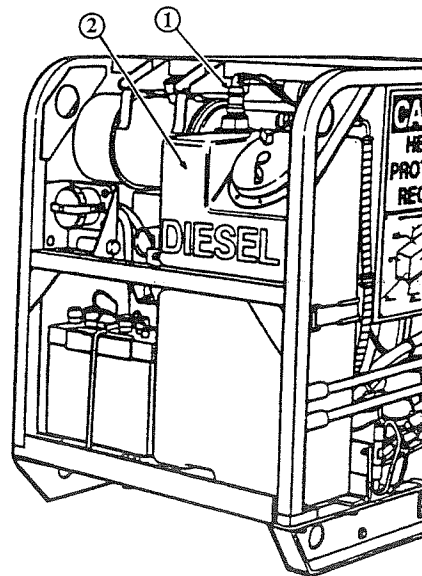
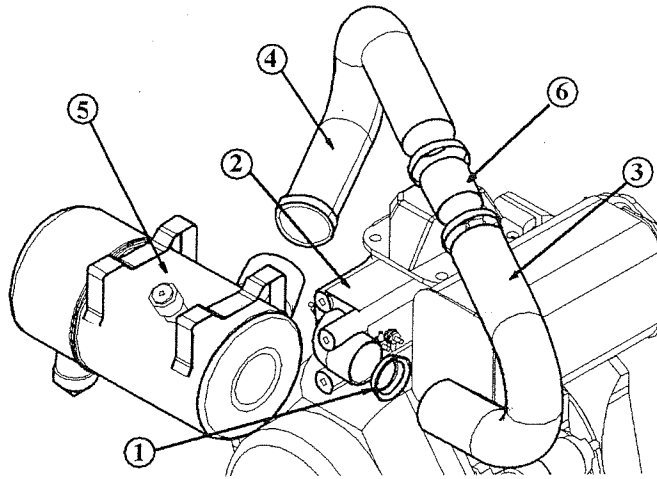


Figure 37

43. Utilize six (6) tee straps to tie wires as needed.
44. Remove the protective plastic plug (1) from the intake manifold (2). Install intake hose (3), P/N GS-2481 provided in the kit, to the engine intake manifold (2). Install intake hose (4), P/N GS-2483, with the large end to the air cleaner (5). Use three (3) hose clamps, number 32 (provide in the kit), on intake connection and aluminum connector (6). Use hose clamp number 40 (provided in kit), on air cleaner. Couple the hoses together with the aluminum connector, P/N GS-2803 provided in the kit. Tighten hose clamps with screwdriver or socket.



*Figure 38*

45. Add oil to engine.

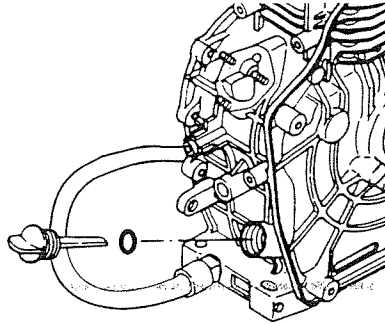


Figure 39

46. Replace battery and connect cables. Insure battery cover terminals are used.

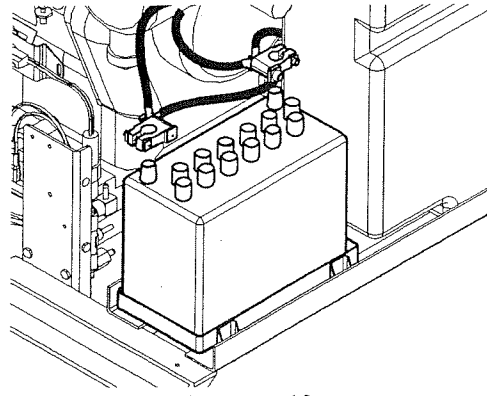


Figure 40

47. Replace ground rods.

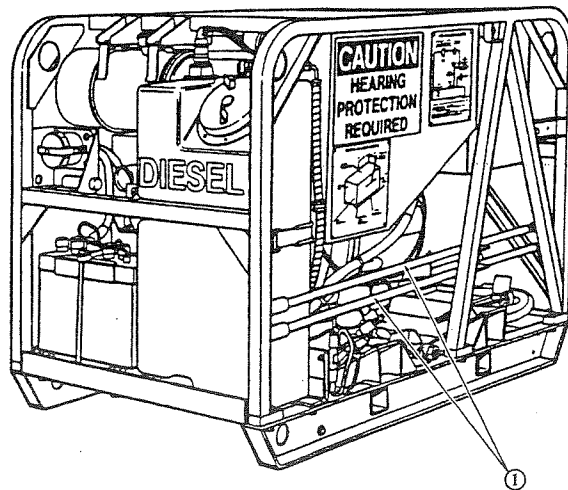


Figure 41

## PURGING SYSTEM:

48. Turn the master switch on, open the bleeder vent on the fuel filter until fuel comes out. Close the bleeder and turn off the master switch. **CAUTION: FUEL SPILL.** Loosen the hose clamp on the fuel line at the injector pump, remove the fuel line, turn the master switch on and bleed the fuel line. **CAUTION: FUEL SPILL.** Connect the fuel line back and tighten the hose clamp.

**NOTE:** If problems exist with the purging procedures described above, use the procedures in the Technical Manual.

49. Start the engine and run for approximately five (5) minutes. Shut the engine off and check the oil level. Add oil if required.

## ADJUSTMENT OF HERTZ ( Hz)

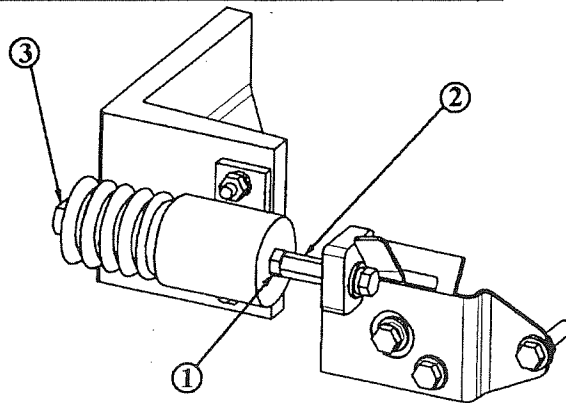


Figure 42

**NOTE:** This procedure is required because the hand throttle adjustment is no longer used.

**TOOLS REQUIRED:** One 3/8, 7/16 and 1/2 wrench.

50. Start the engine.

51. Loosen the jam nut (1) on the run-stop solenoid. By placing a 7/16-inch wrench on the jam nut (1) and 3/8-inch wrench on the long hex head stud (2).
52. Hold the long hex head stud with a 3/8-inch wrench and place a 1/2-inch wrench on the square end (3) of the run/stop solenoid shaft on rear of boot. Turn the 1/2 wrench to adjust  
HERTZ ( Hz) to 61-62 hertz's:
  - a. Counterclockwise to increase Hz
  - b. Clockwise to decrease Hz.

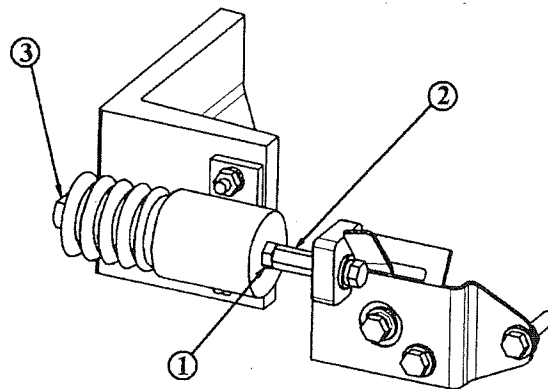


Figure 43

53. Place a 7/16-inch wrench on the jam nut and a 3/8-inch wrench on the long hex head stud and tighten jam nut.
54. Turn the engine off, then on quickly.
55. Let the engine run three to five minutes till warm.

## LOAD BANK PROCEDURES

56. Perform load bank procedure I/A/W procedures in Technical Manual and record results as required.
57. Install the side cover plate. Attach the hose and wire clamps.