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TM 5-6115-267-15

DEPARTMENT OF THE ARMY TECHNICAL

H6-02

OPERATOR, ORGANIZATIONAL
FIELD AND DEPOT MAINTENANCE MANUAL
GENERATOR SET, GASOLINE ENGINE:
1.5KW, DC, 28V; SKID MOUNTED
1.5 KW, DC, 28V; SKID MOUNTED
(WINPOWER MODEL G-1528T-2A016)
FSN 6115-849-2323 (LESS ENGINE)

HEADQUARTERS, DEPARTMENT OF THE ARMY

NOVEMBER 1962

SAFETY PRECAUTIONS

Before Operation

When handling gasoline, always provide a metal-to-metal contact between the container and the fuel tank. This will prevent a spark from being generated as gasoline flows over the metallic surfaces.

During Operation

Do not fill the fuel tank while the engine is in operation. Gasoline spilled on a hot surface may explode and cause serious injury to personnel.

Do not operate the generator set in an enclosed area unless the exhaust gases are piped outside. Exhaust gases contain carbon monoxide, a poisonous, odorless, and colorless gas.

Shut down the engine before removing or installing electrical components. The voltage of this generator set can cause serious burns to personnel.

After Operation

When handling gasoline, always provide a metal-to-metal contact between the container and the fuel tank. This will prevent a spark from being generated as gasoline flows over the metallic surfaces.

TECHNICAL MANUAL }
 No. 5-6115-267-15 }

HEADQUARTERS,
 DEPARTMENT OF THE ARMY
 WASHINGTON 25, D.C., 14 November 1962

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 GENERATOR SET, GASOLINE ENGINE: 1.5 KW, DC, 28V; SKID MOUNTED
 (WINPOWER MODEL G-1528T-2A016) FSN 6115-849-2323 (LESS ENGINE)

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CHAPTER I

INTRODUCTION

Section I. GENERAL

1. Scope

a. This manual is published for the use of the personnel to whom the Winpower Model G-1528T-2A016 Generator Set is issued. Chapters 1 through 5 provide information on the operation, daily preventive maintenance services, and organizational maintenance of the equipment, accessories, components, and attachments. Chapter 6 provides information for field and depot maintenance (3d, 4th, and 5th echelons). This manual also provides descriptions of the main units and their functions in relationship to other components.

b. Appendix I contains a list of publications applicable to this manual. Appendix II contains the Maintenance Allocation Chart. Appendix III contains the list of Basic Issue Items authorized the operator of this equipment and a list of Maintenance and Operating Supplies required for initial operation. The Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists are listed in TM 5-6115-267-25P.

c. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate the preferred maintenance sequence.

d. Report all deficiencies in this manual on DA Form 2028. Submit recommendations for changes, additions, or deletions to the Commanding Office, U.S. Army Mobility Support Center, ATTN: SMOMC-MC, P. O. Box 119, Columbus 16, Ohio. Direct Communication is authorized.

e. Report unsatisfactory performance and suggestions for equipment improvement as specified in AR 700-38.

2. Record and Report Forms

a. DA Form 2258 (Depreservation Guide of Engineer Equipment).

b. For other record and report forms applicable to the operator, crew, and organizational maintenance, refer to TM 38-750.

Note. Applicable forms, excluding Standard Form 46, which is carried by the operator, will be kept in a canvas bag mounted on the equipment.

Section II. DESCRIPTION AND DATA

3. Description

a. *General.* The Winpower Generator Set (figs. 1 and 2), Model G-1528T-2A016, is a self-contained, frame mounted, portable unit. It is powered by a 2-cylinder military standard engine that is directly coupled to a 1.5 kilowatt director current generator (fig. 2).

b. *Engine.* Refer to TM 5-2805-206-14 for a description of the engine.

c. *Generator.* The Winpower Model G-1528T Generator (fig. 2) is a direct current revolving armature generator, coupled directly to the engine. It delivers 28-volt current, and is rated at 1.5 kilowatts at 8,000 feet altitude.

d. *Control Panel.* The control panel (fig. 2) contains the instruments, electrical components, and electrical controls necessary for the operation of the generator set.

4. Identification and Tabulated Data

a. *Identification.* The generator set has four identification plates.

- (1) *Corps of Engineers plate A.* The Corps of Engineers plate A, located on the fuel tank at the rear of the generator set, specifies the manufacturer, model, serial number, stock number, engine manufacturer and model, dimensions, and weight.

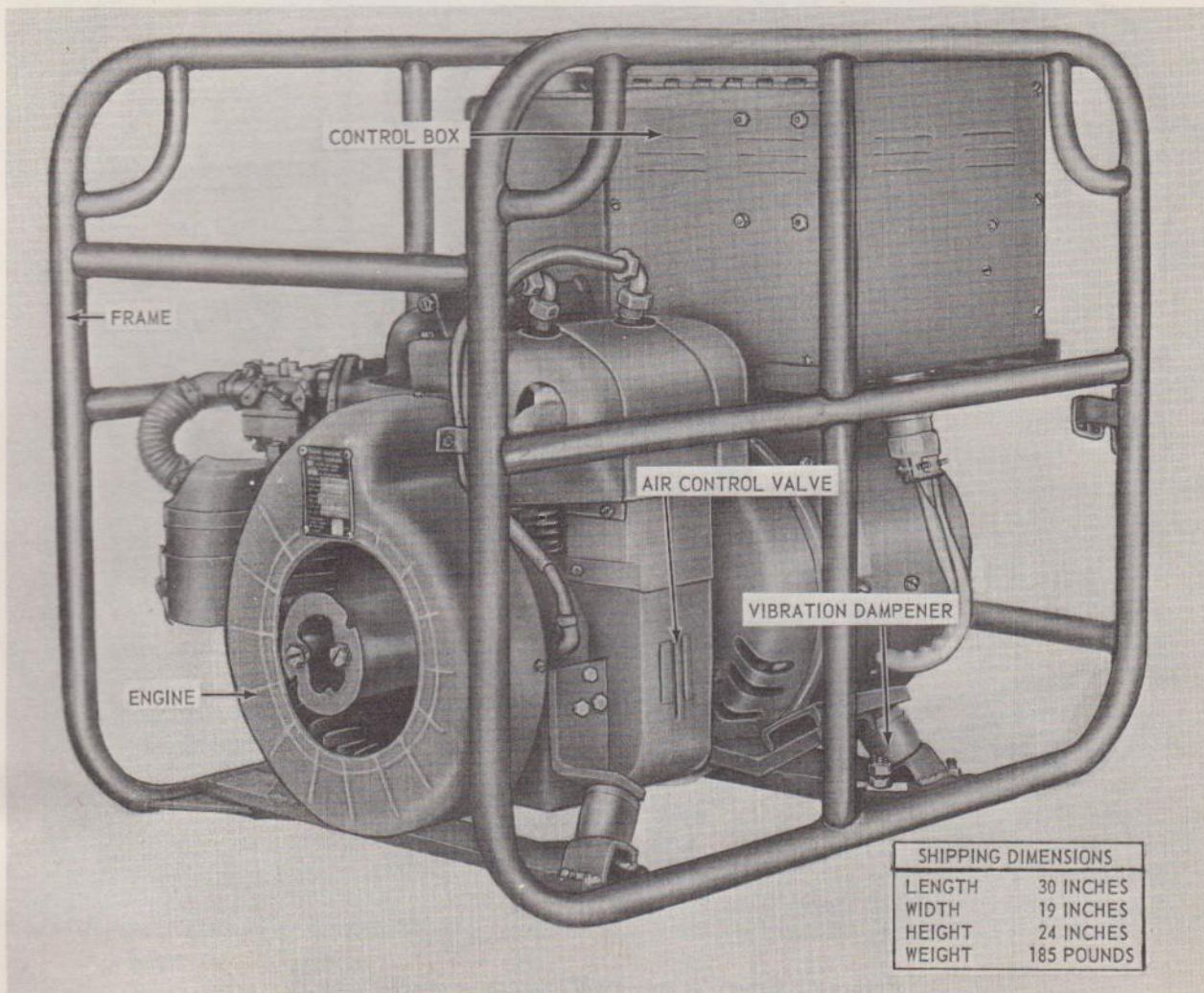


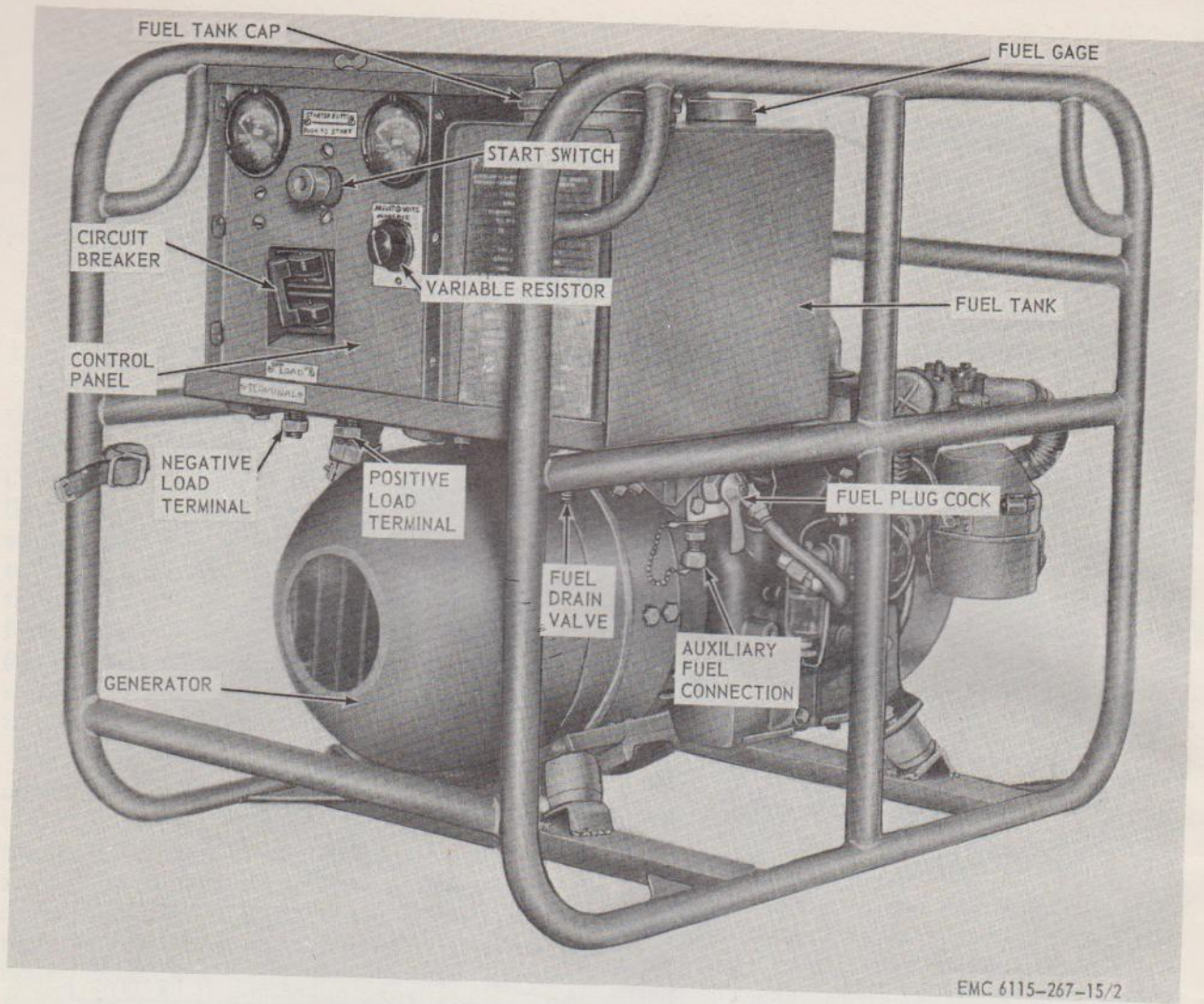
Figure 1. Generator set, left front, three-quarter view, with shipping dimensions.

- (2) *Corps of Engineers plate C.* The Corps of Engineers plate C, located at the end of the fuel tank below the Corps of Engineers plate A, lists the manufacturer, model, serial number, and electrical data.
- (3) *Generator manufacturer's plate.* The manufacturer's generator plate is located on the left side of the generator below the control box.
- (4) *Engine data plate.* The engine data plate is located on the flywheel fan cover at the front of the engine. Refer to TM 5-2805-206-14.

b. *Tabulated Data.*

(1) *Corps of Engineers plate A.*
 GENERATOR SET—GED. 1.5 K.W.—D.C.—
 AIR COOLED—PORTABLE—TUBULAR
 FRAME—SHOCK MOUNTED

STOCK NO. ----- 6115-849-2323
 SER. NO. -----
 REG. NO. -----
 MFR. ----- WINPOWER
 MODEL ----- G1528-T2A016
 CONT. NO. -----
 DATE MFD. -----
 LENGTH ----- 30
 WIDTH ----- 19
 HEIGHT ----- 24
 CAP. OR PAYLOAD -----
 G.V.W. -----



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Figure 2. Generator set—right rear, three-quarter view.

SHIP. WT. ----- 185 LBS
 CUBE ----- 7.9 FT.
 ENG. MFR. ----- CONTINENTAL MOTORS
 CORP.
 MODEL ----- 2A016-2
 ENG SER. NO.
 INSP. STAMP
 DATE INSP.

(2) Corps of Engineers plate C.

NOM. ----- 28 VOLT D.C. 4 POLE 2 WIRE
 MAKE ----- WINPOWER MFG. CO.
 MOD. ----- G-1528-T
 SER.
 NO. OF WIRES ----- 2
 VOLTS ----- 28
 AMPS. ----- 53.57
 K.W. ----- 1.5
 KVA
 P.F. %
 CYCLES

R.P.M. ----- 3600
 MFD.
 PH.
 TM-5

(3) Generator manufacturer's plate.

MANUFACTURER -- WINPOWER MFG. CO.
 TYPE ----- D.C. GENERATOR
 MODEL NO. ----- G-1528-T
 SERIAL NO.
 K.W. ----- 1.5
 AMPS ----- 53.57
 VOLT ----- 28
 R.P.M. ----- 3600

(4) Engine. For tabulated data on the military standard engine, refer to TM 5-2805-206-14.

(5) Capacities.

Fuel tank ----- 2 gal (gallons)

(6) *Dimensions and weight.* See figure 1.

Length 30 in. (inches)
Width 19 in.
Height 24 in.
Weight 185 lb (pounds)

(7) *Base plan.* See figure 3.

(8) *Wiring diagram.* See figure 4.

(9) *Generator brush adjustment data.*

Brush spring tension... 14-21 oz (ounces)

5. Difference in Models

This manual covers only the Winpower Generator Set Model G-1528T-2A016. No known unit differences exist for the model covered herein.

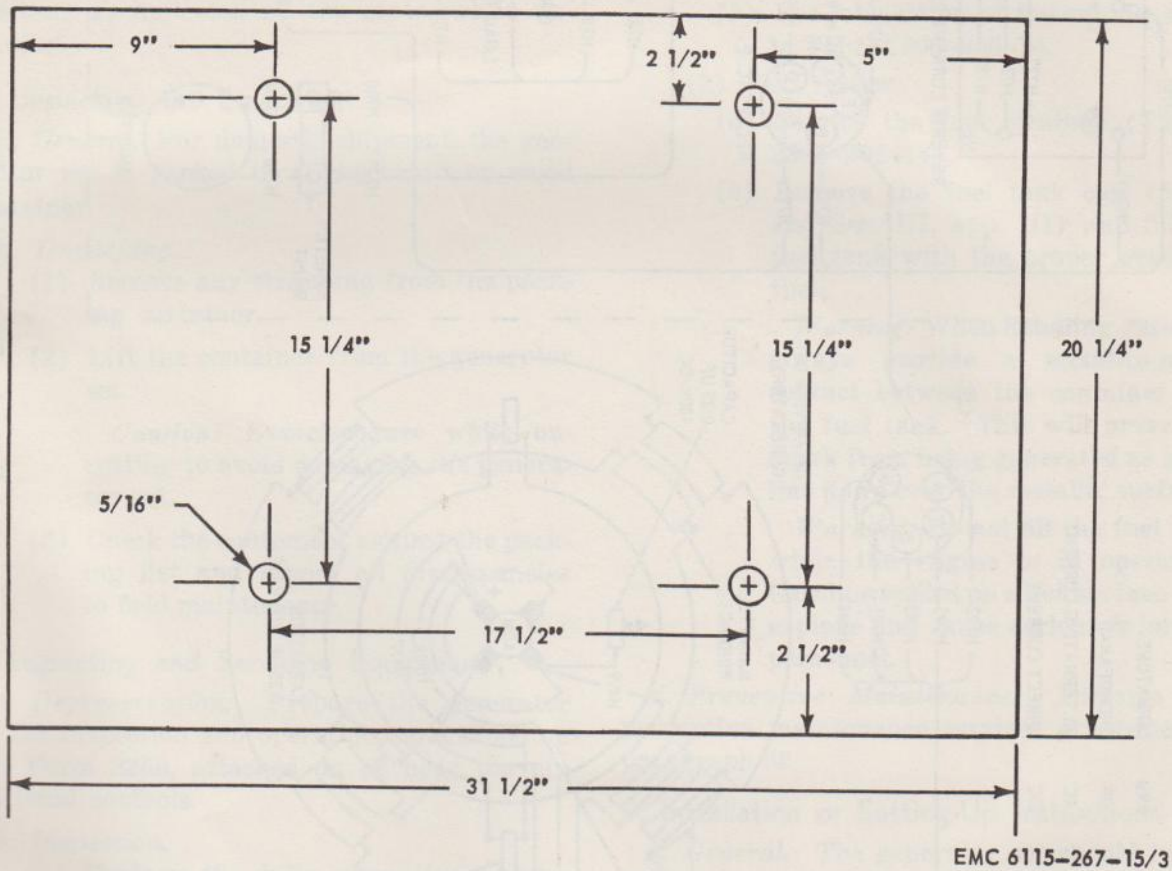
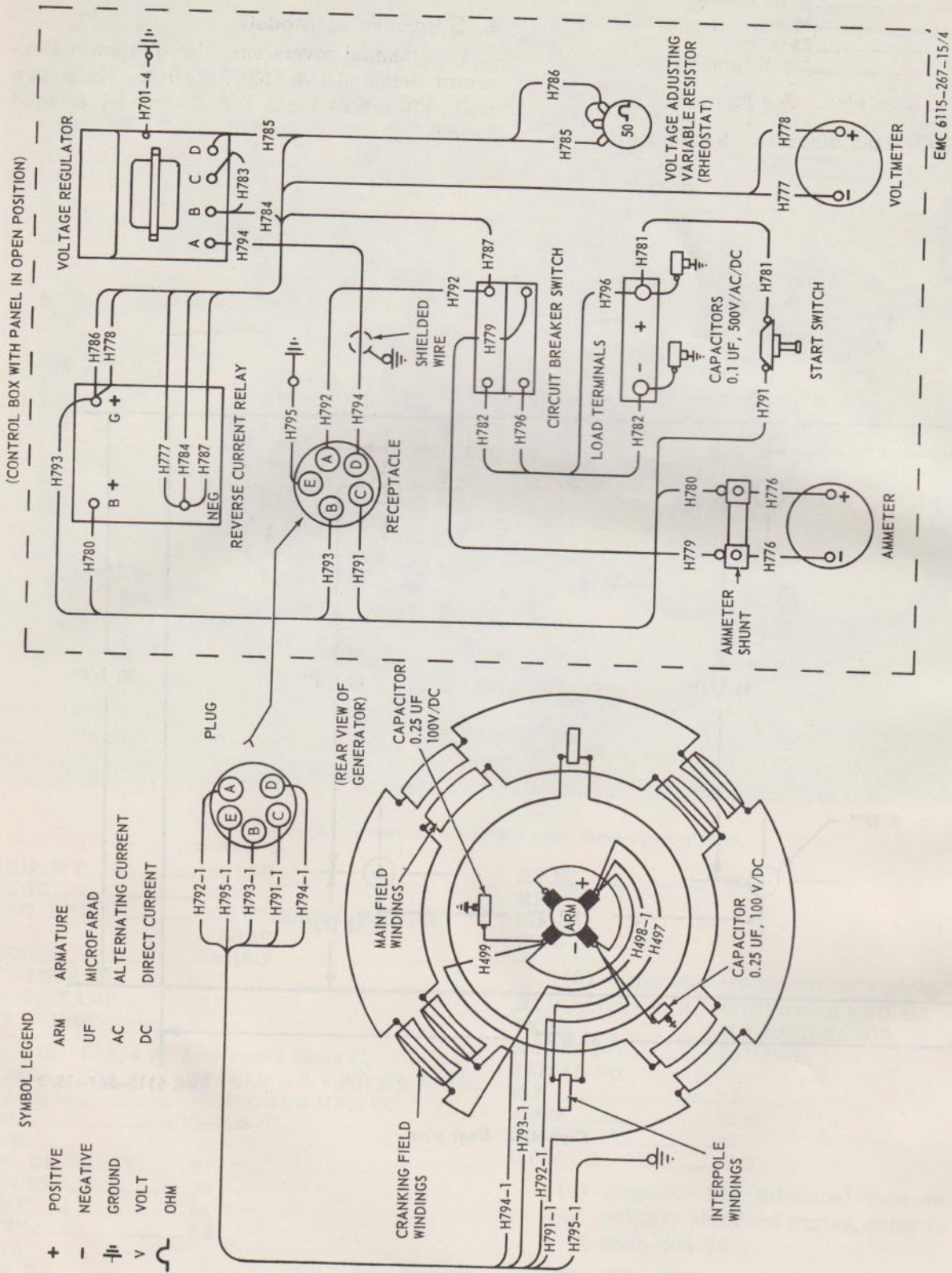


Figure 3. Base plan.

SYMBOL LEGEND

- + POSITIVE
- NEGATIVE
- ⊥ GROUND
- V VOLT
- Ω OHM
- ARM ARMATURE
- UF MICROFARAD
- AC ALTERNATING CURRENT
- DC DIRECT CURRENT



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Figure 4. Practical wiring diagram.

CHAPTER 2

INSTALLATION AND OPERATION INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

6. Unloading the Equipment

The total weight of the crated generator set is approximately 207 pounds. The generator set can be unloaded by manpower, handtruck, or forklift. The crate must be kept in the UP position, as indicated on the crate, while unloading.

7. Unpacking the Equipment

a. General. For domestic shipment, the generator set is packed in a fiberboard or wood container.

b. Unpacking.

- (1) Remove any strapping from the packing container.
- (2) Lift the container from the generator set.

Caution: Exercise care while uncrating to avoid damaging the generator set.

- (3) Check the equipment against the packing list and report all discrepancies to field maintenance.

8. Inspecting and Servicing Equipment

a. Depreservation. Prepare the generator set for inspection and operation as outlined on DA Form 2258, attached on or near the operational controls.

b. Inspection.

- (1) Perform the daily preventive maintenance services (par. 30).
- (2) Inspect the generator set for damage, missing parts, and accessories. Report any discrepancy found to organizational maintenance.
- (3) For inspection of engine, refer to TM 5-2805-206-14.

c. Servicing.

(1) *Lubrication.*

- (a) The generator set is equipped with a sealed bearing and does not require lubrication.
- (b) For lubrication of the engine, refer to TM 5-2805-206-14.

(2) *Fuel system.*

- (a) Service the fuel strainer (TM 5-2805-206-14).
- (b) Remove the fuel tank cap (fig. 2 and Sec. III, app. III) and fill the fuel tank with the proper grade of fuel.

Warning: When handling gasoline, always provide a metal-to-metal contact between the container and the fuel tank. This will prevent a spark from being generated as gasoline flows over the metallic surfaces.

Warning: Do not fill the fuel tank while the engine is in operation. Gasoline spilled on a hot surface may explode and cause serious injury to personnel.

d. Preventive Maintenance. Perform the preventive maintenance services prescribed in paragraph 32.

9. Installation or Setting-Up Instructions

a. General. The generator set should be installed on a level site, clear of obstacles, and with ample ventilation.

b. Installation. The generator set is shipped fully assembled for operation. When preparing for a permanent installation, be sure the base is solid and strong enough to support the weight of the unit. Refer to figure 3 for dimensions of the base.

c. Indoor Installation. Keep the room well ventilated at all times so that the generator set will receive a maximum supply of air. Install a gastight exhaust line, as large as the exhaust outlet, to pipe the exhaust gases outdoors. Provide metal shields for the exhaust line if it passes through flammable walls. Wrap the line with asbestos paper if there is any danger of anyone touching it. If the exhaust line must pitch upward, place a condensation trap at the lowest point in the line. Drain the trap periodically to prevent condensation from flowing back into the exhaust system.

Warning: Do not operate the generator set in an enclosed area unless the exhaust gases are piped outside. Exhaust gases contain carbon monoxide, a poisonous, odorless, and colorless gas.

d. Leveling. Keep the unit as level as possible at all times.

e. Connecting the Load.

- (1) Loosen the nuts on the load terminals (fig. 2).
- (2) Insert the positive load line into the slot of the positive terminal and the negative load line into the slot of the negative terminal. Tighten the terminal nuts securely.

f. External Fuel Source. If an auxiliary fuel source is to be used, connect the auxiliary fuel hose to the auxiliary fuel connection (fig. 2).

g. External Power Source. When an external power source is used to start the engine, connect the external power lines to the load terminals as described in *e* above.

Note. The external power source must supply 28-volt direct current power. Keep the circuit breaker in the OFF position until ready to start the engine.

Section II. MOVEMENT TO A NEW WORKSITE

10. Dismantling for Movement

a. Preparation for Movement.

- (1) Disconnect all load cables, exhaust lines, and external fuel lines.
- (2) Open the fuel drain valve (fig. 2) in the bottom of the fuel tank and drain the fuel into a suitable container.

b. Movement. A handtruck, forklift, or manpower may be used to move the generator set to a new worksite. Keep it in an upright position while moving.

11. Reinstallation After Movement

Reinstall the generator set after movement as described in paragraph 9 for setting-up instructions.

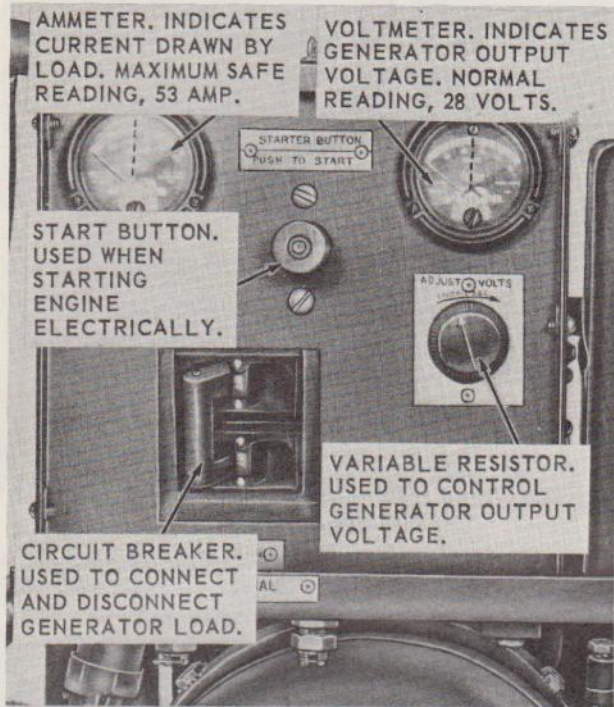
Section III. CONTROLS AND INSTRUMENTS

12. General

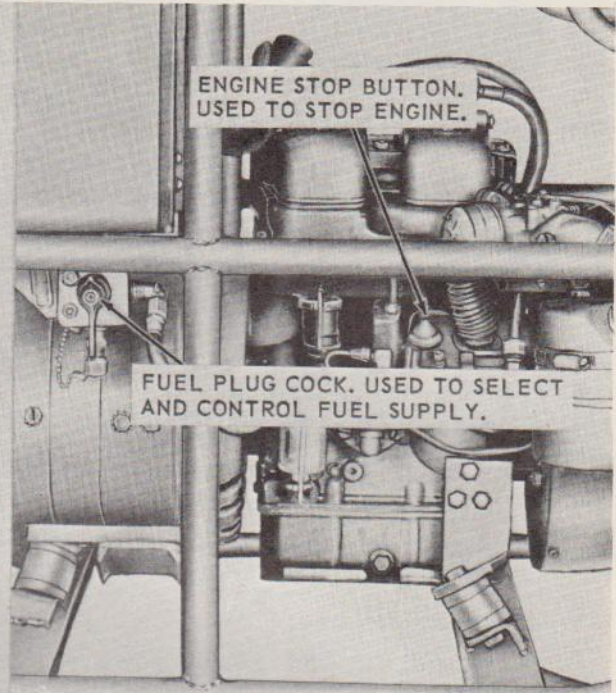
This section describes, locates, illustrates, and furnishes the operator, crew, or organizational maintenance personnel sufficient information about the various controls and instruments for proper operation of the generator set.

13. Controls and Instruments

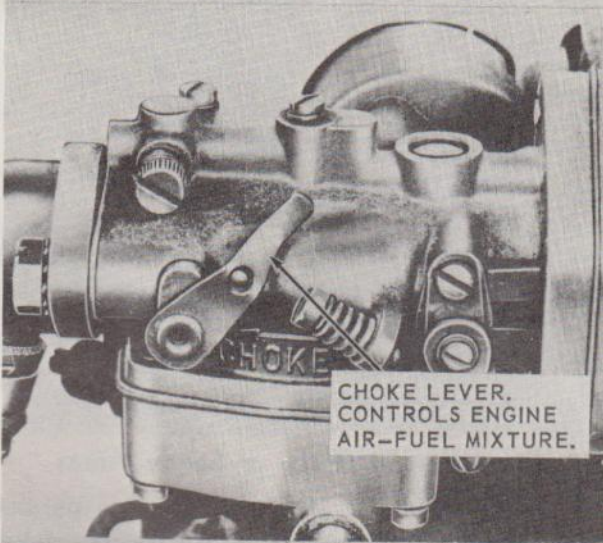
The purpose and normal readings of all controls and instruments are shown in figure 5.



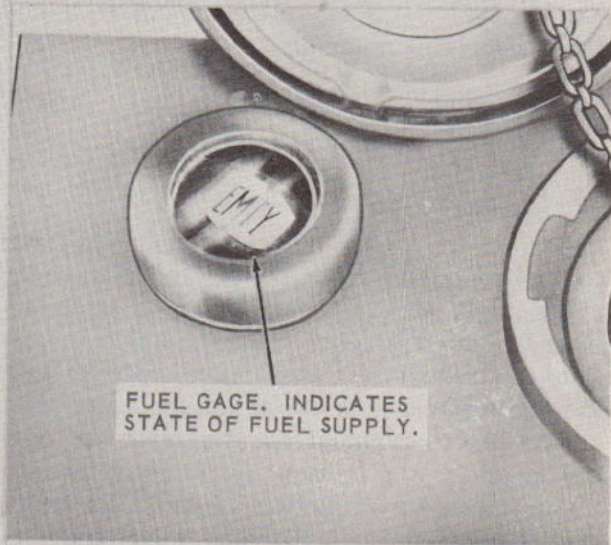
A. CONTROL PANEL.



B. FUEL PLUG COCK AND ENGINE STOP BUTTON.



C. CHOKE LEVER.



D. FUEL GAGE.

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Figure 5. Controls and instruments.

Section IV. OPERATION OF EQUIPMENT

14. General

a. The instructions in this section are published for the information and guidance of the personnel responsible for the operation of the generator set.

b. The operator must know how to perform every operation of which the generator set is capable. This section gives instructions on starting and stopping the generator set and regulating it to perform the specific tasks for which the equipment is designed.

15. Starting

a. Preparation for Starting.

- (1) Perform the daily preventive maintenance services (par. 30).
- (2) Install the external fuel source as applicable (par. 9).

b. Electrical Starting.

- (1) Install a 24-volt external power source (par. 9).
- (2) Refer to figure 6 and start the engine electrically.

c. *Manual Starting.* Refer to figure 7 and start the engine manually.

16. Stopping

Refer to figure 8 and stop the engine.

17. Generator Set Operation

a. *General.* When the load is connected and the engine is operating, the generator operates at its rated voltage. The generator set is designed to operate continuously at 3,600 revolutions per minute (full load) in accordance with the engine governor setting. The operator must always be observant of the generator set, paying particular attention to unusual sounds which indicate malfunction. In such an event, stop the engine (par. 16) and report the condition to organizational maintenance.

b. *Operation.* Refer to figure 9 for generator operating instructions.

18. Operation in Extreme Cold (Below 0° F.)

a. *General.* The generator set will function satisfactorily at temperatures down to -65° F.

Care should be taken that the engine is in good operating condition, to assure quick starting in very cold weather. The engine is equipped with an air control valve (fig. 1) mounted in the lower air duct assembly on the left side of the engine. The valve permits more efficient cold weather operation of the engine. It should be opened only when the outside temperature is -20° F. or lower.

b. *Fuel System.* Keep the fuel tank as full as possible to prevent condensation. Drain and service the fuel strainer more often than under normal conditions (TM 5-2805-206-14).

c. Electrical System.

- (1) Before starting the engine, remove any accumulated ice or snow from the spark plugs and wiring.

Caution: Do not bend or kink wiring during cold weather. Electrical wiring become brittle with extreme cold.

- (2) Allow at least a 5-minute warmup period after starting the engine before applying the load to the generator.

19. Operation in Extreme Heat

a. Cooling.

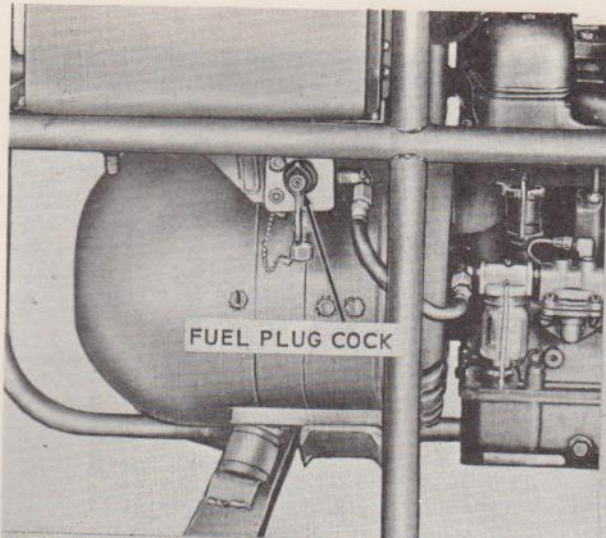
- (1) Keep the generator set clean and free of dust. The ventilation openings in the generator must be kept clean.
- (2) If the generator set is used indoors, refer to paragraph 9.
- (3) Observe the ammeter frequently to be sure the generator is not overloaded.

b. *Lubrication.* Lubricate the engine as prescribed in TM 5-2805-206-14 and the current lubrication order.

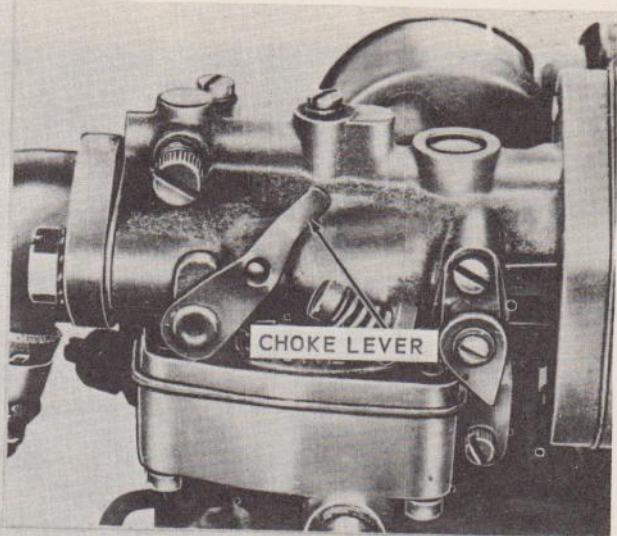
20. Operation in Dusty or Sandy Areas

a. *Protection.* If the installation is permanent, erect a protective shield for the generator set. If the installation is temporary, take advantage of natural barriers which offer protection from blowing dust and sand.

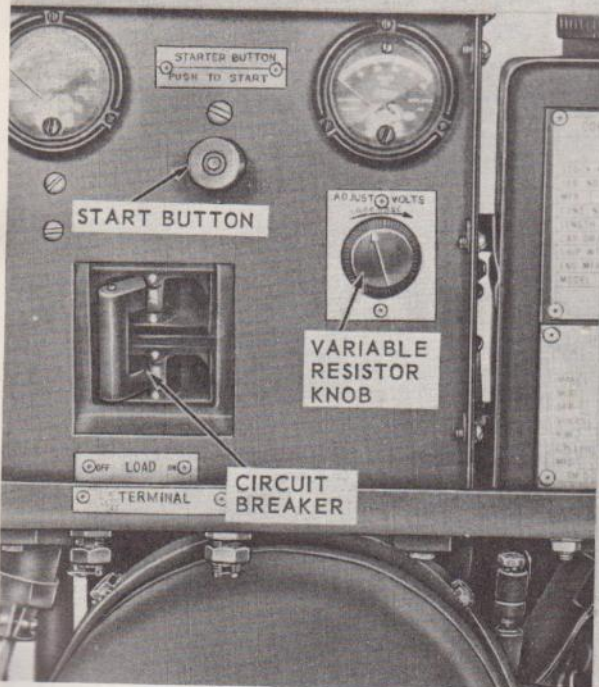
b. *Air Cleaner.* Service the air cleaner daily to prevent sand and dirt from entering the engine. Refer to TM 5-2805-206-14 for service of the air cleaner.



STEP 1. TURN FUEL PLUG COCK TO TANK OR AUXILIARY POSITION.



STEP 2. PUT CHOKE LEVER IN CLOSED POSITION.



STEP 3. TURN VARIABLE RESISTOR KNOB FULLY COUNTERCLOCKWISE.

STEP 4. PLACE CIRCUIT BREAKER IN ON POSITION.

STEP 5. PUSH START BUTTON IN AND HOLD UNTIL ENGINE STARTS.

STEP 6. OPEN CHOKE GRADUALLY AS ENGINE WARMS UP.

STEP 7. POSITION CIRCUIT BREAKER IN OFF POSITION AND DISCONNECT POWER SOURCE.

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Figure 6. Engine electrical starting instructions.

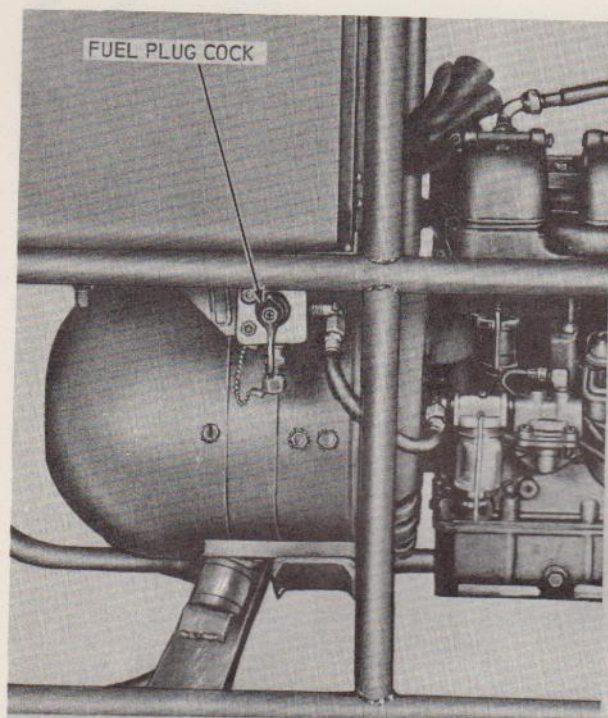
c. Lubrication. Lubricate the engine as prescribed in TM 5-2805-206-14, and the current lubrication order.

21. Operation Under Rainy or Humid Conditions

a. General. If the unit is outside and is not operating, place a canvas or waterproof cover

over the unit during storms. During dry periods, remove the cover and allow the unit to dry. During humid periods, dry the unit before operating.

b. Fuel. Keep the fuel tank as full as possible to prevent condensation. Drain and service the fuel strainer more often than under normal conditions (TM 5-2805-206-14).

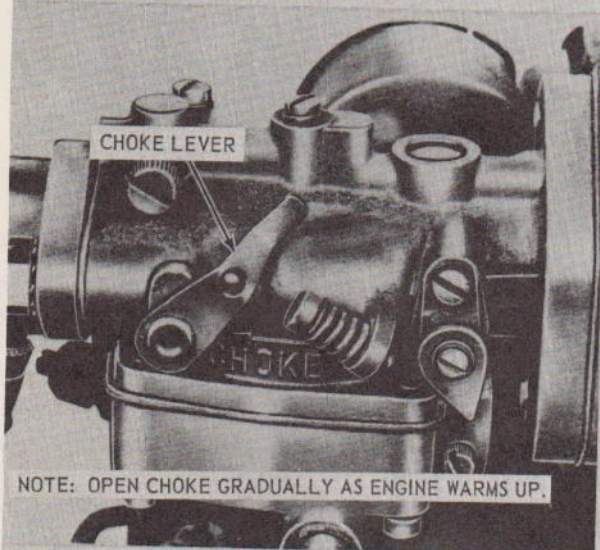


STEP 1. TURN FUEL PLUG COCK TO TANK OR AUXILIARY POSITION.



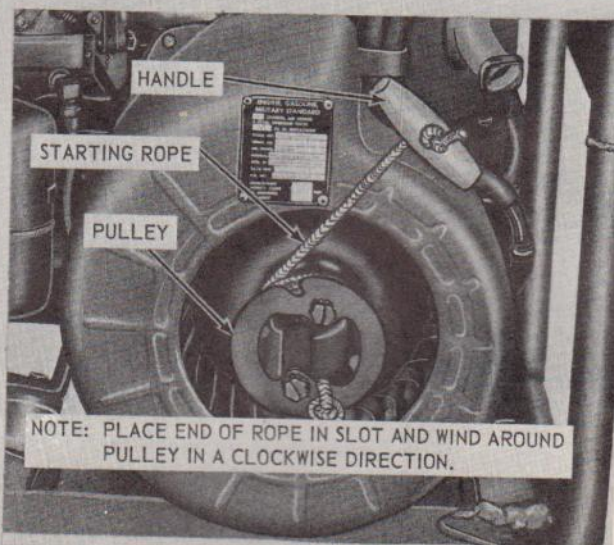
STEP 2. TURN VARIABLE RESISTOR KNOB FULLY COUNTERCLOCKWISE.

STEP 3. PUT CIRCUIT BREAKER HANDLE IN OFF POSITION.



NOTE: OPEN CHOKE GRADUALLY AS ENGINE WARMS UP.

STEP 4. PLACE CHOKE LEVER IN CLOSED POSITION.

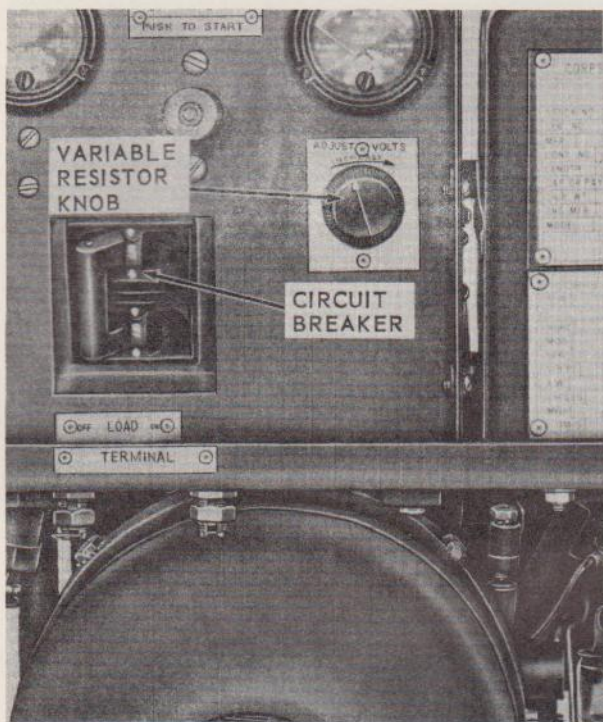


NOTE: PLACE END OF ROPE IN SLOT AND WIND AROUND PULLEY IN A CLOCKWISE DIRECTION.

STEP 5. PULL ON HANDLE WITH A QUICK MOTION. REPEAT AS NECESSARY UNTIL ENGINE STARTS.

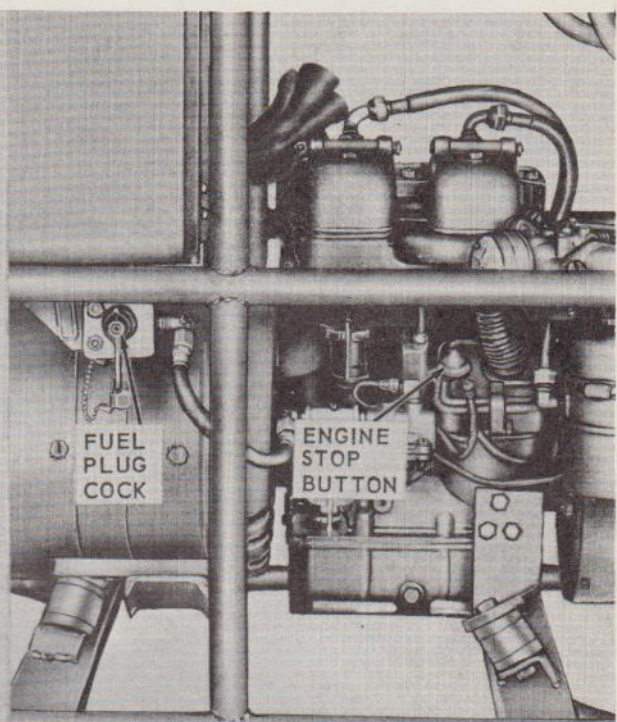
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Figure 7. Engine manual starting instructions.



STEP 1. POSITION CIRCUIT BREAKER IN OFF POSITION.

STEP 2. TURN VARIABLE RESISTOR KNOB FULLY COUNTERCLOCKWISE.



STEP 3. DEPRESS STOP BUTTON AND HOLD DOWN UNTIL ENGINE STOPS.

STEP 4. TURN FUEL PLUG COCK TO OFF POSITION.

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Figure 8. Engine stopping instructions.

c. *Electrical System.* Humid conditions can cause corrosion and deterioration of electrical components. Keep electrical components and wiring clean and dry.

22. Operation in Salt Water Areas

a. *General.* Wipe down the generator set with clean, fresh water at frequent intervals. Take care not to contaminate the fuel supply or damage the electrical system.

b. *Lubrication.* Use care to keep salt water from entering the lubrication system. Lubricate the engine as prescribed in TM 5-2805-206-14 and the current lubrication order.

c. *Preservation.* Paint all exposed nonpolished surfaces. Coat exposed parts of polished surfaces or other ferrous material with standard issue rustproofing material if available, or cover parts with a light coat of grease. Do not paint or grease the muffler.

23. Operation at High Altitudes

a. *General.* The generator set is rated at 1.5 kw (kilowatts) up to 5,000 feet altitude and 1.1 kw at 8,000 feet altitude. This paragraph provides information for calculating derated capacity for operation of the set above 8,000 feet altitude.

b. *Engine.* Operation at high altitudes may require adjustment of the carburetor for proper operation of the unit. Refer to TM 5-2805-206-14 for detailed information on engine tuning.

c. *Derating Formula.* To calculate specific output capability of the generator set above 8,000 feet altitude, use the following formula:

FORMULA

$$7\% \times \frac{\text{actual altitude}-5,000}{1,000} \times 5,000 \text{ ft rating} = \text{derating factor}$$

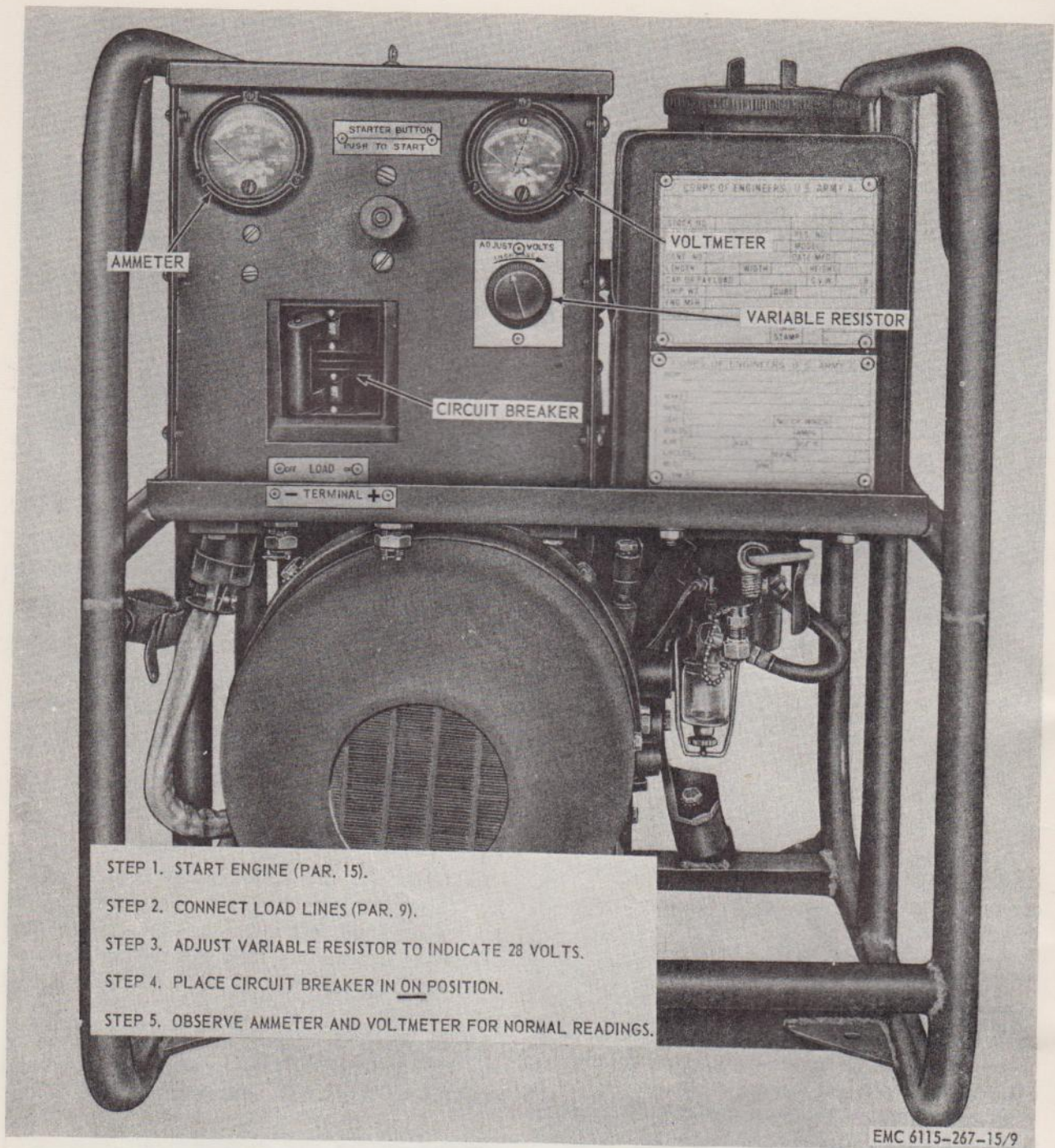


Figure 9. Generator operating instructions.

EXAMPLE SOLUTION FOR 13,000 FT:

$$0.07 \times \frac{13,000 - 5,000}{1,000} \times 1.5 \text{ kw} =$$

0.84 derating factor

1.5 kw - 0.84 kw = 0.66 kw specific output at 10,000 ft altitude.

CHAPTER 3

OPERATOR AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. OPERATOR AND ORGANIZATIONAL MAINTENANCE TOOLS AND EQUIPMENT

24. Special Tools and Equipment

a. Special Tools.

(1) *Generator.* No special tools or equipment are required by the operator or organizational maintenance personnel for the maintenance of the generator and components of the generator set.

(2) *Engine.* For special tools required for organizational maintenance of the military standard engine, refer to TM 5-2805-206-14.

b. Specially Designed Tools.

(1) *Generator.* No specially designed tools are required for the organizational maintenance of the generator.

(2) *Engine.* For specially designed tools required to perform repair operations on the military standard engine, refer to TM 5-2805-206-14.

25. Basic Issue Tools and Equipment

Tools and repair parts issued with or authorized for the generator set are listed in the basic issue items list in appendix III.

26. Organizational Maintenance Repair Parts

a. Organizational maintenance repair parts for the generator set are listed and illustrated in TM 5-6115-267-25P.

b. For organizational maintenance repair parts for the military standard engine, refer to TM 5-2805-206-14P.

Section II. LUBRICATION

27. General Lubrication Information

Lubrication is not required for the basic generator set. For general lubrication instructions on the engine, refer to the current lubrication order and TM 5-2805-206-14P.

28. Detailed Lubrication Information

a. Refer to TM 5-2805-206-14 and current lubrication order for detailed lubrication instructions on the engine.

b. The generator is equipped with a sealed bearing and requires no lubrication.

Section III. PREVENTIVE MAINTENANCE SERVICES

29. General

To insure that the equipment is ready for operation at all times, it must be inspected systematically, so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed are listed and described in paragraph 30. The item numbers indicate the sequence of mini-

mum inspection requirements. Defects discovered during operation of the unit will be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noticed during operation which would damage the equipment if operation were continued. Defects or unsatisfactory operating characteristics beyond the scope of the operator to correct must be re-

ported on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) at the earliest possible opportunity.

30. Daily Preventive Maintenance Services

This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed daily by the operator to insure that the generator set is combat serviceable. Daily services retain the same item numbers used in Quarterly Preventive Maintenance Services. Therefore, Daily Preventive Maintenance Services may not be numbered consecutively but should be performed in the numerical sequence as shown to insure complete coverage. Refer to A, figure 10, for the Daily Preventive Maintenance Services.

31. Organizational Maintenance

a. Preventive maintenance is performed by organizational maintenance personnel at quarterly intervals. A quarterly interval is equivalent to 3 calendar months, or 250 hours of operation, whichever occurs first.

b. The Preventive Maintenance Services to be performed at quarterly intervals are listed consecutively and are described in paragraph 32. The item numbers indicate the sequence of maintenance inspection requirements. DA Form 2404 will be prepared when inspection reveals any deficiencies.

c. Lubrication will be in accordance with the current lubrication order (LO 5-2805-206-14) and TM 5-2805-206-14.

32. Quarterly Preventive Maintenance Services

This paragraph contains an illustrated tabulated listing of Preventive Maintenance Services which must be performed quarterly to insure that the generator set is combat serviceable. Quarterly Preventive Maintenance Services should be performed in the numerical sequence as shown to insure complete coverage. Refer to B, figure 10, for the Quarterly Preventive Maintenance Services.

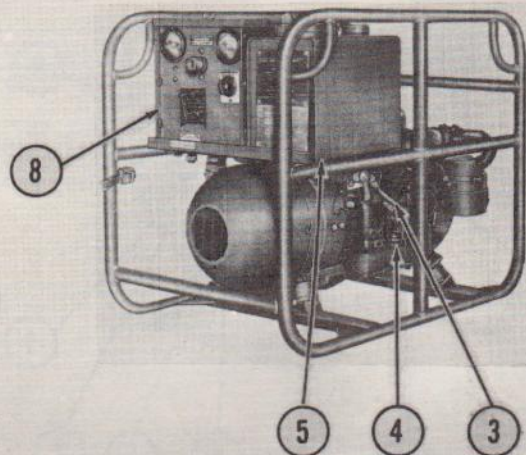
PREVENTIVE MAINTENANCE SERVICES

DAILY

TM 5-6115-267-15

GENERATOR SET

WINPOWER MODEL G-1528T-2A016



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM	PAR	REF
3	<u>CRANKCASE FILL AND LEVEL.</u> Check oil level. Add oil as indicated on level gage. Reference current L.O. 5-2805-206-14.	
4	<u>FUEL STRAINER.</u> Inspect for damage and leaks. Clean strainer bowl and element. (Weekly)	
5	<u>FUEL TANK, STRAINER, AND CAP.</u> Check fuel level. Inspect the tank for leaks. Inspect the tank strainer for damage and dirt. Clean cap vent before reinstalling cap.	
8	<u>CONTROLS AND INSTRUMENTS.</u> Inspect for damage. With the unit operating, inspect for improper operation. Normal readings for instruments are as follows: Ammeter indicates current drawn by load not to exceed 53 amperes. Voltmeter 28 volts.	13
	<u>NOTE 1. OPERATION.</u> During operation observe for any unusual noise and vibration.	

A Daily

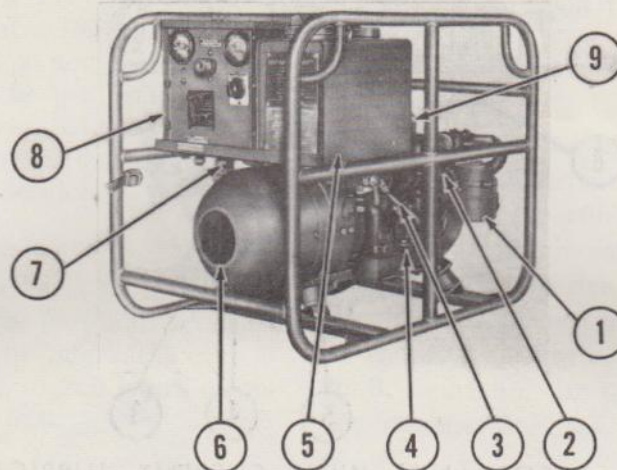
Figure 10. Preventive maintenance services.

PREVENTIVE MAINTENANCE SERVICES QUARTERLY

TM 5-6115-267-15

GENERATOR SET

WINPOWER MODEL G-1528T-2A016



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR	REF
1	<u>AIR CLEANER, AND HOSE.</u> Inspect for damage and leaks. Inspect for dirty condition and the level of the oil. Add oil to level mark. Reference current L.O. 5-2805-206-14.		
2	<u>CARBURETOR.</u> Inspect for damage, and leaks.		
3	<u>CRANKCASE FILL AND LEVEL.</u> Check oil level. Add oil as indicated on level gage. Reference current L.O. 5-2805-206-14.		
4	<u>FUEL PUMP, STRAINER, AND HOSES.</u> Inspect for damage, and leaks. Clean strainer bowl and element.		
5	<u>FUEL TANK, STRAINER, AND CAP.</u> Check fuel level. Inspect the tank for insecure mounting, leaks, and damage. Inspect the tank strainer for dirt, and damage. Clean cap vent before reinstalling cap.		
6	<u>GENERATOR AND BRUSHES.</u> Inspect for insecure mounting, frayed, and/or damaged wiring. Replace the brushes if they are worn to less than 5/8 inch in length.	57	
7	<u>LOAD TERMINALS.</u> Inspect for insecure mounting, and damage.		

B Quarterly
Figure 10. Preventive maintenance services—Continued.

ITEM		PAR REF
8	<u>CONTROLS AND INSTRUMENTS.</u> Inspect for damage. With the unit operating, inspect for improper operation. Normal readings for instruments are as follows: Ammeter indicates current drawn by load not to exceed 53 amperes. Voltmeter 28 volts.	13
9	<u>SPARK PLUGS.</u> Inspect for dirt or damaged insulator and burned electrodes. Correct gap 0.024 to 0.026 inch. Torque to 25-27 ft. lb.	
	<u>NOTE 1. OPERATIONAL TEST.</u> During operation observe for any unusual noise and vibration.	
	<u>NOTE 2. ADJUSTMENTS.</u> Make all necessary adjustments during operational test.	

EMC 6115-267-15/10.1

B Quarterly

Figure 10. Preventive maintenance services—Continued.

Section IV. OPERATOR'S MAINTENANCE

33. General

This section describes and illustrates the maintenance operations which may be performed by the operator on the generator set. For operator's maintenance on the military standard engine, refer to TM 5-2805-206-14.

34. Canvas Cover

a. Removal. Remove the canvas cover from the generator set.

b. Cleaning and Inspection.

(1) Scrub the cover with a dry brush.

(2) Inspect the cover for tears in the fabric, ripped seams, burned spots, mildew, and frayed or broken draw rope. Inspect for broken or missing fasteners.

(3) Replace an unserviceable canvas cover.

c. Installation. Install the canvas cover on the generator set.

35. Fuel Tank Cap and Strainer

a. Removal. Refer to figure 11 and remove the fuel tank cap and strainer.

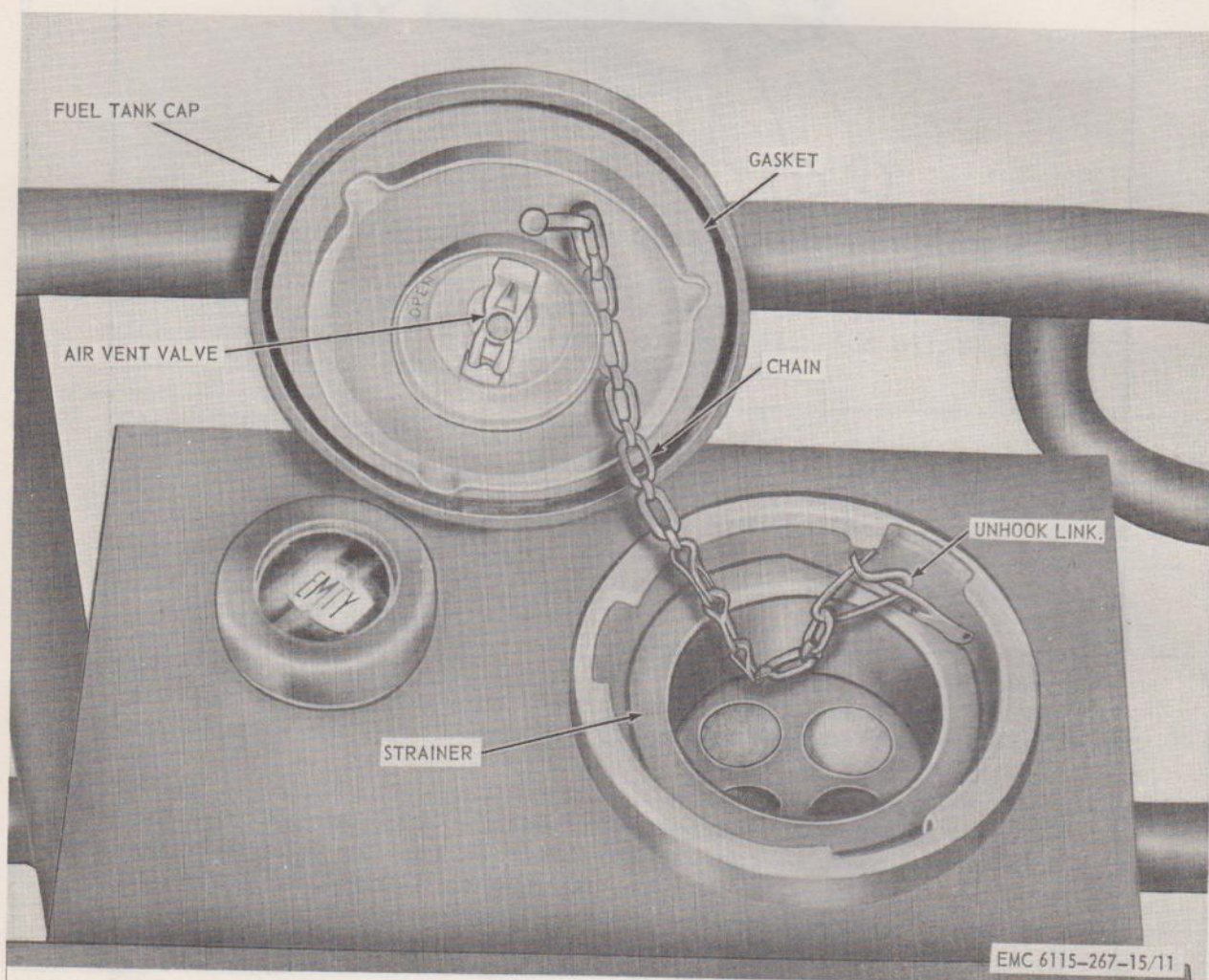


Figure 11. Fuel tank cap and strainer—removal and installation.

b. *Cleaning and Inspection.*

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect the cap for cracks, dents, bent locking lugs, and damaged air vent valve. Inspect the strainer for torn mesh and distortion. Inspect the chain

for open or crushed links. Inspect the gasket for cuts, tears, and deterioration.

- (3) Replace a defective gasket. Replace an unserviceable cap or strainer.

c. *Installation.* Refer to figure 11 and install the fuel tank cap and strainer.

Section V. TROUBLESHOOTING

36. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the generator set and its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble beyond the scope of organizational maintenance will be reported to field maintenance (3d echelon).

37. Generator Fails To Build Up Rated Voltage

<i>Probable cause</i>	<i>Possible remedy</i>
Variable resistor defective	Replace resistor (par. 63).
Brush contact poor	Reseat or replace brushes (par. 57).
Commutator dirty or rough.	Clean and smooth commutator (par. 57).
Engine speed too slow	Refer to TM 5-2805-206-14.
Endbell capacitors defective.	Replace capacitors (par. 48).
Residual magnetism dissipated.	Restore residual magnetism by starting electrically (par. 15).

38. Generator Overheats

<i>Probable cause</i>	<i>Possible remedy</i>
Generator overloaded	Reduce load.
Ventilation inadequate	Provide adequate ventilation (par. 9).

39. Generator Fails To Supply Power To Load

<i>Probable cause</i>	<i>Possible remedy</i>
Load terminals defective	Replace terminals (par. 67).

<i>Probable cause</i>	<i>Possible remedy</i>
Loose load connections	Tighten connections (par. 9).
Circuit breaker defective	Replace circuit breaker (par. 62).

40. Generator Output Voltage Drops or Fluctuates

<i>Probable cause</i>	<i>Possible remedy</i>
Generator overloaded	Reduce load.
Electrical connections loose.	Tighten connections.

41. Generator Brushes Spark Excessively

<i>Probable cause</i>	<i>Possible remedy</i>
Generator overloaded	Reduce load.
Brushes dirty or improperly seated.	Clean and reseat brushes (par. 57).
Brush pressure weak	Adjust brush spring tension (par. 57).
Brushes sticking in brush holders.	Clean brush holders and adjust brushes (par. 57).
Brush holders loose	Report to field maintenance.
Commutator dirty or rough.	Clean and smooth commutator (par. 57).

42. Generator Noisy

<i>Probable cause</i>	<i>Possible remedy</i>
Brushes worn or not properly seated.	Replace or reseat brushes (par. 57).
Generator fan loose or damaged.	Tighten or replace fan (par. 56).
Generator bearing, coupling, or windings loose or defective.	Stop generator set and report condition to field maintenance.

Section VI. FIELD EXPEDIENT REPAIRS

43. General

Operator and organizational maintenance troubles may occur while the generator set is operating in the field where supplies and repair

parts are not available and normal corrective action cannot be performed. When this condition exists, the following expedient repairs may be used in emergencies, upon the decision of the

unit commander. Equipment so repaired must be removed from operation as soon as possible and properly repaired before being placed in operation again.

44. Improper or No Load Output

<i>Trouble</i>	<i>Expedient remedy</i>
Electrical wiring defective	Isolate and tape wires (par. 66).
Brushes worn too short or broken.	Sand or file to size a brush from comparable equipment (par. 57).
Ammeter shorted or grounded.	Disconnect ammeter leads from ammeter shunt and tape ends (par. 61).

Caution: When the ammeter is disconnected for field expedient repair, estimate the wattage of the load. It must not exceed 1.5 kilowatts. Observe the generator frequently for overheating. If it overheats, reduce the load.

Voltmeter shorted or grounded.	Disconnect and tape voltmeter leads separately. Connect a multimeter to
--------------------------------	---

Trouble

Expedient remedy

Circuit breaker shorted or grounded.	load terminals and measure output voltage (par. 60). Disconnect leads and bypass circuit breaker (par. 62).
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Warning: When the circuit breaker is bypassed, shut down the set before connecting or disconnecting the load. Restart manually only. The voltage of this generator set can cause serious injury to personnel.

45. Loss of Fuel

<i>Trouble</i>	<i>Expedient remedy</i>
Fuel hose cracked or broken.	Wrap hose with fuelproof tape (par. 51).
Fuel tank leaks	Disconnect fuel filter from fuel tank, attach a line from an outside fuel source to filter, and bypass tank (par. 53).
Fuel plug cock leaks	Disconnect fuel hose and attach to an outside fuel source (par. 51).

Section VII. RADIO INTERFERENCE SUPPRESSION

46. General Methods Used To Attain Proper Suppression

Essentially, suppression is attained by providing a low-resistance path to ground for stray currents. The methods used include shielding the ignition and high-frequency wires, grounding the frame with bonding straps, and using capacitors and resistors. For general information on radio interference suppression, see TM 11-483.

47. Interference Suppression Components

Figure 12 locates and illustrates the radio interference components.

48. Replacement of Suppression Components

a. Removal.

- (1) *Endbell capacitors.*
 - (a) Remove the endbell cover (par. 56).
 - (b) Refer to figure 12 and remove the endbell capacitors.
- (2) *Control box capacitors.*
 - (a) Remove the control panel assembly (par. 59).
 - (b) Refer to figure 12 and remove the control box capacitors.

(3) *Control box ground lead.* Refer to figure 12 and remove the control box ground lead.

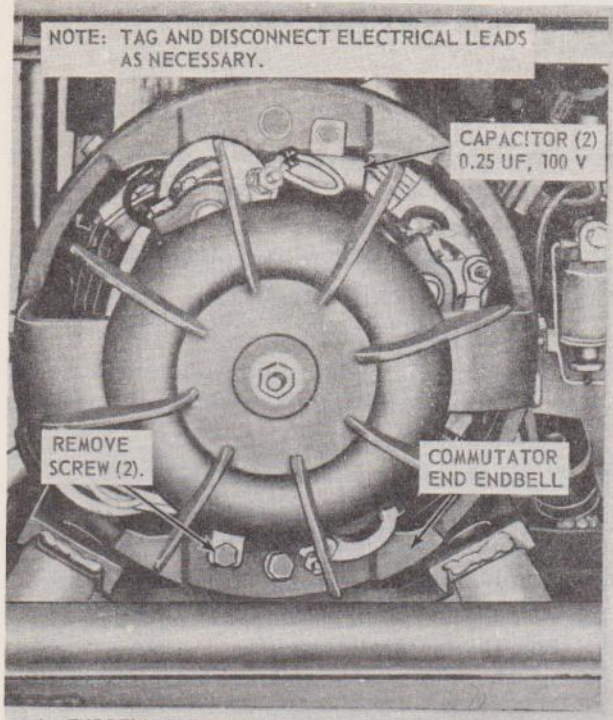
(4) *Generator ground lead.* Refer to figure 12 and remove the generator ground lead.

b. Installation.

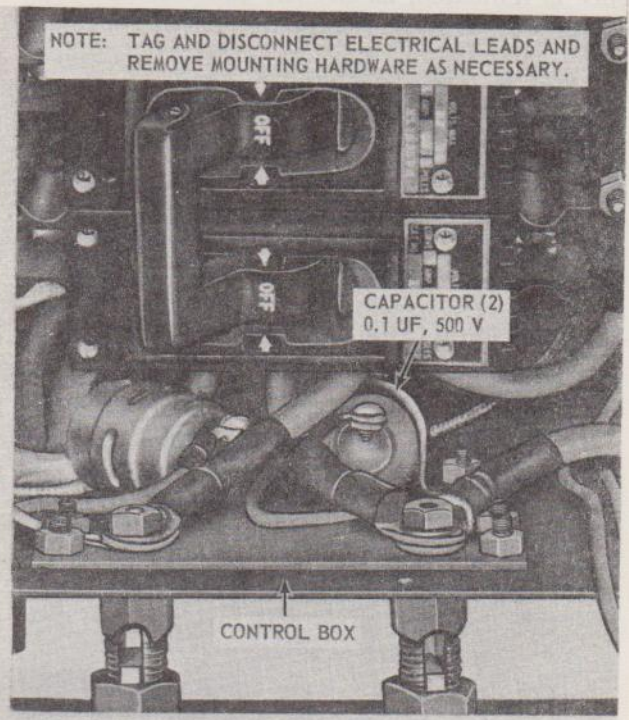
- (1) *Endbell capacitors.*
 - (a) Refer to figure 12 and install the endbell capacitors.
 - (b) Install the endbell cover (par. 56).
- (2) *Control box capacitors.*
 - (a) Refer to figure 12 and install the control box capacitors.
 - (b) Install the control panel assembly (par. 59)
- (3) *Control box ground lead.* Refer to figure 12 and install the control box ground lead.
- (4) *Generator ground lead.* Refer to figure 12 and install the generator ground lead.

49. Testing of Radio Interference Suppression Components

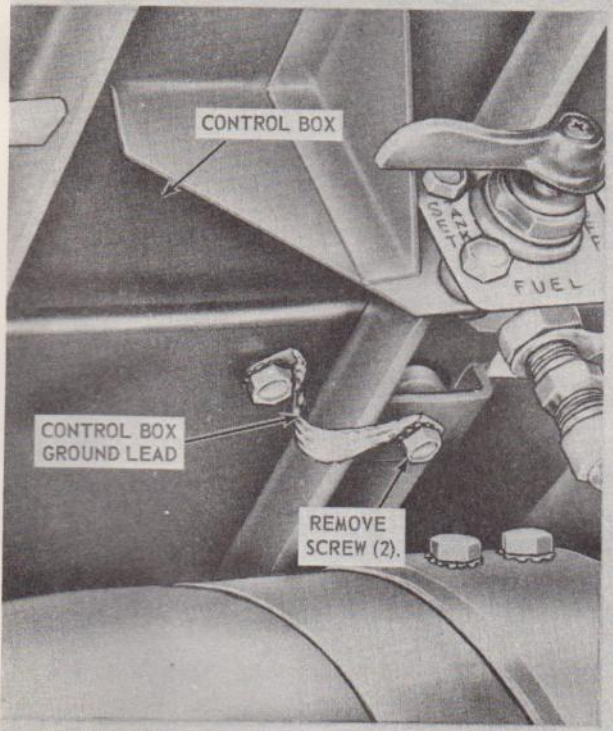
Test the capacitors for leaks and shorts on a capacitor tester; replace defective capacitors. If test equipment is not available and interfer-



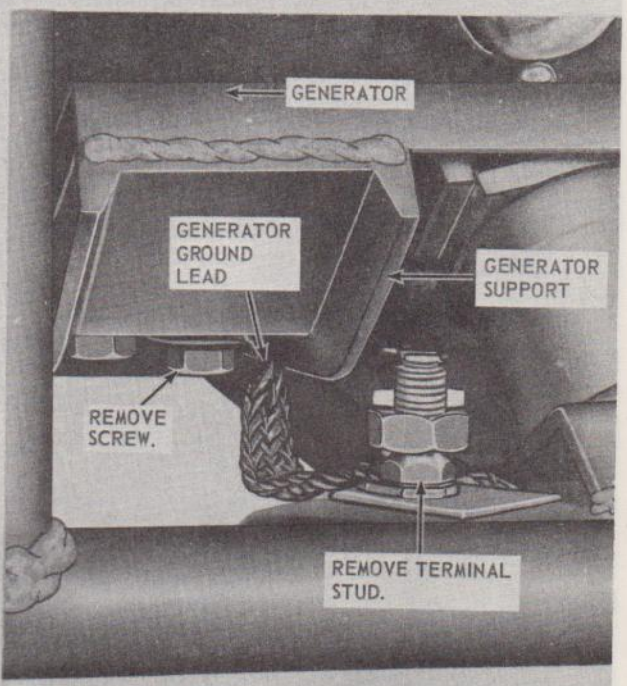
A. ENDBELL CAPACITORS.



B. CONTROL BOX CAPACITORS.



C. CONTROL GROUND LEAD.



NOTE: REMOVE NUT BENEATH FRAME TO FREE STUD.

D. GENERATOR GROUND LEAD.

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Figure 12. Radio interference suppression components—removal and installation.

ence is indicated, isolate the cause of interference by the trial-and-error method of replacing

each capacitor in turn until the cause of interference is located and eliminated.

Section VIII. FUEL SYSTEM

50. General

This section contains maintenance instructions for the fuel tank, fuel gage, fuel plug cock, drain valve, fuel filter, and fuel hose.

51. Fuel Hose, Drain Valve, and Fuel Plug Cock

a. Removal.

- (1) Drain the fuel tank (par. 10).
- (2) Refer to figure 13 and remove the fuel hose, drain valve, and fuel plug cock.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved solvent and dry well.
- (2) Inspect the drain valve and fuel plug cock for cracks, breaks, leaks, and

damaged threads. Inspect the fuel hose for cracks, breaks, wear and swelling.

- (3) Replace a defective drain valve, fuel plug cock, or fuel hose.

c. Installation.

- (1) Refer to figure 13 and install the drain valve, fuel hose, and fuel plug cock.

- (2) Service the fuel tank (par. 10).

d. Field Expedient Repair. If the fuel system components fail in the field, and replacement parts are not available, the following expedient repairs will enable the generator set to continue to operate.

- (1) If the fuel hose leaks, wrap the break with fuelproof tape.

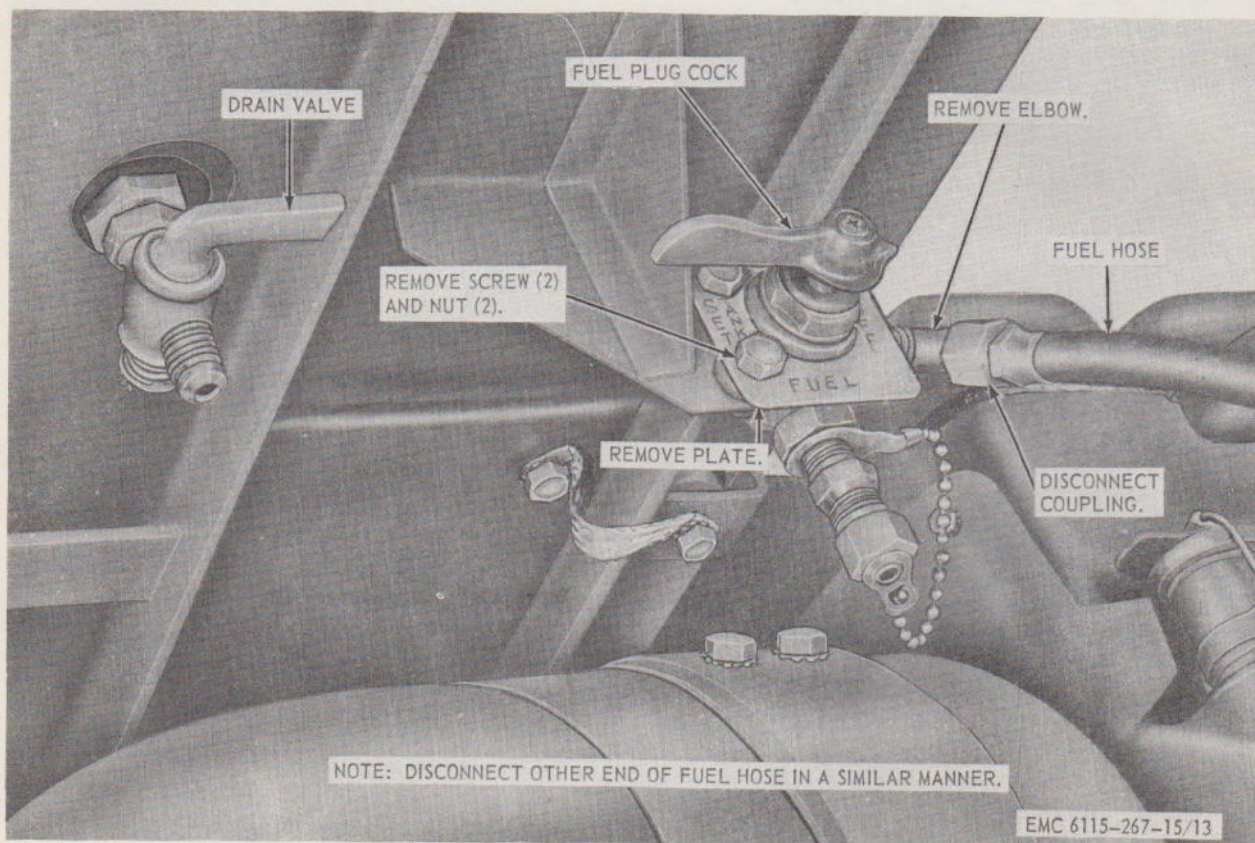


Figure 13. Fuel hose, drain valve, and fuel plug cock—removal and installation.

- (2) If the fuel plug cock leaks, disconnect the fuel hose and attach to an outside fuel source.

52. Fuel Gage

a. *Removal.* Refer to figure 14 and remove the fuel gage.

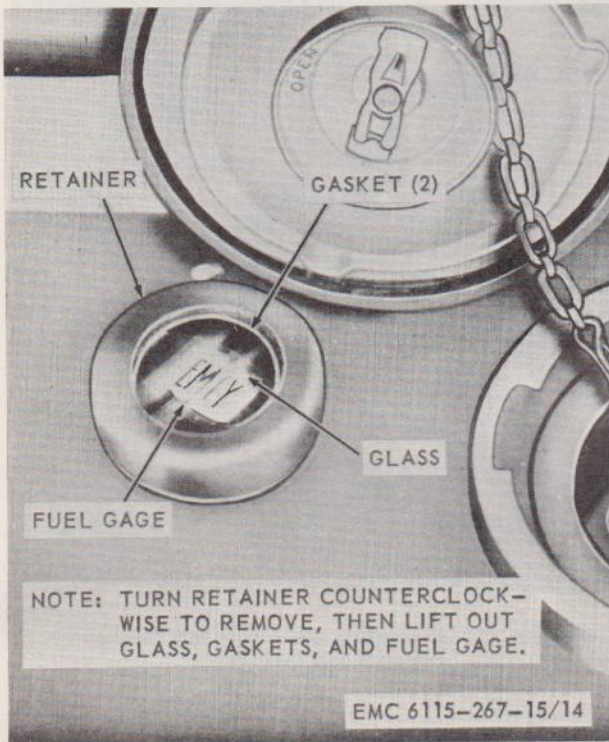


Figure 14. Fuel gage—removal and installation.

b. Cleaning and Inspection.

- (1) Clean all parts in an approved solvent and dry thoroughly.
- (2) Inspect fuel gage for cracks, dents, broken glass, and damaged threads.
- (3) Replace all defective parts.

c. *Installation.* Refer to figure 14 and install the fuel gage.

53. Fuel Tank

a. Removal.

- (1) Remove the fuel tank cap and strainer (par. 35).
- (2) Remove the fuel hose, drain valve, and fuel plug cock (par. 51).
- (3) Remove the fuel gage (par. 52).
- (4) Refer to figure 15 and remove the fuel tank.

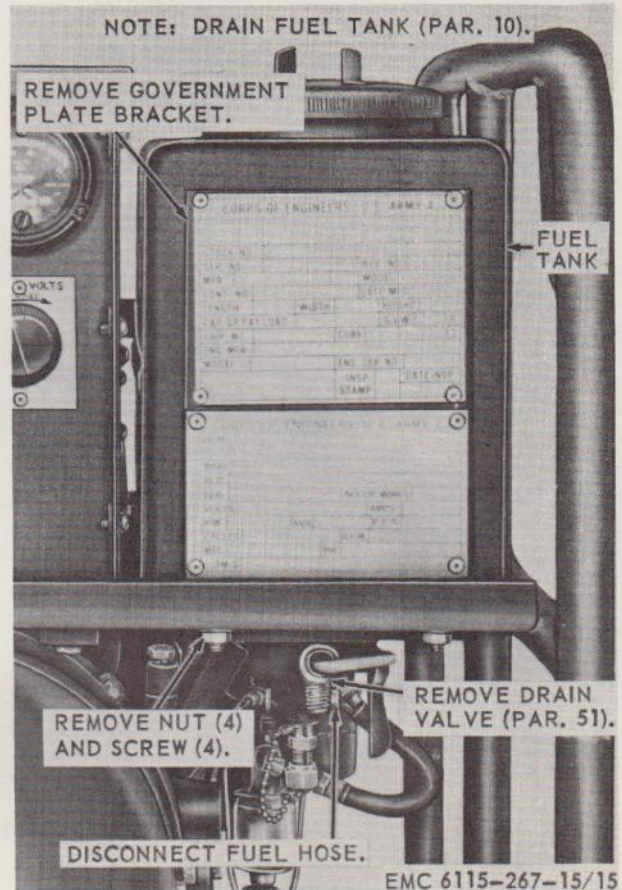


Figure 15. Fuel tank—removal and installation.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved solvent and dry thoroughly.
- (2) Inspect fuel tank for cracks, dents, leaks, and missing hardware.
- (3) Replace a defective fuel tank.

c. Installation.

- (1) Refer to figure 15 and install the fuel tank.
- (2) Install the fuel gage (par. 52).
- (3) Install the fuel hose, drain valve, and fuel plug cock (par. 51).
- (4) Install the fuel tank cap and strainer (par. 35).

d. *Field Expedient Repair.* If the fuel tank becomes unserviceable in the field, and a replacement part is not available, the following expedient will enable the generator set to continue to operate: Disconnect the fuel filter from the fuel tank, attach a line from an outside fuel source to the filter, and bypass the tank.

54. Fuel Filter

a. *Service.* Refer to TM 5-2805-206-14 for maintenance instructions on the fuel filter.

b. *Removal.*

- (1) Close the fuel plug cock.
- (2) Refer to figure 16 and remove the fuel filter.

c. *Installation.*

- (1) Refer to figure 16 and install the fuel filter.
- (2) Open the fuel plug cock.

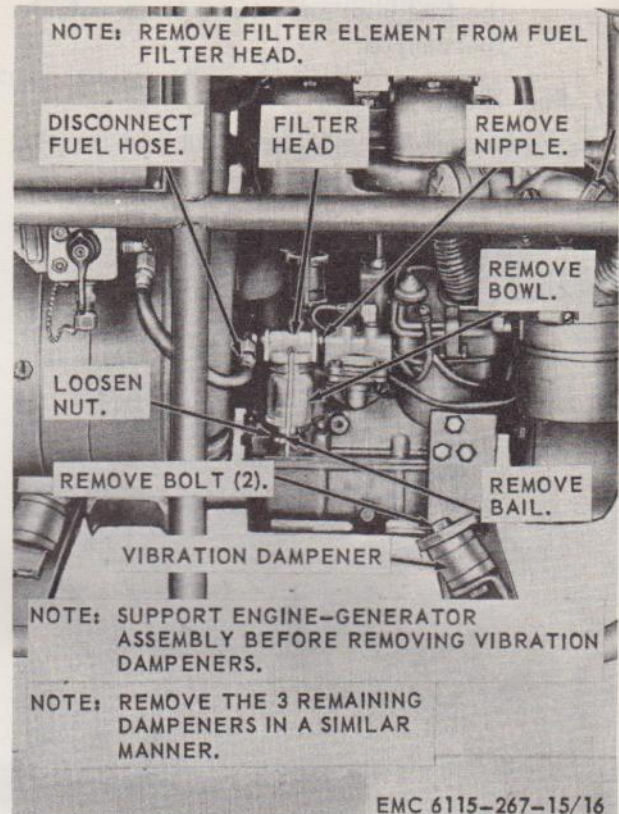


Figure 16. Fuel filter and vibration dampeners—removal and installation.

Section IX. ELECTRICAL AND VENTILATING SYSTEMS

55. General

a. This section includes maintenance instructions for the generator brushes, fan, control panel assembly, control box, load terminals and terminal boards, and associated wiring. The brushes are mounted on the brush gear inside the commutator and endbell. The endbell cover must be removed to gain access to the fan and brushes. The front of the control box serves as a mounting panel for the electrical controls and instruments.

b. The voltmeter, ammeter, ammeter shunt, start switch, and variable resistor are located on the control panel. The circuit breaker is mounted on brackets inside the control box. Its toggle levers protrude through an aperture in the control panel. The control box cable assembly is mounted on the floor of the control box. When performing maintenance on the

electrical system, refer to the wiring diagram (fig. 4).

Warning: Shut down the engine before removing or installing electrical components. The voltage of this generator set can cause serious burns to personnel.

56. Endbell Cover, Fan, and Vibration Dampeners

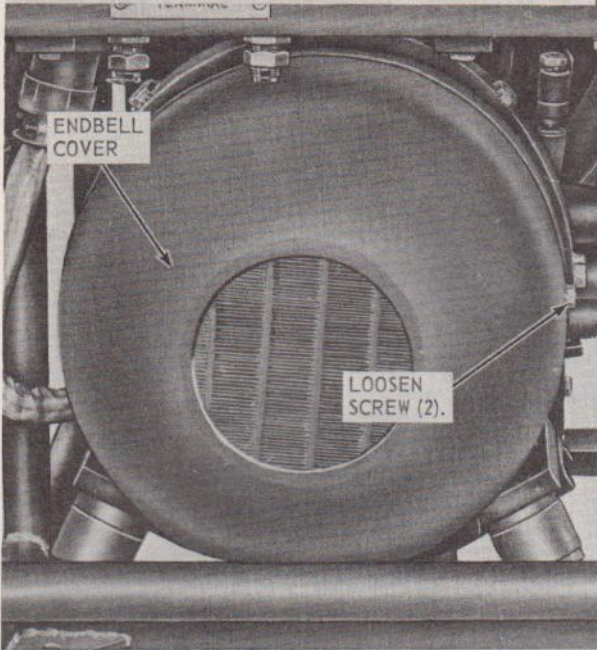
a. *Removal.*

- (1) Refer to figure 16 and remove the vibration dampeners.
- (2) Refer to figure 17 and remove the endbell cover and fan.

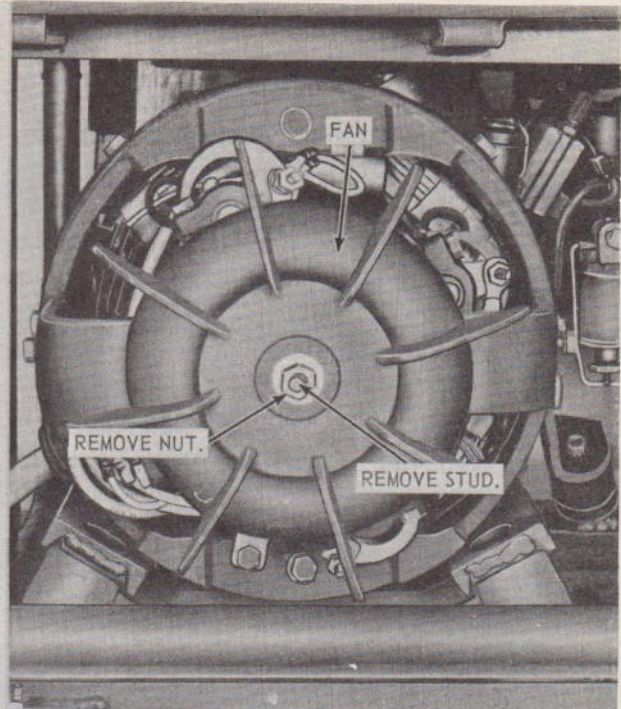
b. *Cleaning and Inspection.*

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect the endbell cover and fan for cracks, breaks, and dents. Inspect the

NOTE: TURN COVER COUNTERCLOCKWISE, PULL TOWARD REAR, AND REMOVE THROUGH RIGHT SIDE OF FRAME.



A. ENDBELL COVER.



B. FAN.

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Figure 17. Endbell cover and fan—removal and installation.

vibration dampeners for stripped threads and deterioration of the elastic body.

- (3) Pound out minor dents in the endbell cover. Replace an unserviceable endbell cover, fan, or vibration dampener.

c. Installation.

- (1) Refer to figure 17 and install the endbell cover and fan.
- (2) Refer to figure 16 and install the vibration dampeners.

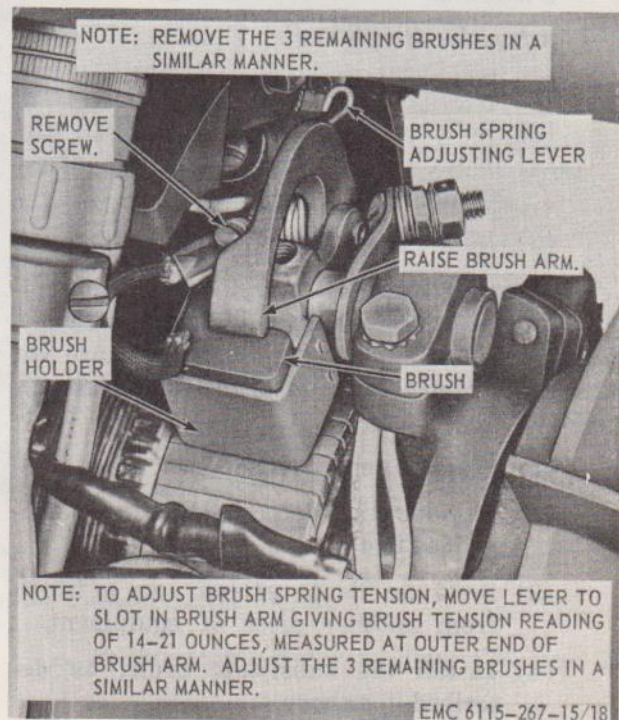
57. Generator Brushes

a. Removal.

- (1) Remove the endbell cover (par. 56).
- (2) Refer to figure 18 and remove the generator brushes.

b. Cleaning and Inspection.

- (1) Clean all parts with a dry, clean cloth.
- (2) Inspect the brushes for cracks, breaks, or excessive wear.



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Figure 18. Generator brushes—removal and installation, and brush spring tension adjustment.

- (3) Inspect the brush holders for faulty alignment, insecure mounting, and other damage.
- (4) Inspect the brush tension springs for weakened condition.
- (5) Inspect the commutator for pits, burning, and scoring. Remove slight imperfections from the commutator as in *d* below.
- (6) Replace defective brushes or brushes that are worn to less than one-half their original length of 1¼ in.
- (7) Report defective brush holders, springs, or commutator to field maintenance.

c. Seating New Brushes. Refer to TM 5-764 for seating new brushes.

d. Polishing Brush Contact Surfaces. Refer to TM 5-764 for instructions on polishing the brush contact surfaces of the commutator.

e. Installation.

- (1) Refer to figure 18 and install the brushes.
- (2) Install the endbell cover (par. 56).

f. Adjusting Brush Spring Tension.

- (1) Remove the endbell cover (par. 56).
- (2) Refer to figure 18 and adjust the brush spring tension, using a brush spring scale.
- (3) Install the endbell cover (par. 56).

g. Field Expedient Repairs. When the generator brushes become broken, cracked, or worn out in the field and stock replacements are not available, replace the unserviceable brush as follows:

- (1) Stop the generator set (par. 16).
- (2) Remove the defective brush as described in *a* above.
- (3) Sand or file to proper size a brush from another piece of equipment.
- (4) Install the substitute brush as described in *e* above.
- (5) Seat the substitute brush as described in *c* above.

58. Control Box Assembly

a. Removal. Refer to figure 19 and remove the control box as an assembly from the generator set.

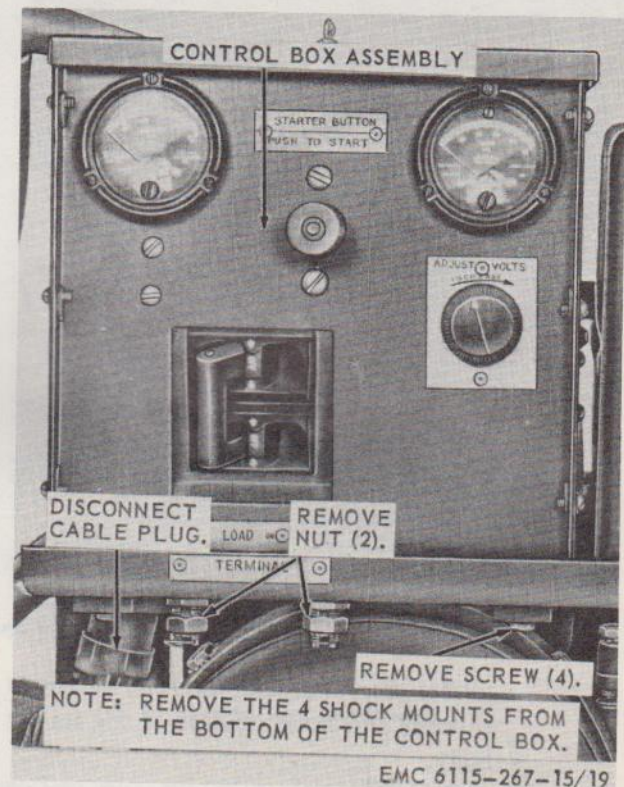


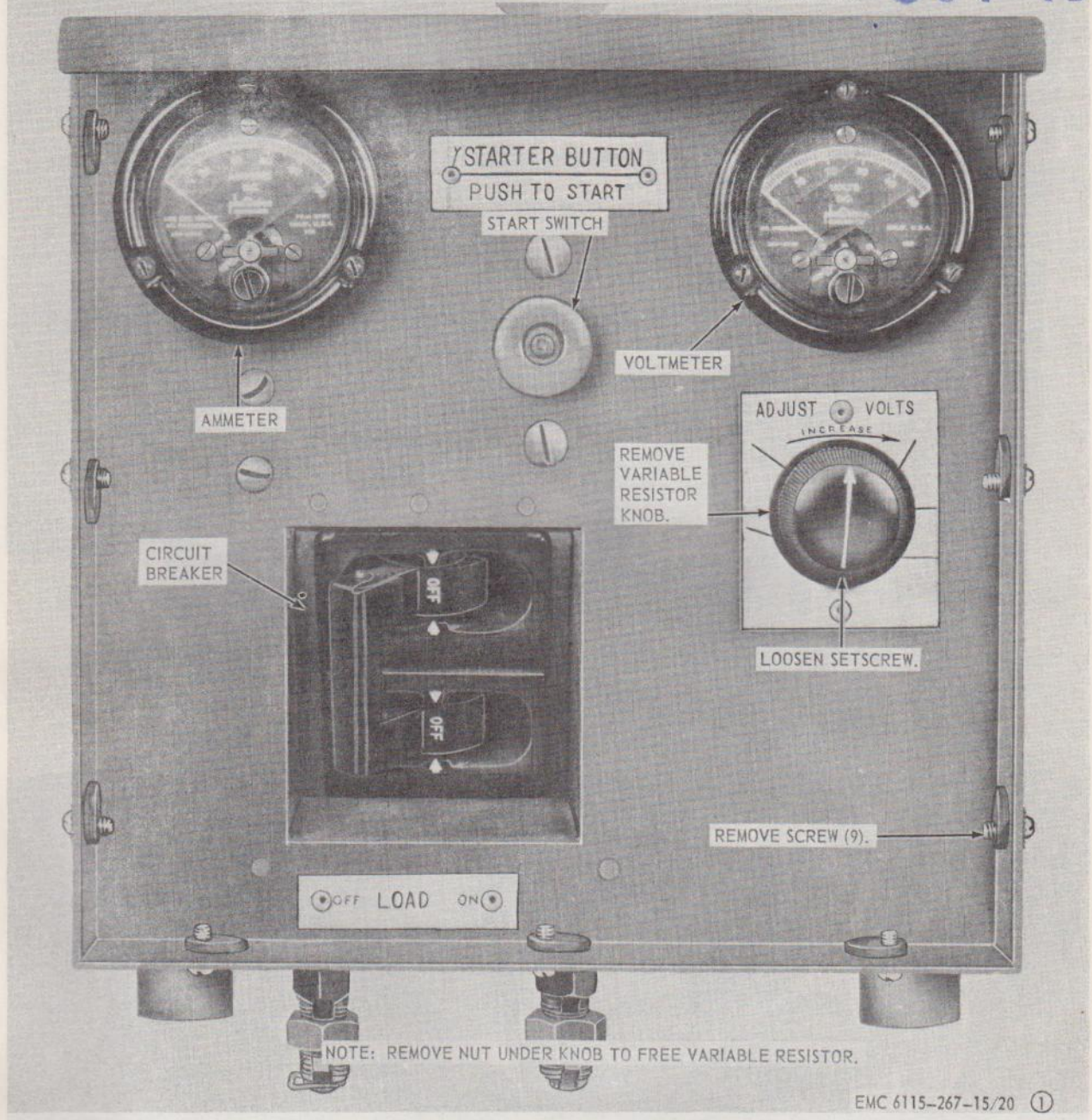
Figure 19. Control box assembly—removal and installation.

b. Disassembly. Refer to figures 20 and 21 and disassemble the control box.

c. Cleaning and Inspection.

- (1) Clean dirt and dust from the control box front (control) panel, top and rear panel assembly, and center section with an approved cleaner. Wipe grease and oil from the wiring. Carefully blow dust and dirt from the reverse current relay and voltage regulator with dry, low-pressure, compressed air.
- (2) Inspect the control box panels for bends, dents, corrosion, and other damage. Inspect the panels for gouges and damaged paint. Inspect the shock mounts for damage.

NOTE: REMOVE TOP COVER AND REAR PANEL ASSEMBLY IN A SIMILAR MANNER.



Reference A

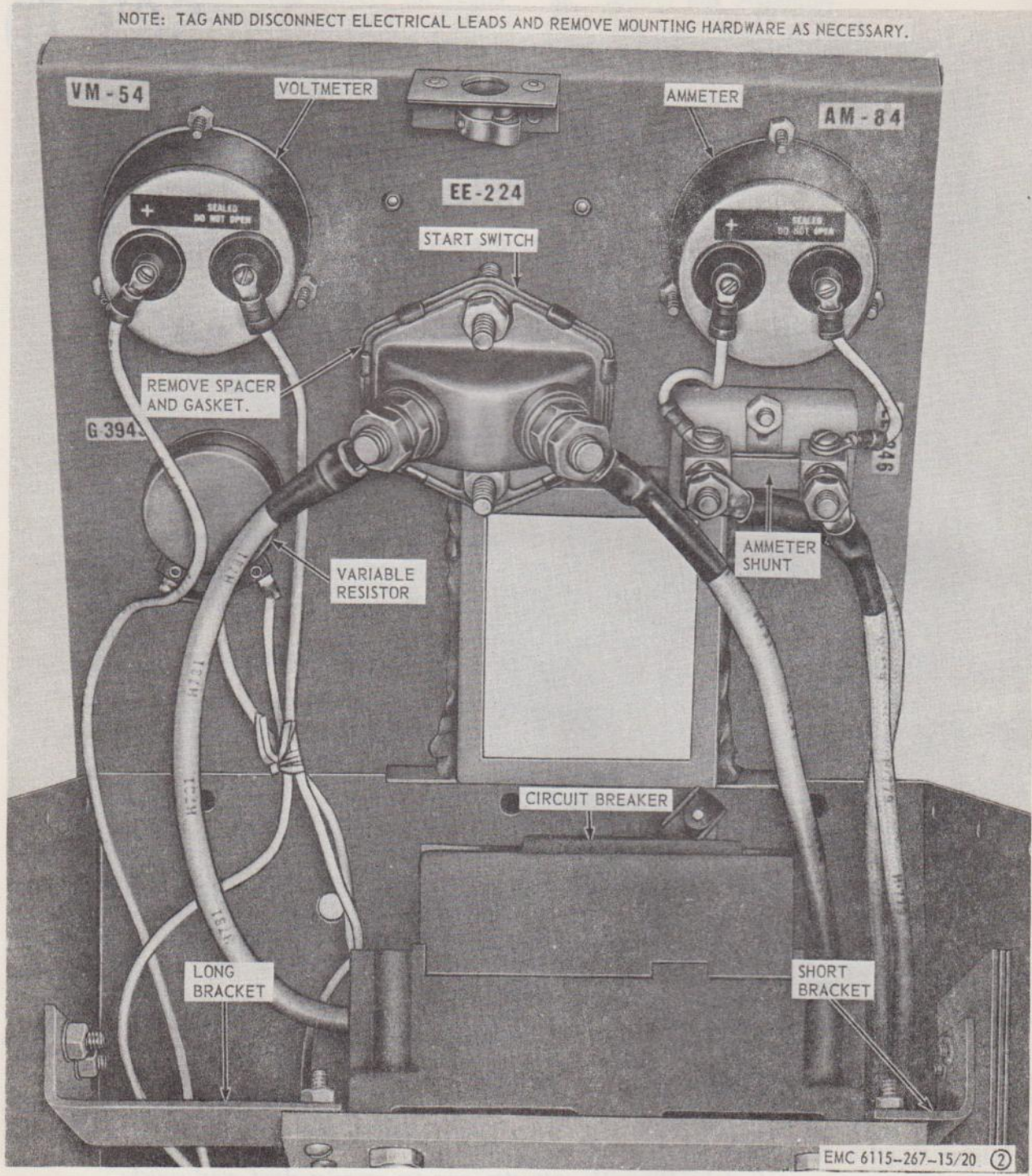
Figure 20. Control panel assembly, voltmeter, ammeter, ammeter shunt, start switch, circuit breaker, and variable resistor—removal and installation.

(3) Paint panels as needed. Replace an unserviceable control box panel. Straighten a slightly bent or dented panel. Replace a defective shock mount.

d. Reassembly. Refer to figures 20 and 21 and reassemble the control box.

e. Installation. Refer to figure 19 and install the control box assembly on the generator set.

NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AND REMOVE MOUNTING HARDWARE AS NECESSARY.



Reference B
Figure 20—Continued.

59. Control Panel Assembly

a. Removal.

- (1) Remove the control box assembly (par. 58).

- (2) Refer to figure 20 and remove the control panel assembly from the control box.

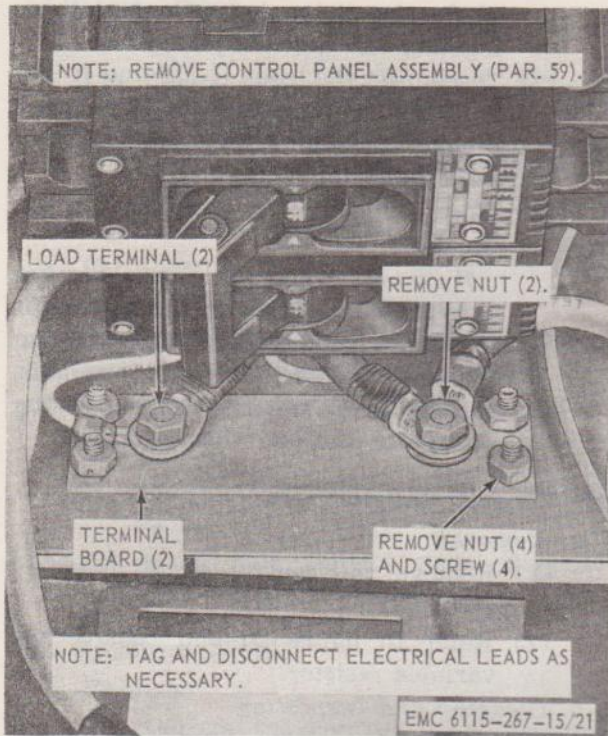


Figure 21. Load terminals and terminal boards—removal and installation.

b. Disassembly.

- (1) Remove the ammeter (par. 61).
- (2) Remove the voltmeter (par. 60).
- (3) Remove the start switch (par. 64).
- (4) Remove the variable resistor (par. 63).
- (5) Remove the ammeter shunt (par. 65).
- (6) Remove the circuit breaker (par. 62).

c. Cleaning and Inspection.

- (1) Clean all parts with an approved cleaning solvent and dry thoroughly.
- (2) Inspect the control panel for dents, cracks, gouges, nicks, and missing hardware.
- (3) Pound out all minor dents. Replace missing hardware. Replace a damaged control panel.

d. Reassembly.

- (1) Install the circuit breaker (par. 62).
- (2) Install the ammeter shunt (par. 65).
- (3) Install the variable resistor (par. 63).
- (4) Install the start switch (par. 64).
- (5) Install the voltmeter (par. 60).
- (6) Install the ammeter (par. 61).

e. Installation.

- (1) Refer to figure 20 and install the control panel assembly in the control box.
- (2) Install the control box assembly in the generator set frame (par. 58).

60. Voltmeter

a. Removal.

- (1) Remove the control panel assembly (par. 59).
- (2) Refer to figure 20 and remove the voltmeter.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved solvent and dry thoroughly.
- (2) Inspect the voltmeter for cracked glass, missing mounting hardware, or damaged terminals.
- (3) Replace a damaged or defective voltmeter.

c. Installation.

- (1) Refer to figure 20 and install the voltmeter.
- (2) Install the control panel assembly (par. 59).

d. Field Expedient Repair. Perform field expedient repair if operation indicates that the voltmeter is grounded or shorted. The voltmeter may be eliminated from the electrical system by performing the following steps.

- (1) Stop the engine (par. 16).
- (2) Disconnect and tape the voltmeter leads separately. Connect a multimeter to the load terminals.
- (3) Start the engine (par. 16) and measure the output voltage.

61. Ammeter

a. Removal.

- (1) Remove the control panel assembly (par. 59).
- (2) Refer to figure 20 and remove the ammeter.

b. Cleaning and Inspection.

- (1) Clean the ammeter with a soft cloth dampened in an approved cleaning solvent and dry thoroughly.

- (2) Inspect the ammeter for cracked glass, damaged terminals, and missing mounting hardware.
- (3) Replace a damaged or defective ammeter.

c. Installation.

- (1) Refer to figure 20 and install the ammeter.
- (2) Install the control panel assembly (par. 59).

d. Field Expedient Repair. Perform field expedient repair if operation indicates that the ammeter is grounded or shorted. The ammeter may be eliminated from the electrical system by performing the following steps:

- (1) Stop the engine (par. 16).
- (2) Disconnect the ammeter electrical leads from the ammeter shunt and tape the ends.
- (3) Start the engine (par. 15).

Caution: When the ammeter is disconnected for field expedient repair, estimate the wattage of the load. It must not exceed 1.5 kilowatts. Observe the generator frequently for overheating. If it overheats, reduce the load.

62. Circuit Breaker

a. Removal.

- (1) Remove the control panel assembly (par. 59).
- (2) Refer to figure 20 and remove the circuit breaker.

b. Cleaning and Inspection.

- (1) Clean the circuit breaker with a clean dry cloth.
- (2) Inspect the circuit breaker for cracks and missing mounting hardware.
- (3) Replace a defective circuit breaker.

c. Installation.

- (1) Refer to figure 20 and install the circuit breaker.
- (2) Install the control panel assembly (par. 59).

d. Field Expedient Repair. If the circuit breaker is defective, proceed as follows:

- (1) Disconnect the leads H 782, H 787, and H 792 from the bottom terminals

of the circuit breaker. Connect them together and tape the joint.

- (2) Disconnect the leads H 779 and H 796 from the top terminals of the circuit breaker. Connect them together and tape the joint.
- (3) Operate the unit without the circuit breaker.

Warning: When the circuit breaker is bypassed, shut down the generator set before connecting or disconnecting the load lines at the load terminals. Serious burns can result from arcing voltage of the set when running.

63. Variable Resistor

a. Removal.

- (1) Remove the control panel assembly (par. 59).
- (2) Refer to figure 20 and remove the variable resistor.

b. Cleaning and Inspection.

- (1) Clean the variable resistor by wiping with a clean cloth and blowing out with compressed air, if available.
- (2) Inspect the resistor for loose wiring and missing mounting hardware.
- (3) Resolder loose wiring connections. Replace missing mounting hardware.
- (4) Replace a defective variable resistor.

c. Testing.

- (1) Remove the jumper wire from the resistor terminals.
- (2) Using a multimeter, test the resistance between the outside terminals of the variable resistor. The resistance value should be 50 ohms plus or minus 5 percent.
- (3) Connect the multimeter probes to the center terminal and one outside terminal of the resistor and rotate the control shaft through its full travel. The resistance should vary smoothly from zero to the high resistance value stated in (2) above.
- (4) Replace the jumper wire after testing.

d. Installation.

- (1) Refer to figure 20 and install the variable resistor.
- (2) Install the control panel assembly (par. 59).

64. Start Switch

a. Removal.

- (1) Remove the control panel assembly (par. 59).
- (2) Refer to figure 20 and remove the start switch.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved solvent and dry thoroughly.
- (2) Inspect the start switch for defects and missing mounting hardware.
- (3) Replace a defective start switch.

c. Installation.

- (1) Refer to figure 20 and install the start switch.
- (2) Install the control panel assembly (par. 59).

65. Ammeter Shunt

a. Removal.

- (1) Remove the control panel assembly (par. 59)
- (2) Refer to figure 20 and remove the ammeter shunt.

b. Cleaning and Inspection.

- (1) Wipe off dirt and dust with a clean cloth dipped in an approved cleaner.
- (2) Inspect the ammeter shunt for defects.
- (3) Replace an unserviceable ammeter shunt.

c. Installation.

- (1) Refer to figure 20 and install the ammeter shunt.
- (2) Install the control panel assembly (par. 59).

66. Wiring

a. *General.* The practical wiring diagram (fig. 4) should be consulted when work on the electrical system is necessary. To facilitate maintenance on wiring and electrical components, tag all wiring and terminals before removing components to insure proper reinstallation.

Warning: Always shut down the generator set and disconnect load lines before performing any work on the wiring or associated electrical components.

b. Inspection.

- (1) Inspect the insulation for cracks, fraying, and deterioration. Pay special attention where wires pass through holes and over rough or sharp edges. Wrap cracked or frayed areas with an approved electrical tape.
- (2) Inspect the wire terminals for cracks, splits, corrosion, and insecure mounting.
- (3) Replace defective wires. Replace a defective terminal.

c. *Testing.* To test a wire for continuity, disconnect each end of the wire from the component to which it is attached. Touch the probes of a multimeter to each end of the wire. The multimeter should indicate continuity.

d. Repair.

- (1) If a broken wire is accessible, remove sufficient insulation from each side of the break to allow a good connection of the bared ends by twisting them together. Solder the connection and wrap it with electrical tape. Under no condition leave the bare connection exposed.
- (2) If a wire is broken from a terminal connector, replace the connector.
- (3) If a break in a wire is inaccessible, and the wire cannot be removed without extensive disassembly of the unit, disconnect both ends of the wire and connect a new wire of the same gage and insulation to the proper terminals. Refer to the wiring diagram (fig. 4), and properly tag both ends of all replacement wires. Let the new wire follow the same path as the old, as far as practicable, and in any event make sure that it does not interfere with normal operation of the equipment.

e. *Field Expedient Repairs.* When wiring must be repaired in the field and normal repair materials are not available, temporary make-shifts must be used. If replacement wire is not at hand, twist the ends of a broken wire together and wrap with any adhesive tape. If no tape is available, dry paper, cloth, or other material with good insulating qualities wrapped around the splice will do temporarily. Hold in

place with twine, shoelaces, or other similar material. Wadded paper stuffed around a bare wire that cannot be reached for splicing will keep it from touching bare metal of the set and grounding the wire.

67. Load Terminals and Terminal Boards

a. Removal.

- (1) Remove the control panel assembly (par. 59).
- (2) Refer to figure 21 and remove the load terminals and terminal boards.

b. Cleaning and Inspection.

- (1) Clean all parts with an approved solvent and dry thoroughly.

- (2) Inspect the terminal boards for cracks and breaks. Inspect the terminals for cracks, damaged threads, and defective or missing components.
- (3) Replace all missing mounting hardware. Replace a defective terminal board. Replace an unserviceable load terminal.

c. Installation.

- (1) Refer to figure 21, and install the load terminals.
- (2) Install the control panel assembly (par. 59).

CHAPTER 4

DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

68. General

When capture or abandonment of the generator set to an enemy is imminent, the responsible unit commander must make the decision either to destroy the equipment or render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all generator sets and all corresponding repair parts.

69. Demolition To Render Generator Set Inoperative

a. Mechanical Means. Using an axe, sledge hammer, pick, pick-mattock, or other tools available, punch holes in the fuel tank and inflict severe damage to such items as the generator, control panel, carburetor assembly, exhaust manifold, and the engine.

b. Misuse. Add sand to the oil in the engine base and throw sand and metal filings into the generator. Run the engine until the generator set fails.

70. Demolition By Explosives or Weapons Fire

a. Explosives. Place as many of the following charges (fig. 22) as the situation permits and detonate them simultaneously with a detonating cord and a suitable detonator:

- (1) A $\frac{1}{2}$ pound charge between carburetor and engine.
- (2) A $\frac{1}{2}$ pound charge under the generator.

Note. The above constitutes the minimum requirements for this method.

b. Weapons Fire. Fire on the generator set with the heaviest suitable weapons available.

71. Other Demolition Methods

a. Scattering and Concealment. Remove all easily accessible parts such as the air cleaner, carburetor, and generator brushes, and scatter them through dense foliage, bury them in the dirt or sand, or throw them in a lake, river, stream or other body of water.

b. Burning. Pack rags, clothing, or canvas under and around the engine and generator. Saturate this packing with gasoline, oil, or diesel fuel, and ignite.

c. Submersion. Knock the spark plug base from the engine with any convenient tool and completely submerge the generator set in a body of water to provide water damage and concealment. Salt water will do greater damage to metal parts than fresh water.

72. Training

All operators should receive thorough training in the destruction of the generator set. (Refer to FB 5-25.) Simulated destruction, using all of the methods listed above, should be included in the generator training program. It must be emphasized in training, that demolition operations usually are necessitated by critical situations when time available for carrying out destruction is limited. For this reason, it is necessary that operators be thoroughly familiar with all methods of destruction of equipment, and be able to carry out demolition instructions without reference to this or any other manual.

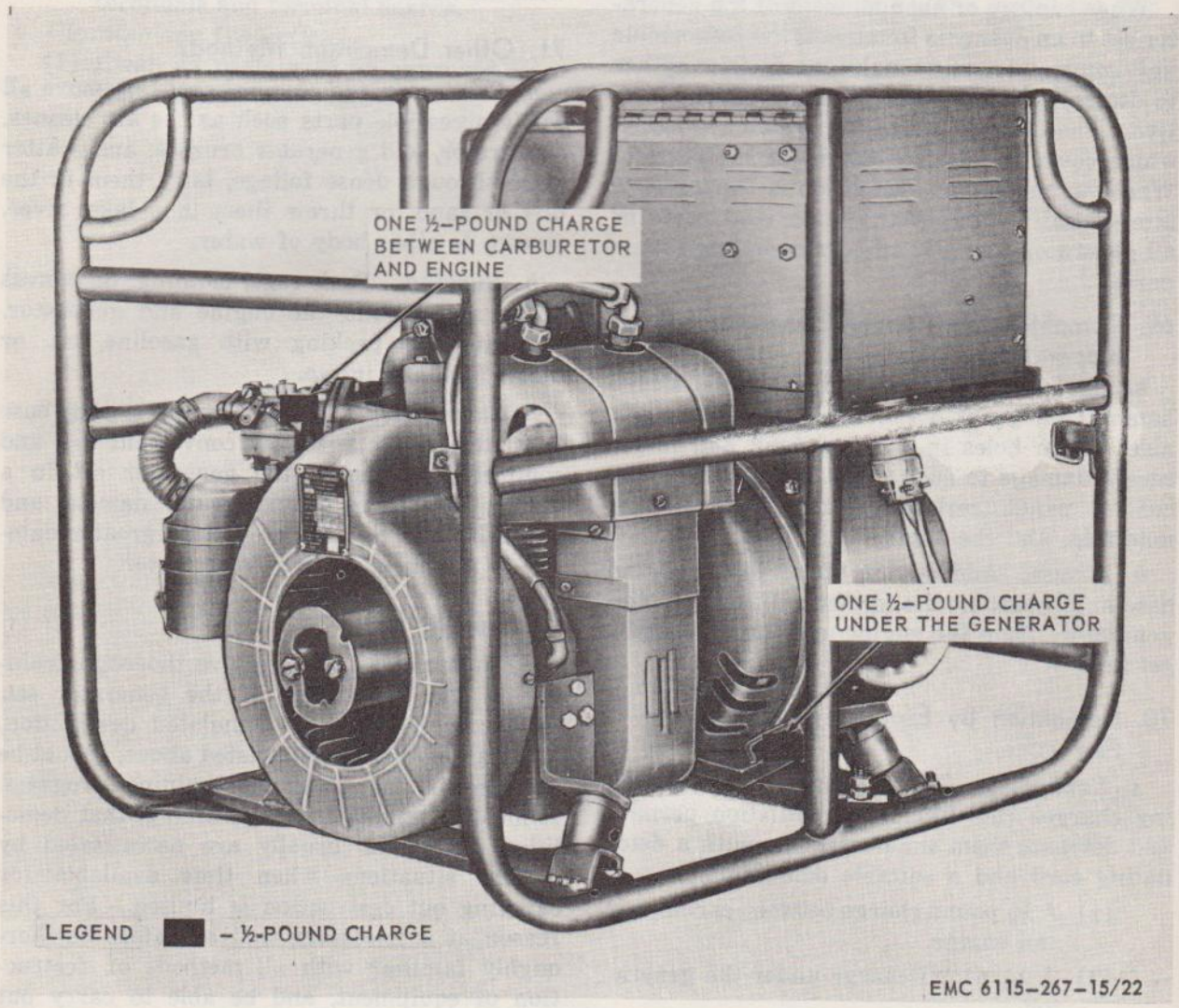


Figure 22. Placement of charges.

CHAPTER 5

SHIPMENT AND LIMITED STORAGE

Section I. SHIPMENT WITHIN ZONE OF INTERIOR

73. Preparation of Equipment for Shipment

a. General. Detailed instructions for the preparation of the generator set for domestic shipment are given below. Preservation will be accomplished in sequence that will not require the operation of previously preserved components.

b. Inspection. Equipment will be inspected for any unusual condition such as damaged, rusting, accumulation of water, or pilferage. DA Form 2404 (Equipment Inspection and Maintenance Worksheet) and DA Form 2408-3-1 (Equipment Maintenance Record—Selected Items (Organizational)) will be executed on the generator set.

c. Cleaning and Drying. Thorough cleaning and drying by an approved technique is the first essential procedure in any effective preservation process. Approved methods of cleaning, drying, types of preservatives and methods of application are described in TM 38-230.

d. Painting. Paint all surfaces when the paint has been removed or damaged. Refer to TN ENG 60 for detailed cleaning and painting instructions.

e. Depreservation Guide. Annotate DA Form 2258 (Depreservation Guide of Engineer Equipment) concurrently with the preservation of each generator set. Outline any peculiar requirements in blocks 27 through 33. Place the completed depreservation guide in a waterproof envelope marked "Depreservation Guide" and secure in a conspicuous location on or near the operator's controls.

f. Lubrication System. Check level of lubricant. Operate the engine at a fast idle until lubricant has been circulated throughout the system. The crankcase will then be drained and the drain plug reinstalled.

g. Sealing of Openings. Openings that will permit the direct entry of water into the interior of the engine, generator, or control panel will be sealed with pressure-sensitive tape conforming to Specification PPP-T-60, type III, class I.

h. Fuel Tank. Drain fuel tank after engine preservation and for interior with preservative oil, type P-10, grade 2, conforming to Specification MIL-L-21260.

i. Air Cleaners. Drain the air cleaner and seal all openings that permit the direct entry of water. Use type III, class 1, waterproof pressure-sensitive adhesive tape conforming to PPP-T-60.

j. Marking. Marking will conform to MIL-STD-129.

k. Disassembly, Disassembled Parts, and Basic Issue Items.

(1) Disassembly will be limited to the removal of auxiliary fuel and exhaust lines.

(2) Basic issue and disassembled items will be packed in a suitable container and secured to the equipment to prevent loss or pilferage.

l. Packing. Pack the generator set and components in a suitable container. Refer to TM 38-230 for guidance in container selection, fabrication, and packing.

74. Loading Equipment for Shipment

Load the generator set on the carrier using a handtruck, forklift, or manpower. The unit must be kept right side up when handling. Block or tie it to the bed of the carrier to prevent shifting while it is being transported.

Section II. LIMITED STORAGE

75. Preparation of Equipment for Storage

a. General. Detailed instructions for preserving and maintaining equipment in limited storage are outlined in this paragraph. Limited storage is defined as storage not to exceed 6 months. Refer to AR 743-505.

b. Inspection. Equipment will be inspected for any unusual condition such as damage, rusting, accumulation of water, or pilferage. DA Form 2404 and DA Form 2408-3-1 will be executed on the generator set.

c. Cleaning and Drying. Thorough cleaning and drying by an approved method is the first procedure in any preservation process. Approved methods of cleaning, drying, types of preservatives, and methods of application are described in TM 38-230.

d. Painting. Paint all surfaces when the paint has been removed or damaged. Refer to TB ENG 60 for detailed cleaning and painting instructions.

e. Depreservation Guide. Refer to paragraph 73e.

f. Sealing of Openings. Refer to paragraph 73g.

g. Fuel Tank. Refer to paragraph 73h.

h. Disassembly, Disassembled Parts, and Basic Issue Items. Refer to paragraph 73k.

i. Weatherproofing.

- (1) Store the generator set under cover if space is available.

(2) When outdoor storage is necessary—

(a) Store the generator set on the most suitable hardstanding or natural ground surface available.

(b) Cover the generator set with a tarpaulin or other suitable waterproof covering and tie down securely.

76. Inspection and Maintenance of Equipment in Storage

a. Inspection. When equipment has been placed in storage, all scheduled preventive maintenance services, including inspection, will be suspended and preventive maintenance inspection will be performed as specified herein. Refer to AR 743-505.

b. Worksheet and Preventive Maintenance. Applicable forms listed in TM 38-750 will be prepared for each major item of equipment when initially placed in limited storage in accordance with the scheduled interval contained in AR 743-505. Perform required maintenance promptly to make sure equipment is mechanically sound and ready for immediate use.

c. Operation. Operate equipment in limited storage long enough to bring it up to operating temperature and insure complete lubrication of all bearings, gears, and the like, in accordance with the scheduled interval contained in AR 743-505. Equipment must be serviced and in satisfactory operating condition before it is operated.

CHAPTER 6

FIELD AND DEPOT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

77. Scope

a. The following instructions are for field and depot maintenance personnel. They contain information on equipment maintenance that is beyond the scope of the tools, equipment, personnel, or supplies normally available to organizational maintenance.

b. Appendix I includes the publications applicable to field and depot maintenance. Appendix II contains the Maintenance Allocation

Chart. The Field and Depot Maintenance Repair Parts and Special Tool Lists are listed in TM 5-6115-267-25P.

78. Record and Report Forms

For record and report forms applicable to field and depot maintenance, refer to TM 38-750.

Note. Applicable forms, excluding Standard Form 46 which is carried by the operator, will be kept in a canvas bag mounted on the equipment.

Section II. DESCRIPTION AND DATA

79. Description

For a complete description of the generator set, see paragraph 3.

80. Tabulated Data

a. *General.* This paragraph contains all the overhaul data pertinent to field and depot maintenance personnel. A wiring diagram (fig. 23) is also included.

b. Voltage Regulator.

Manufacturer ----- Electric Regulator Co.
 Type ----- Regohm 22587-1
 Kva (kilovolt amperes) ----- 1-5
 Volts ----- 24-32
 Cycles ----- DC
 Amperes ----- 1.3
 Ohms ----- 50

c. Reverse Current Relay.

Manufacturer ----- Hartman Electric Mfg. Co.
 Type ----- AL
 Style ----- 725 J
 Amperes ----- 55
 Volts ----- 28

d. Generator Classification and Rating.

Voltage ----- 28v (volts at 3,600 rpm)
 (revolutions per minute)
 Amperes ----- 53.57
 Rated kw ----- 1.5
 Cooling ----- Fan
 Lubrication, type ----- Sealed bearing

Duty classification ----- Continuous
 Degree of inclosure ----- Fully inclosed
 Drive ----- Direct, quill, shaft-mounted

e. Generator Rebuild Data.

Interpole coils:

Size and type of wire ----- 0.065 x 0.170 in. rectangular magnet wire

Number of turns per layer ----- 6

Insulation ----- $\frac{3}{4}$ in. block fiberboard, $1\frac{1}{2}$ x $2\frac{1}{4}$ in.; 0.010 x $\frac{1}{8}$ x $1\frac{3}{8}$ in.

Dipping ----- 5 minutes in insulator varnish conforming to MIL-V-11874

Draining ----- $2\frac{1}{2}$ hours

Baking ----- 5 hours at 275° F.

Field Windings:

Shunt section:

Size and type of wire ----- No. 19 single formex magnet wire

Number of turns per coil ----- 600

Number of coils in each field ----- 4

Number of turns per layer ----- 26

Crank winding section:

Size and type of wire ----- 0.128 x 0.128 in. rectangular magnet wire

Number of turns per coil ----- 3

Number of coils in each field.	4
Number of turns per layer.	3
Insulation	Paper 0.015 in. thick
Taping	$\frac{3}{4}$ x 0.007 in. standard linen finished insulating tape
Lap	50 percent
First dipping	5 minutes in insulator varnish, conforming to MIL-V-11374
First draining	2½ hours
First baking	5 hours at 275° F.
Second dipping	Same as first dipping
Second draining	15 minutes
Second baking	5 hours at 275° F.
Armature:	
Winding	2 No. 16 formex magnet wire
Number of turns per coil	3
Size of strip	$\frac{7}{8}$ x 3½ in. paper 0.015 in. thick.
Coils per slot	2
Number of commutator bars	66
Commutator pitch	1 and 2

Core pitch	1 and 9
Insulation	Paper 0.015 in. thick
First dipping	75 minutes in insulator varnish, conforming to MIL-V-11374
First draining	2½ hours
First baking	5 hours at 275° F.
Second dipping	Same as first dipping
Second draining	1 hour
Second baking	5 hours at 275° F.

f. *Engine Repair and Rebuild Data.* Refer to TM 5-2805-206-14.

g. *Time Standards.* Table I lists the number of man-hours required under normal conditions to perform the indicated maintenance and repair for the generator set. Components are listed under the appropriate functional index. The times listed are not intended to be rigid standards. Under adverse conditions, the operations will take longer; but under ideal conditions with highly skilled personnel, most of the operations can be accomplished in considerably less time.

Table I. Time Standards

	Lubrication and Service	Hours
03 FUEL SYSTEM		
0301 TANKS, LINES, FITTINGS		
Tank, fuel		0.1
Strainer, fuel tank		0.1
	Remove and Replace	
01 ENGINE		
0100 ENGINE ASSEMBLY		
Engine, gasoline		2.8
(Engine and generator assembly out of unit, includes disassembly of generator from engine.)		
Engine and generator assembly		2.0
(Includes removal and installation of control panel, and fuel tank)		
Support, engine (ea)		0.3
Dampener, vibration (ea)		0.3
03 FUEL SYSTEM		
0306 TANKS, LINES, FITTINGS		
Tank, fuel		0.5
Strainer, fuel tank		0.1
Cock, plug		0.3
Hose, fuel		0.2
15 FRAME		
1501 FRAME ASSEMBLY		
Frame assembly, base		2.0
(Includes removal and installation of control panel, fuel tank, and engine and generator assembly).		
22 MISCELLANEOUS BODY, CHASSIS OR HULL, AND ACCESSORY ITEMS		
2201 CANVAS, RUBBER OR PLASTIC ITEMS		
Cover, canvas		0.1
2210 DATA PLATES AND INSTRUCTION HOLDERS		
Plate, identification (C.O.E.)		0.3
Plate, instruction		0.3

Table I. Time Standards—Continued

	Hours
40 ELECTRIC MOTORS AND GENERATORS (OTHER THAN ENGINE ACCESSORIES)	
4000 GENERATOR ASSEMBLY	
Generator assembly -----	2.8
(Engine and generator assembly out of unit, includes disassembly of generator from engine.)	
Dampener, vibration (ea) -----	0.3
Support, generator -----	0.5
4001 ROTOR ASSEMBLIES	
Armature assembly -----	1.0
(Includes removal and installation of endbell cover and bearing)	
4002 STATOR ASSEMBLIES	
Frame assembly -----	2.5
(Engine and generator assembly out of unit includes removal and installation of endbell armature and cable assembly.)	
Pole, piece (ea) -----	0.5
(Frame assembly removed)	
Winding, generator (ea) -----	0.8
(Frame assembly removed includes removal and installation of field pole.)	
Cable assembly -----	0.8
(Stator removed)	
4003 BRUSH HOLDERS	
Spider, brush -----	0.4
(Endbell removed)	
Holder, brush (ea) -----	0.2
(Ring assembly removed)	
Brush, electrical -----	0.5
(Includes adjusting brush spring tension)	
4004 VENTILATING SYSTEM	
Fan -----	0.3
(Includes removal and installation of endbell cover)	
4005 FRAME SUPPORTS AND HOUSINGS	
Endbell, ce -----	2.5
(Engine and generator assembly out of unit, includes removal and installation of endbell cover, fan and cable assembly.)	
Endbell, de -----	2.8
(Engine and generator assembly out of unit, includes removal and installation of endbell cover, fan and armature.)	
Bearing -----	0.4
(Armature removed)	
Cover, endbell -----	0.1
4009 CONTROL PANELS, HOUSINGS, CUBICLES	
Control panel assembly -----	0.8
Ammeter -----	0.3
Voltmeter -----	0.3
Shunt, ammeter -----	0.3
Mount, resilient (ea) -----	0.3
Cable assembly -----	1.0
4011 CIRCUIT BREAKERS, CUTOUTS, FUSE AND FUSE HOLDERS	
Circuit breaker -----	1.0
4012 SWITCHES	
Switch, start -----	0.3
4013 REGULATOR, VOLTAGE OR CURRENT	
Regulator, voltage -----	1.0
Regulator, plug-in -----	0.2
4014 RESISTORS	
Resistor, variable -----	0.5
4015 RELAY OR ASSEMBLY	
Relay, reverse current -----	0.5

Table I. Time Standards—Continued

	Hours
4018 TERMINAL BLOCKS, JUNCTION BOXES	
Terminal board	0.5
Terminal, load (ea)	0.3
4019 RADIO INTERFERENCE SUPPRESSION	
Capacitor	0.2
Lead, ground	0.2
47 GAGES (NONELECTRICAL); WEIGHING AND MEASURING DEVICES	
4702 GAGES, MOUNTINGS, LINES AND FITTINGS	
Gage assembly, fuel	0.2

h. Engine Repair and Replacement Standards. Refer to TM 5-2805-206-14 for engine repair and replacement standards.

Section III. SPECIAL TOOLS AND EQUIPMENT

81. Special Tools and Equipment

No special tools and equipment are required to perform field or depot maintenance on the generator. For special engine tools and equipment, refer to TM 5-2805-206-14.

82. Field and Depot Maintenance Repair Parts

Field and Depot Maintenance Repair Parts are listed and illustrated in TM 5-6115-267-25P and TM 5-2805-206-14P.

83. Specially Designed Tools and Equipment

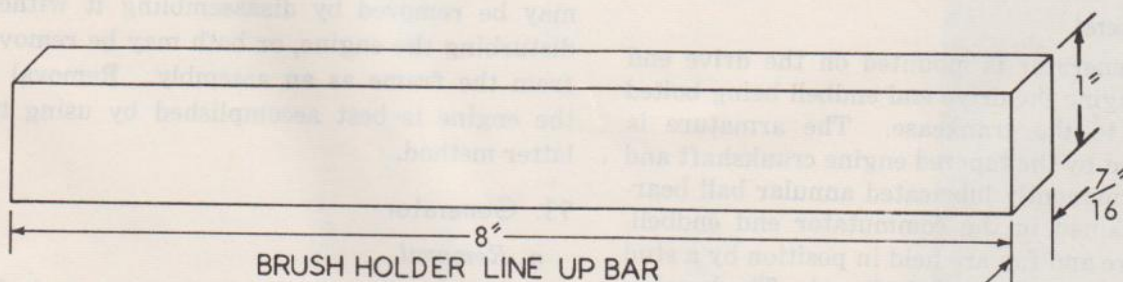
a. The specially designed tool illustrated in figure 24 and listed in Table II is for field and

depot maintenance personnel performing major overhaul work on the generator set. The tool listed in Table II is not available for issue, but must be fabricated by qualified field and depot maintenance personnel.

Table II. Specially Designed Tools

Item	Figure	Paragraph	Use
Brush holder line bar.	29	96	To line up the brush holders on the brush gear.

b. There is no specially designed tools used to perform field and depot maintenance on the engine.



MATERIAL	F. S. N.
STEEL BAR	9510-596-3720

EMC 6115-267-15/24

Figure 24. Specially designed tools and equipment.

Section IV. TROUBLESHOOTING

84. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the generator set and its components. Each trouble symptom stated is followed by a list of probable causes of trouble. The possible remedy recommended is described opposite the probable cause.

85. Generator Fails To Build Up Rated Voltage

<i>Probable cause</i>	<i>Possible remedy</i>
Brush contact poor.....	Repair or replace defective brush holders (par. 96).
Open circuit in armature winding.	Replace armature (par. 96).
Solder thrown out of commutator.	Resolder commutator (par. 96).
Voltage regulator defective.	Replace voltage regulator (par. 98).
Engine speed too slow.....	Refer to TM 5-2805-206-14 for engine maintenance.
Field coil shorted out.....	Repair or replace defective coil (par. 96).

86. Generator Voltage Drops Under Load

<i>Probable cause</i>	<i>Possible remedy</i>
Engine lacks power.....	Refer to TM 5-2805-206-14 for engine maintenance.
Voltage regulator defective.	Replace regulator (par. 98).
Engine governor out of adjustment.	Refer to TM 5-2805-206-14 for engine maintenance.

87. Generator Overheats

<i>Probable cause</i>	<i>Possible remedy</i>
Brush pressure incorrect....	Replace defective tension springs (par. 96).

<i>Probable cause</i>	<i>Possible remedy</i>
Armature or field coils shorted or grounded.	Repair or replace defective armature or field coils (par. 96).
Bearing defective	Replace bearing (par. 96).

88. Generator Brushes Spark Excessively

<i>Probable cause</i>	<i>Possible remedy</i>
Brush holder loose or defective.	Tighten or replace a defective brush holder (par. 96).
Brush pressure weak.....	Replace defective tension springs (par. 96).
Brush gear misaligned.....	Align brush gear (par. 96).
High mica	Repair commutator (par. 96).
Field coil windings grounded open, or shorted.	Repair or replace defective field coils (par. 96).
Armature defective	Repair or replace defective armature (par. 96).

89. Generator Voltage High

<i>Probable cause</i>	<i>Possible remedy</i>
Engine speed too high.....	Refer to TM 5-2805-206-14.
Regulator defective	Replace regulator (par. 98).

90. Voltage Fluctuates

<i>Probable cause</i>	<i>Possible remedy</i>
Voltage regulator unstable.	Replace voltage regulator (par. 98).
Terminal connections loose.	Tighten terminal connections (par. 96).

91. Generator Noisy

<i>Probable cause</i>	<i>Possible remedy</i>
Bearing defective	Replace bearing (par. 96).
Endbell loose	Tighten endbell (par. 93).

Section V. REMOVAL AND INSTALLATION OF GENERATOR ENGINE

92. General

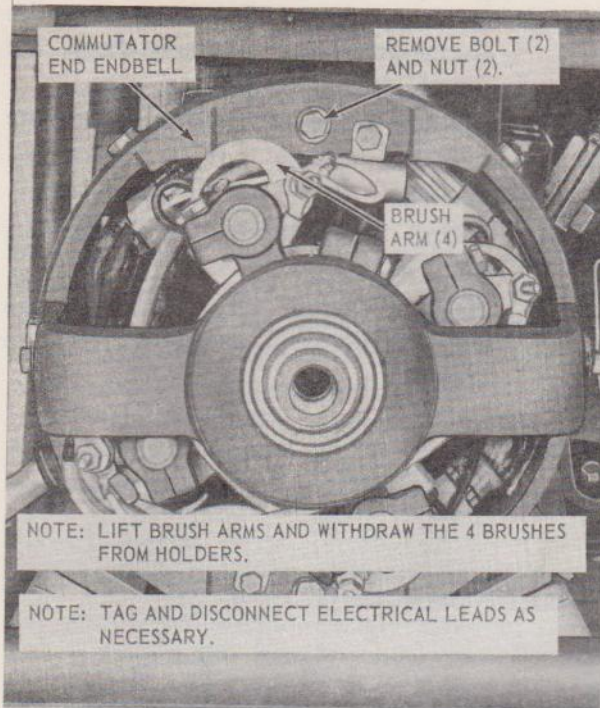
The generator is mounted on the drive end of the engine the drive end endbell being bolted directly to the crankcase. The armature is supported by the tapered engine crankshaft and by a permanently lubricated annular ball bearing contained in the commutator end endbell. Armature and fan are held in position by a stud threaded into the crankshaft end. The brushes are mounted on the brush gear assembly inside the commutator end endbell. They provide the necessary electrical connection to the commutator segments on the armature. The generator

may be removed by disassembling it without disturbing the engine, or both may be removed from the frame as an assembly. Removal of the engine is best accomplished by using the latter method.

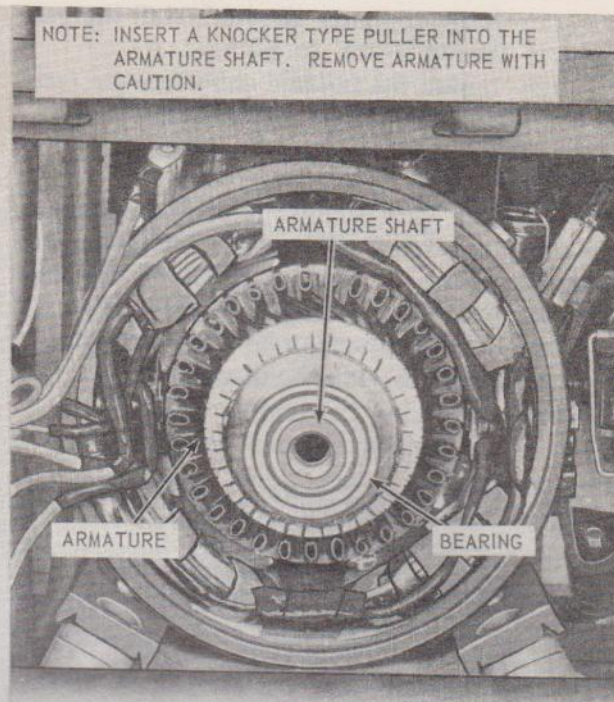
93. Generator

a. Removal.

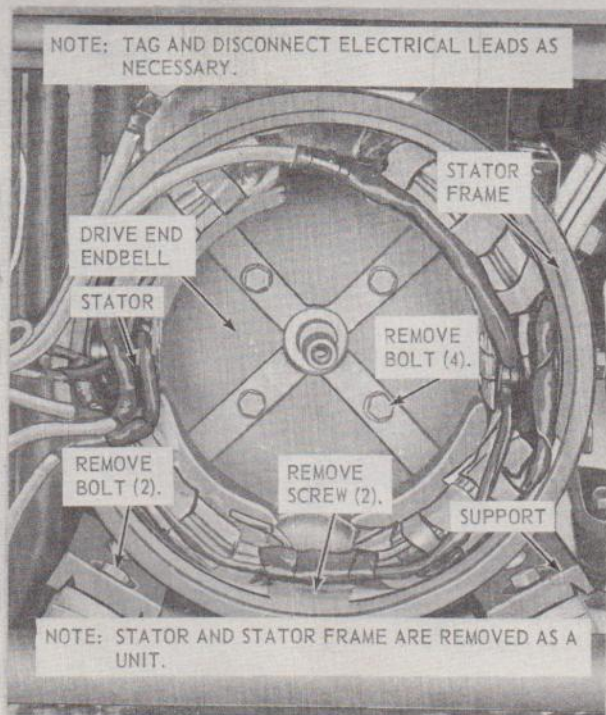
- (1) Remove the endbell cover and fan (par. 56).
- (2) Refer to figure 25 and remove the generator.



A. COMMUTATOR END ENDBELL.



B. ARMATURE AND BEARING.



C. STATOR, STATOR FRAME, DRIVE END ENDBELL, AND SUPPORT.

EMC 6115-267-15/25

Figure 25. Generator—removal and installation.

b. Installation.

- (1) Refer to figure 25 and install the generator.
- (2) Install the fan and endbell cover (par. 56).

94. Engine

a. General. This paragraph provides instructions for removing the engine and generator from the frame as an assembly. To separate the two, proceed as outlined in paragraph 93. If desired, the engine may be removed without disturbing the generator housing.

b. Removal.

- (1) Refer to figure 26 and remove the engine-generator assembly from the frame.
- (2) Remove the generator from the engine (par. 93).

c. Installation.

- (1) Install the generator on the engine (par. 93).
- (2) Refer to figure 26 and install the engine-generator assembly in the frame.

NOTE: DISCONNECT GENERATOR CABLE ASSEMBLY FROM CONTROL BOX (PAR. 58).

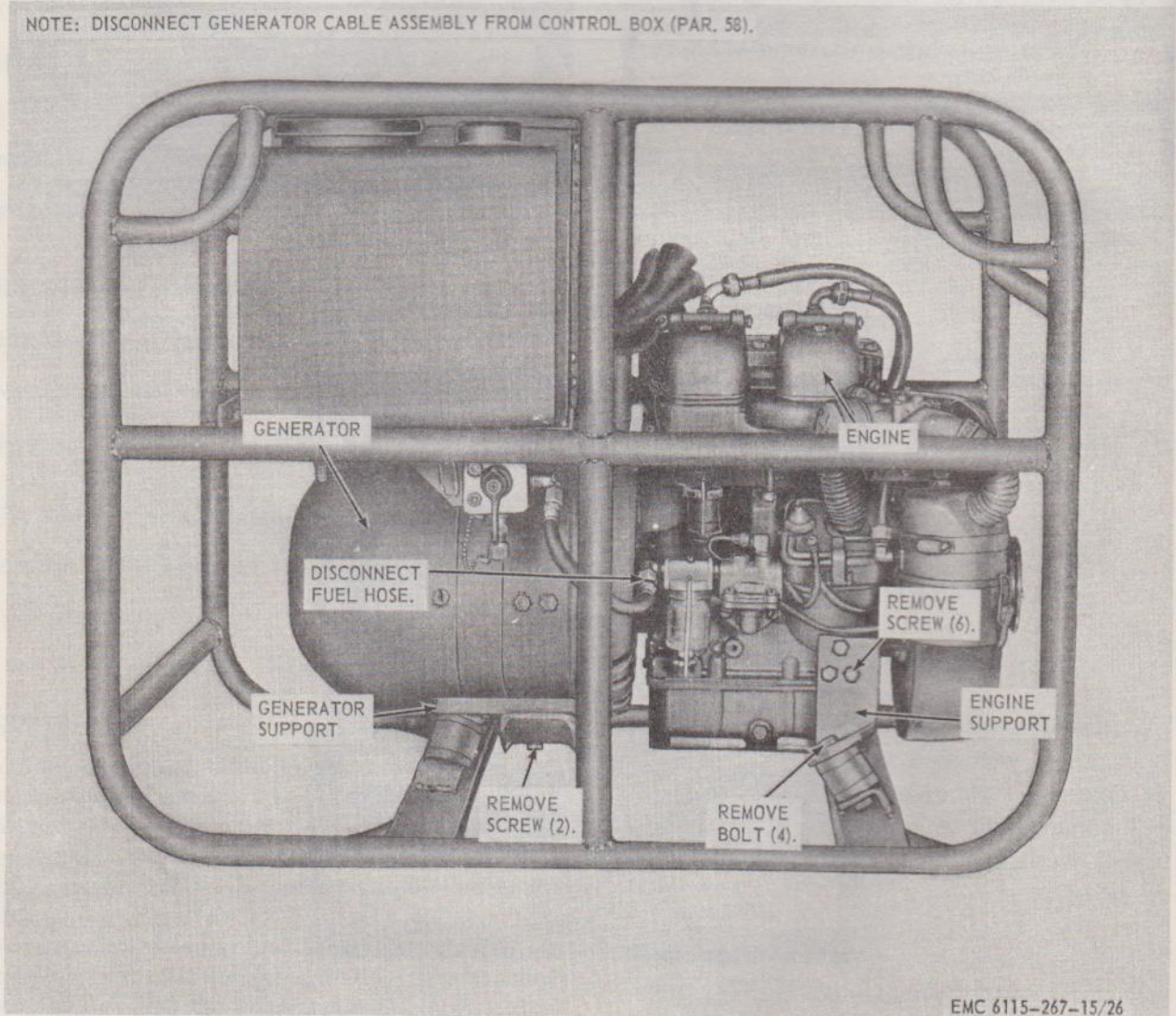


Figure 26. Engine-generator assembly, generator support, and engine supports—removal and installation.

Section VI. GENERATOR REPAIR INSTRUCTIONS

95. General

The generator is coupled directly to the engine block, with the armature mounted on the crankshaft. The magnet pole pieces are mounted inside the stator frame. They hold the field windings in position. The field windings are made up of the cranking winding, made of very heavy wire, and the generator shunt field winding, made of many turns of small gage wire. The interpole coils (armature windings) are mounted beside the field windings inside the frame. The outboard armature ball bearing is carried by the commutator end endbell.

96. Generator

a. On-Equipment Testing.

- (1) Remove the endbell cover and fan (par. 56).
- (2) Test the armature assembly for continuity and insulation resistance as directed in TM 5-764.
- (3) Test the field windings for insulation resistance and series resistance as directed in TM 5-764. The field series resistance should measure not more than 5 percent above or below 17.5 ohms.

Note. The resistance measurements, together with their tolerances contained herein, should be used only as a general guide, taking into consideration the accuracy of the instrument used, test lead resistance, and ambient temperature at time of test. If more precise measurements are required, an instrument such as a Kelvin or Wheatstone bridge should be used, or comparative measurements between the suspected component and a like item known to be good should be utilized.

b. Removal. Refer to paragraph 93 and remove the generator from the engine and frame.

Note. The following test must be made before removing the brush gear from the commutator end endbell.

c. Brush Holder Testing.

- (1) Use a megohmmeter to measure the resistance between each brush holder and the commutator end endbell.

- (2) A reading of less than 0.2 megohm indicates faulty insulation and the brush holder must be replaced.

Note. In all cases where a megohmmeter is used for testing, make certain that the unit is thoroughly dry. Wet condemnation tolerances should be considered.

d. Disassembly.

- (1) *Endbell capacitors.* Remove the endbell capacitors (par. 48).
- (2) *Commutator end endbell and stator.* Refer to figure 27 and disassemble the commutator end endbell and stator.
- (3) *Brush gear.* Refer to figure 28 and disassemble the brush gear.

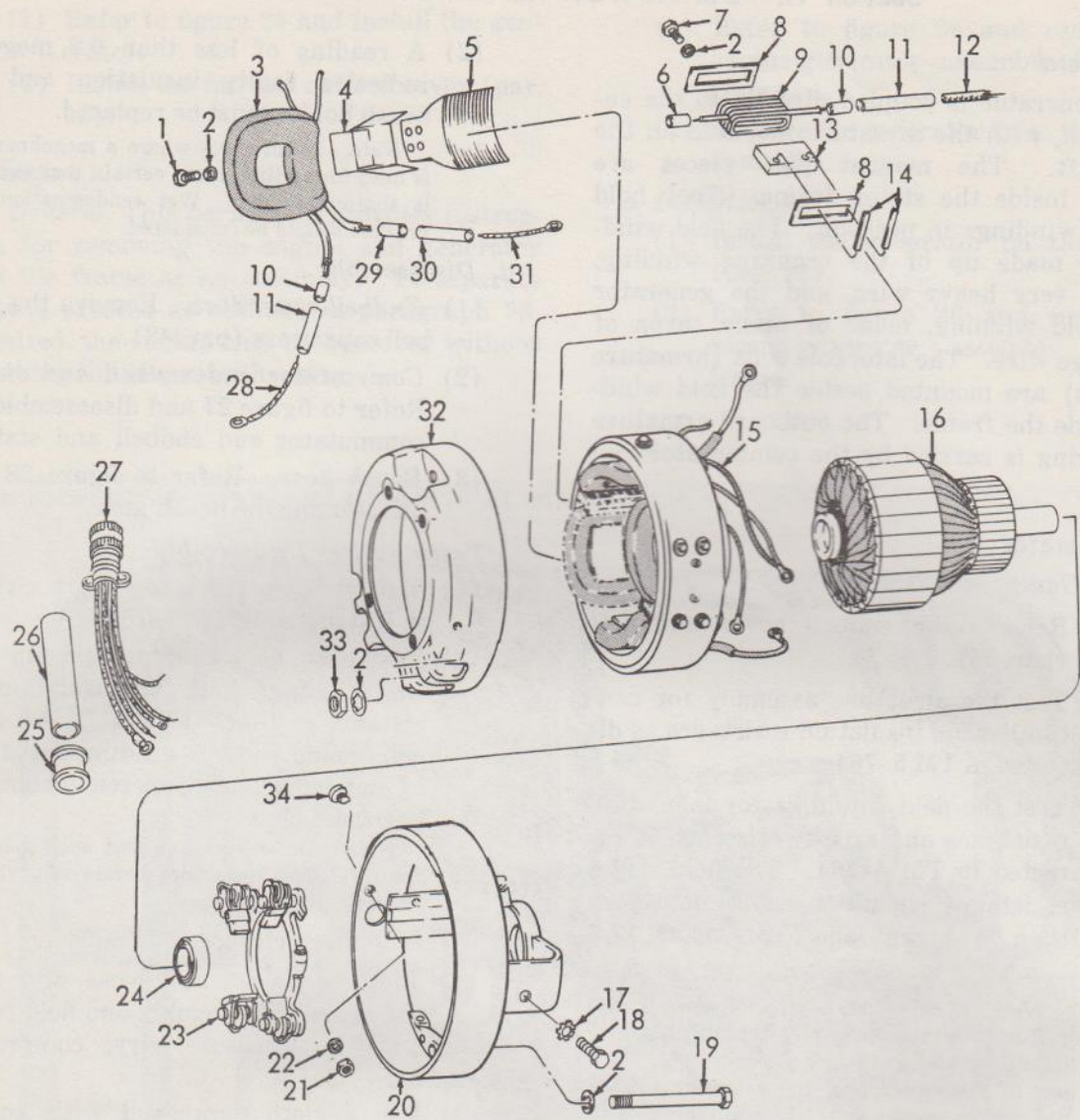
e. Testing After Disassembly.

- (1) Test the armature for short circuits as instructed in TM 5-764.
- (2) Test each field coil for resistance of the windings and for insulation resistance as directed in TM 5-764. Each coil should show a winding resistance of not more than 5 percent above or below 4.4 ohms.

Note. Disconnect and test each field coil for insulation resistance before removing it from the field frame.

f. Cleaning, Inspection, and Repair.

- (1) Blow any dust and loose dirt from the armature assembly and field frame with low-pressure, dry, compressed air.
- (2) Use a cloth dampened with an approved cleaning solvent to remove accumulations of grease and oil from the field windings.
- (3) Inspect the armature assembly for a bent shaft, worn or out-of-round commutator, and evidence of physical damage to the core or field windings.
- (4) Inspect the field for cracks, breaks, defective mounting hardware, and evidence of physical damage to the field windings.
- (5) If the commutator has a total runout of more than 0.001 inch as measured with a dial indicator, turn the commutator down on a lathe. After turn-

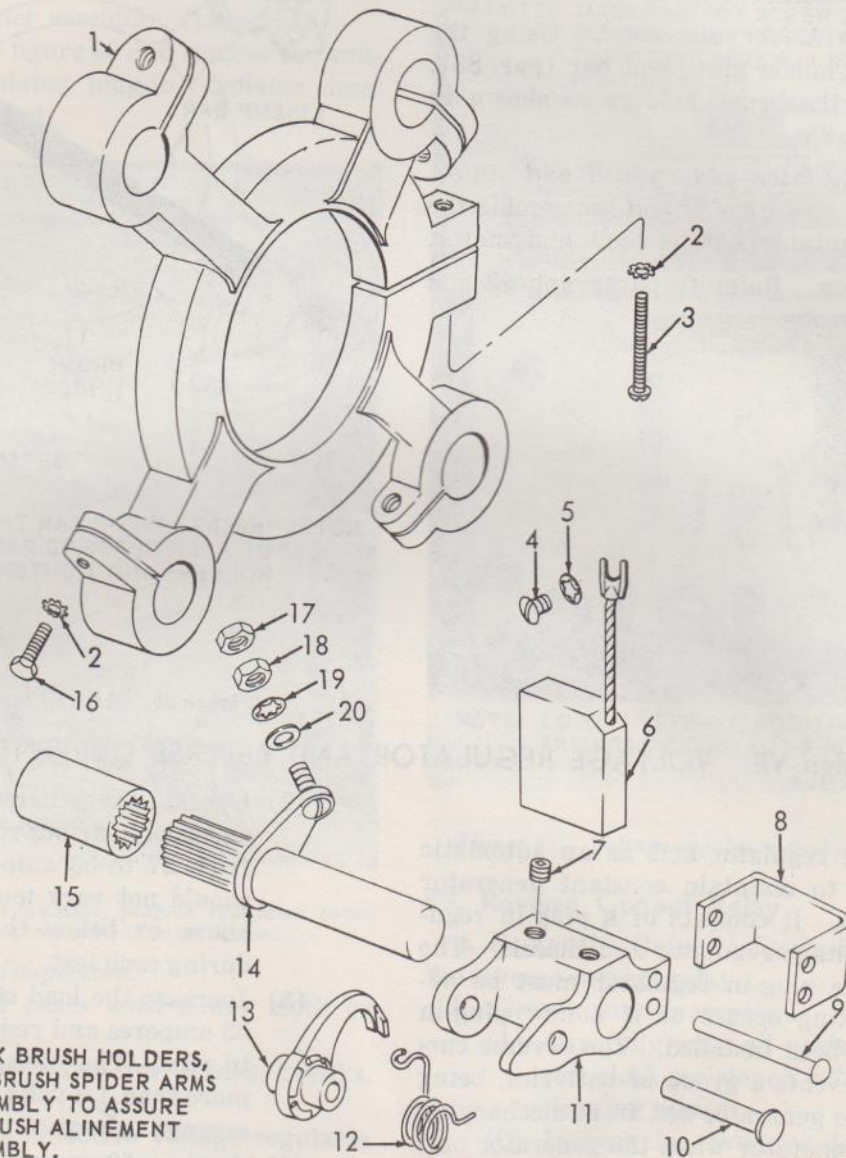


NOTE: MATCHMARK BRUSH GEAR AND COMMUTATOR ENDBELL BEFORE DISASSEMBLY TO ASSURE PROPER BRUSH ALINEMENT UPON REASSEMBLY.

EMC 6115-267-15/27

- | | |
|---|--|
| 1 Bolt, machine, $\frac{1}{8}$ -18 x $1\frac{1}{4}$ in. (8 rqr) | 18 Screw, cap, hex hd, $\frac{1}{4}$ -20 x $\frac{1}{4}$ in. (2 rqr) |
| 2 Washer, lock, in. $\frac{1}{16}$ (16 rqr) | 19 Bolt, machine, $\frac{1}{8}$ -18 x $5\frac{1}{2}$ in. (2 rqr) |
| 3 Generator field winding (4 rqr) | 20 Commutator end endbell |
| 4 Insulator (4 rqr) | 21 Nut, self-locking, hex, No. 10-24 |
| 5 Magnet pole piece (4 rqr) | 22 Washer, lock, No. 10 (2 rqr) |
| 6 Connector | 23 Brush gear assembly |
| 7 Bolt, machine, $\frac{1}{8}$ -18 x 1 in. (4 rqr) | 24 Annular ball bearing |
| 8 Interpole coil insulator (4 rqr) | 25 Rubber grommet |
| 9 Interpole coil (armature winding) (2 rqr) | 26 Sleeving |
| 10 Conductor splice (9 rqr) | 27 Cable assembly |
| 11 Sleeving | 28 Electrical lead, C2 to brush |
| 12 Interpole coil to brush electrical lead | 29 Conductor splice (6 rqr) |
| 13 Interpole (2 rqr) | 30 Sleeving |
| 14 Interpole pin (4 rqr) | 31 Electrical lead, F1 to brush |
| 15 Stator frame | 32 Drive end endbell |
| 16 Armature | 33 Nut, self-locking, hex, $\frac{1}{8}$ -18 (2 rqr) |
| 17 Washer, lock, $\frac{1}{4}$ in. (2 rqr) | 34 Screw, machine, No. 10-24 x $\frac{3}{4}$ in. |

Figure 27. Commutator end endbell and stator, disassembly and reassembly.



NOTE: MATCHMARK BRUSH HOLDERS, PINS, AND BRUSH SPIDER ARMS ON DISASSEMBLY TO ASSURE PROPER BRUSH ALINEMENT ON REASSEMBLY.

EMC 6115-267-15/28

- | | | | |
|----|---|----|---|
| 1 | Brush spider | 11 | Brush holder body (4 qqr) |
| 2 | Washer, lock, 1/4 in. (5 qqr) | 12 | Helical torsion spring (4 qqr) |
| 3 | Screw, machine, 1/4-20 x 1 1/8 in. | 13 | Brush arm (4 qqr) |
| 4 | Screw, machine, No. 10-24 x 1/4 in. (4 qqr) | 14 | Brush pin assembly (4 qqr) |
| 5 | Washer, lock, No. 10 (4 qqr) | 15 | Sleeve bushing (4 qqr) |
| 6 | Electrical contact brush (4 qqr) | 16 | Screw, cap, hex-hd, 1/4-20 x 3/4 in. (4 qqr) |
| 7 | Setscrew (spec) (4 qqr) | 17 | Nut, self-locking, hex, 1/4-20 thd (4 qqr) |
| 8 | Brush holder clip (4 qqr) | 18 | Nut, plain, hex-hd, brass, 1/4-20 thd (4 qqr) |
| 9 | Clip rivet (spec) (8 qqr) | 19 | Washer, lock, 1/4 in. (4 qqr) |
| 10 | Tubular rivet (4 qqr) | 20 | Washer, flat, brass 1/4 in. (4 qqr) |

Figure 28. Brush gear, disassembly and reassembly.

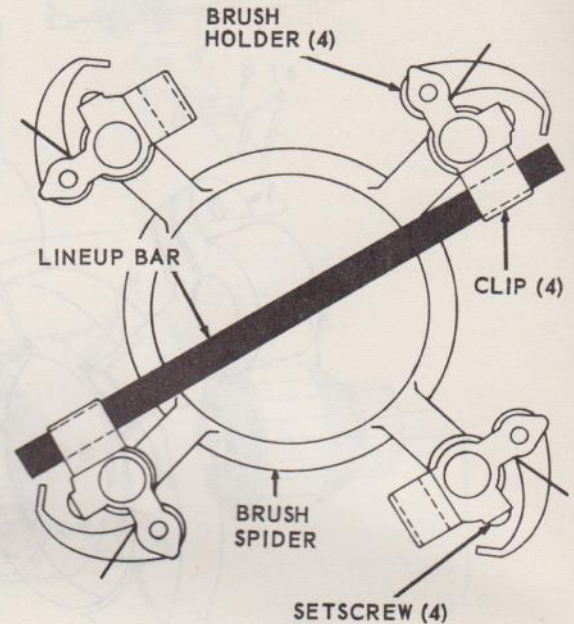
ing, smooth and polish as directed in paragraph 57.

- (6) Repair or replace all defective parts.

g. Reassembly.

- (1) *Brush gear.* Refer to figure 28 and reassemble the brush gear. Leave the brush holder body loose on the pin.
- (2) *Brush holder alinement.* Using the brush holder alinement bar (par. 83), aline the brush holders as shown in figure 29.
- (3) *Commutator end endbell and stator.* Refer to figure 27 and reassemble the commutator end endbell and stator.

h. Installation. Refer to paragraph 93 and install the generator.



NOTE: INSERT LINEUP BAR THROUGH CLIPS OF EACH OPPOSING PAIR OF BRUSH HOLDERS AND TIGHTEN SETSCREWS.

EMC 6115-167-15/29

Figure 29. Alining brush holders.

Section VII. VOLTAGE REGULATOR AND REVERSE CURRENT RELAY

97. General

The voltage regulator acts as an automatic field rheostat to maintain constant generator output voltage. It consists of a plug-in regulator and a voltage regulator and chassis. The dashpot in the plug-in regulator must be adjusted if hunting occurs or if a new plug-in regulator has been installed. The reverse current relay prevents a group of batteries, being charged by the generator set, from discharging through the generator when the generator output voltage falls below the battery voltage.

98. Voltage Regulator

a. On-Unit Testing.

Note. The engine speed regulation must be within a 3 percent limit for the following test.

- (1) Connect a precision direct current voltmeter and a load bank to the output terminals.

- (2) Operate the generator set at 28 volts and apply various constant load values from 27 to 53 amperes. The voltage should not vary more than 0.28 vol's above or below the average voltage during each test.
- (3) Increase the load slowly from zero to 53 amperes and reduce the load slowly to zero. The voltage should not vary more than 1.2 volts above or below the average voltage.
- (4) Apply a 53-ampere load suddenly and disconnect it suddenly. The regulator should reestablish stable voltage control in a maximum of 4 seconds.
- (5) If the voltage fails to meet the above requirements and the generator set is otherwise in good operating condition, adjust the plug-in regulator (*e* below).

- (6) If the voltage regulator operation is still not satisfactory, replace the plug-in regulator, the voltage regulator, or both, as required.

b. Removal.

- (1) Remove the control box assembly from the frame (par. 58).
- (2) Remove the control box cover and rear panel assembly (par. 59).
- (3) Refer to figure 30 and remove the voltage regulator, plug-in regulator cover and bracket.

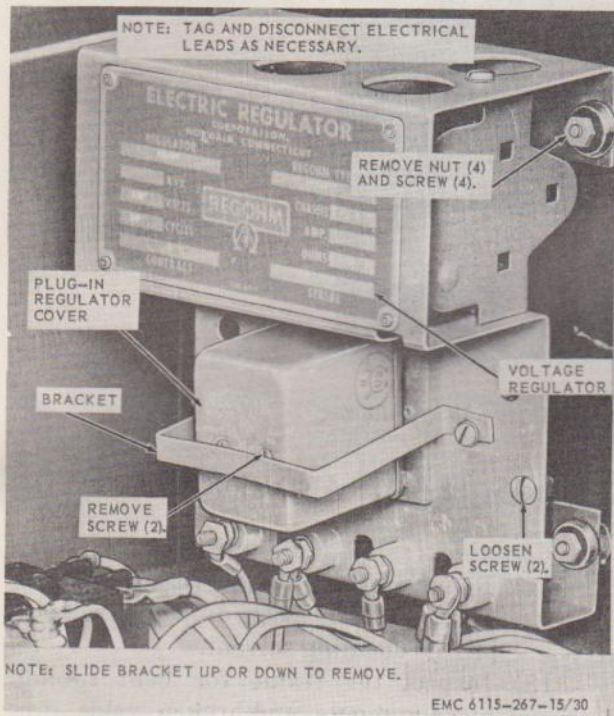


Figure 30. Voltage regulator, plug-in regulator cover and bracket—removal and installation.

c. Cleaning and Inspection.

- (1) Clean all parts with a dry cloth or soft brush.
- (2) Inspect all parts for cracks, breaks, or damaged wiring.
- (3) Replace a defective voltage regulator or plug-in regulator.

d. Installation.

- (1) Refer to figure 30 and install the voltage regulator, plug-in regulator cover and bracket.
- (2) Install the control box top cover and rear panel assembly (par. 59).
- (3) Install the control box assembly (par. 58).

e. Adjustment.

- (1) Remove the plug-in regulator cover (b above).
- (2) Start the generator (par. 17).
- (3) Refer to figure 31 and adjust the voltage regulator dashpot.

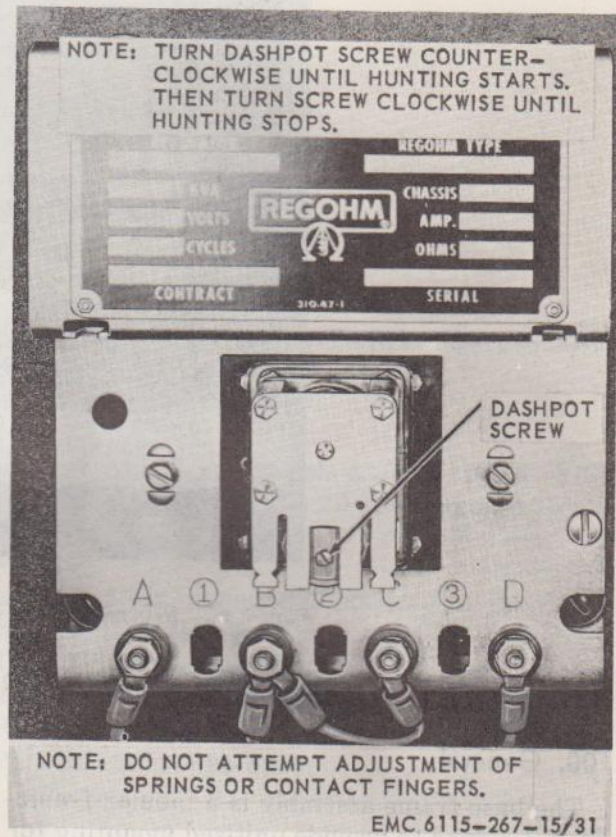


Figure 31. Voltage regulator dashpot adjustment.

99. Reverse Current Relay

a. Removal. Refer to figure 32 and remove the reverse current relay.

b. Cleaning and Inspection.

- (1) Carefully wipe all parts with a clean, soft cloth moistened with an approved cleaning solvent.
- (2) Inspect the cover for dents and other damage. Inspect the base for cracks, breaks, and missing mounting hardware. Inspect all working parts for malfunction.
- (3) Pound out all small dents in the cover.
- (4) Replace all missing mounting hardware. Replace a defective relay.

c. Installation. Refer to figure 32 and install the reverse current relay.

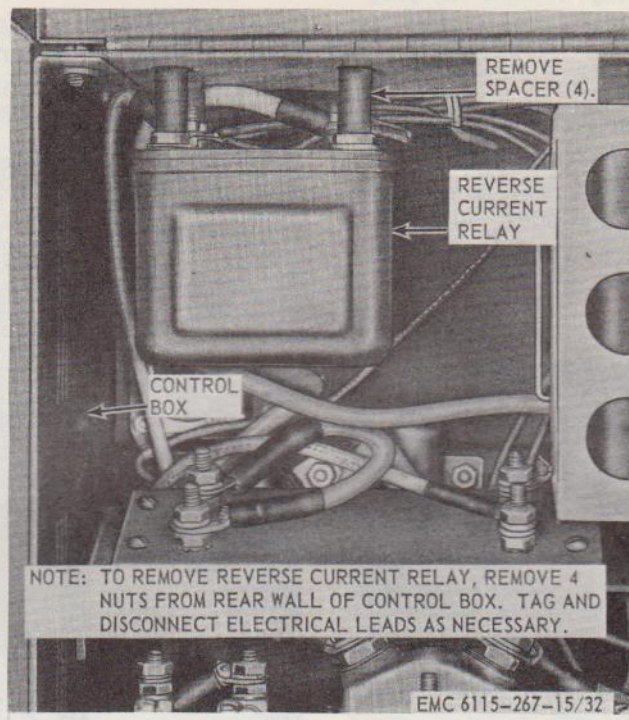


Figure 32. Reverse current relay—removal and installation.

Section VIII. ENGINE AND GENERATOR SUPPORTS, FRAME, AND GROUND STUD

100. General

The base frame assembly is a tabular framework designed to provide unitized mounting for the engine-generator assembly, control box, and generator set, and also serves as a skid for the fuel tank. It provides means of carrying the movement and installation of the set.

101. Engine and Generator Supports, Frame, and Ground Stud

a. Removal.

- (1) Remove the fuel tank (par. 53).
- (2) Remove the control box assembly (par. 58).
- (3) Remove the engine-generator assembly (par. 94).
- (4) Remove the engine and generator supports (fig. 26).
- (5) Remove the vibration dampeners (par. 56).
- (6) Remove generator ground lead and ground stud (par. 48).

b. Cleaning, Inspection, and Repair.

- (1) Remove all dirt and grease from the frame with a cloth dipped in an approved cleaning solvent.
- (2) Inspect the frame for bent tubing, nicks and cuts, and broken welds. Inspect the paint for wear and chipping.
- (3) Straighten a bent frame. Mend all broken welds. Paint frame as necessary.
- (4) Replace an unserviceable frame.

c. Installation.

- (1) Install the generator ground lead and ground stud (par. 48).
- (2) Install the vibration dampeners (par. 56).
- (3) Install the engine and generator supports (fig. 26).
- (4) Install the engine-generator assembly (par. 94).
- (5) Install the control box assembly (par. 58).
- (6) Install the fuel tank (par. 53).

APPENDIX I REFERENCES

1. Dictionaries of Terms and Abbreviations

- AR 320-5 Dictionary of United States Army Terms.
AR 320-50 Authorized Abbreviations and Brevity Codes.

2. Field Maintenance

- TM 5-764 Electric Motor and Generator repair.

3. Fire Protection

- SB 5-111 Extinguisher, Fire, Monobromotrifluoromethane, (CF₃Br), Charged FSN 4210-555-8837.

4. Lubrication

- LO 5-2805-206-14 Engine, Gasoline: Military Standard, 1½ Hp, Models 1A08-1 and 1A08-2;
Engine, Gasoline: Military Standard, 3 Hp, Models 2A016-1 and 2A016-2.

5. Operator, Organizational, and Field Maintenance

- TM 5-2805-206-14 Operator, Organizational, and Field Maintenance Manual.
Engine, Gasoline: (Military Standard Models).
(Model 1A08-1) 1½ HP, FSN 2805-601-5181;
(Model 1A08-2) 1½ HP, FSN 2805-714-8552;
(Model 2A016-1) 3 HP, FSN 2805-601-5127;
(Model 2A016-2) 3 HP, FSN 2805-714-8553.

6. Painting

- TB ENG 60 Preservation and Painting of Serviceable Corps of Engineers Equipment.

7. Preventive Maintenance

- AR 700-38 Unsatisfactory Equipment Report.
AR 750-5 Organization, Policies, and Responsibilities for Maintenance Operations.
TB ENG 347 Winterization Techniques for Engineer Equipment.
TM 5-505 Maintenance of Engineer Equipment.
TM 9-207 Operation and Maintenance of Ordnance Materiel in Extreme Cold Weather (0° to 65° F.).
TM 38-750 The Army Equipment Record System and Procedures.

8. Publication Index

- DA PAM 108-1 Index of Army Motion Pictures, Film Strips, Slides and Phono-Recordings.
DA PAM 310-1 Index of Administrative Publications.
DA PAM 310-2 Index of Blank Forms.
DA PAM 310-3 Index of Training Publications.
DA PAM 310-4 Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
DA PAM 310-5 Index of Graphic Training Aids and Devices.
DA PAM 310-25 Index of Supply Manuals—Corps of Engineers.

9. Radio Interference Suppression

TM 11-483 Radio Interference Suppression.

10. Shipment and Limited Storage

AR 743-505 Limited Storage of Engineer Mechanical Equipment.

TM 9-200 General Packaging Instructions for Ordnance General Supplies.

TM 38-230 Preservation, Packaging, and Packing of Military Supplies and Equipment.

11. Supply Publications

SM 10-1-C4-1 Petroleum, Petroleum-Base Products, and Related Material.

TM 5-2805-206-14P Operator, Organizational and Field Maintenance Repair Parts and Special Tool Lists.

Engine, Gasoline: (Military Standard Models).

(Model 1A08-1) 1½ HP, FSN 2805-601-5181;

(Model 1A08-2) 1½ HP, FSN 2805-714-8552;

(Model 2A016-1) 3 HP, FSN 2805-601-5127;

(Model 2A0162) 3 HP, FSN 2805-714-8553.

TM 5-6115-267-25P Organizational, Field, and Depot Maintenance Repair Parts and Special Tool Lists.

Generator Set, Gasoline: 1.5 KW, DC, 28V; Skid Mounted (Winpower Model G-1528T-2A016) FSN 6115-849-2323.

12. Training Aids

FM 5-25 Explosives and Demolitions.

FM 21-5 Military Training.

FM 21-6 Techniques of Military Instruction.

FM 21-30 Military Symbols.

APPENDIX II

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

1. General

This appendix contains explanations of all maintenance and repair functions authorized the various echelons. Section II contains the maintenance allocation chart.

2. Maintenance

Maintenance is any action taken to keep materiel in a serviceable condition or to restore it to serviceability when it is unserviceable. Maintenance of materiel includes the following:

- a. *Service.* To clean, preserve, and replenish fuel and lubricants.
- b. *Adjust.* To regulate periodically to prevent malfunction.
- c. *Inspect.* To verify serviceability and detect incipient electrical or mechanical failure by scrutiny.
- d. *Test.* To verify serviceability and detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, and the like.
- e. *Replace.* To substitute serviceable assemblies, subassemblies, and parts for unserviceable components.
- f. *Repair.* To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes, but is not limited to, inspecting, cleaning, preserving, adjusting, replacing, welding, riveting, and straightening.
- g. *Aline.* To adjust two or more components of an electrical system so that their functions are properly synchronized.
- h. *Calibrate.* To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

- i. *Overhaul.* To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

3. Explanation of Columns

- a. *Functional Group.* The functional group is a numerical group set up on a functional basis. The applicable Functional Grouping Indexes (obtained from the Corps of Engineers Functional Grouping Indexes) are listed on the MAC in the appropriate numerical sequence. These indexes normally are set up in accordance with their function and proximity to each other.

- b. *Components and Related Operation.* This column contains the Functional Grouping Index heading, subgroup headings, and a brief description of the part starting with the noun name. It also designates the operations to be performed such as service, adjust, inspect, test, replace, repair, and overhaul.

- c. *Echelons of Maintenance.* This column contains the various echelons of maintenance by number designation. The X indicates the lowest echelon responsible for performing the function, but does not necessarily indicate repair parts stockage at that level. Higher echelons are authorized to perform the indicated functions of lower echelons.

- d. *Remarks.* This column lists specific maintenance functions, special tools, cross-references, instructions, and the like pertinent to the operation being performed.

Section II. MAINTENANCE ALLOCATION CHART

Func- tional group	Components and related operation	Echelons of maintenance					Remarks
		1	2	3	4	5	
01	ENGINE						
0100	ENGINE ASSEMBLY						
	Engine, Gasoline						
	Inspect -----	X					Refer to TM 5-2805- 206-14
	Test -----		X				Refer to TM 5-2805- 206-14
	Replace -----			X			
	Repair -----		X				Refer to TM 5-2805- 206-14
	Overhaul -----					X	Refer to TM 5-2805- 206-14
	Dampener, Vibration						
	Replace -----		X				
03	FUEL SYSTEM						
0306	TANKS, LINES, FITTINGS						
	Tank, Fuel						
	Service -----	X					
	Strainer, Fuel Tank						
	Service -----	X					Clean Screen
	Cock, Plug						
	Replace -----		X				
	Hose, Fuel						
	Replace -----		X				
15	FRAME						
1501	FRAME ASSEMBLY						
	Frame Assembly, Base						
	Replace -----			X			
22	MISCELLANEOUS BODY, CHASSIS OR HULL AND ACCESSORY ITEMS.						
2201	CANVAS, RUBBER OR PLASTIC ITEMS						
	Cover, Canvas						
	Replace -----	X					
2210	DATA PLATES AND INSTRUCTION HOLDERS						
	Plate, Identification (C.O.E.)						
	Replace -----			X			
	Plate Instruction						
	Replace -----		X				
40	ELECTRIC MOTORS AND GENERATORS (OTHER THAN ENGINE ACCESSORIES)						
4000	GENERATOR ASSEMBLY						
	Generator						
	Inspect -----	X					
	Test -----			X			
	Replace -----			X			
	Repair -----			X			
	Overhaul -----					X	
	Dampener, Vibration						
	Replace -----		X				

Functional group	Components and related operation	Echelons of maintenance					Remarks
		1	2	3	4	5	
4001	ROTOR ASSEMBLIES						
	Armature Assembly						
	Test -----			X			
	Replace -----			X			
	Repair -----			X			
	Overhaul -----					X	
4002	STATOR ASSEMBLIES						
	Frame Assembly						
	Test -----			X			
	Repair -----			X			
	Overhaul -----					X	
	Cable Assembly						
	Replace -----			X			
4003	BRUSH HOLDERS						
	Brush, Electrical						
	Replace -----		X				
4004	VENTILATING SYSTEM						
	Fan						
	Replace -----		X				
4005	FRAME SUPPORTS AND HOUSINGS						
	Bearing						
	Replace -----			X			
4009	CONTROL PANELS, HOUSINGS, CUBICLES						
	Meters						
	Replace -----		X				
	Shunt, Ammeter						
	Replace -----		X				
	Mount, Resilient Panel						
	Replace -----		X				
	Cable Assembly						
	Replace -----		X				
	Leads						
	Replace -----		X				Fabricate
4011	CIRCUIT BREAKERS, CUTOUTS, FUSE AND FUSEHOLDERS						
	Circuit Breaker						
	Replace -----		X				
4012	SWITCHES						
	Switch, Start						
	Replace -----		X				
4013	REGULATOR, VOLTAGE OR CURRENT						
	Regulator, Voltage						
	Test -----			X			
	Replace -----			X			
	Regulator, Plug-in						
	Adjust -----			X			
	Replace -----			X			
4014	RESISTORS						
	Resistor, Variable						
	Replace -----		X				
4015	RELAY OR ASSEMBLY						
	Relay, Reverse Current						
	Replace -----			X			
4018	TERMINAL BLOCKS; JUNCTION BOXES						
	Terminal Board						
	Replace -----		X				
	Terminal, Load						
	Replace -----		X				

Functional group	Components and related operation	Echelons of maintenance					Remarks
		1	2	3	4	5	
4019	RADIO INTERFERENCE SUPPRESSION						
	Capacitor						
	Replace -----		X				
	Lead, Ground						
	Replace -----		X				
47	GAGES (NONELECTRICAL); WEIGHING AND MEASURING DEVICES						
4702	GAGES, MOUNTINGS, LINES AND FITTINGS						
	Gage Assembly, Fuel						
	Replace -----		X				
	Repair -----		X				

APPENDIX III

BASIC ISSUE ITEMS LIST AND MAINTENANCE AND OPERATING SUPPLIES

Section I. INTRODUCTION

1. General

Section II lists the accessories, tools, and publications required in 1st echelon maintenance and operation, initially issued with, or authorized for the generator set. Section III lists the maintenance and operating supplies required for initial operation.

2. Explanation of Columns Contained in Section II

a. *Source Codes.* The information provided in each column is as follows:

- (1) *Technical service.* This column lists the basic number (or symbol) of the technical service assigned supply responsibility for the part. Those spaces left blank denote Corps of Engineers supply responsibility. General Engineer supply parts are identified by the letters GE in parentheses, following the nomenclature in the description column. Other technical services basic numbers (or symbols) are—
10—Quartermaster Corps
12—Adjutant General's Corps

- (2) *Source.* The selection status and source of supply for each part are indicated by one of the following code symbols:

- (a) P—applied to high-mortality repair parts which are stocked in or supplied from the technical service depot system, and authorized for use at indicated maintenance echelons.
- (b) P1—applied to repair parts which are low-mortality parts, stocked in or supplied from technical service depots, and authorized for installation at indicated maintenance echelons.
- (c) M—applied to repair parts which are not procured or stocked but are

to be manufactured at indicated maintenance echelons.

- (d) X2—applied to repair parts which are not stocked. The indicated maintenance echelon requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.

- (3) *Maintenance.* The lowest maintenance echelon authorized to use, stock, install, or manufacture the part is indicated by the following code symbol:

O—Organizational Maintenance
(1st and 2d Echelon)

- (4) *Recoverability.* Repair parts and/or tool and equipment items that are recoverable are indicated by one of the following code symbols:

- (a) R—applied to repair parts and assemblies which are economically repairable at field maintenance facilities (3d and 4th echelons) and normally are furnished by supply on an exchange basis.

- (b) T—applied to high-dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts are normally repaired or overhauled at depot maintenance facilities.

- (c) U—applied to repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, high-dollar value reusable casings, castings, and the like.

Note. When no code is shown in the recoverability column the part is considered expendable.

b. Federal Stock Numbers. When a Federal stock number is available for a part, it will be shown in this column, and used for requisitioning purposes.

c. Description.

- (1) The item name and a brief description of the part are shown.
- (2) A five-digit Federal supply code for manufacturers and/or other technical services is shown in parentheses followed by the manufacturer's part number. This number will be used for requisitioning purposes when no Federal stock number is indicated in the Federal stock number column.
Example: (08645) 86453
- (3) The letters GE, shown in parentheses immediately following the description, indicate General Engineer supply responsibility for the part.

d. Unit of Issue. Where no abbreviation is shown in this column, the unit of issue is "each".

e. Quantity Authorized. This column lists the quantities of repair parts, accessories, tools, or publications authorized for issue to the equipment operator or crew as required.

f. Quantity Issued with Equipment. This column lists the quantities of repair parts, accessories, tools, or publications that are initially issued with each item of equipment. Those indicated by an asterisk are to be requisitioned through normal supply channels as required.

g. Illustrations. This column is subdivided into two columns which provide the following information:

- (1) *Figure number.* Provides the identifying number of the illustration.
- (2) *Item number.* Provides the referenced number for the parts shown in the illustration.

3. Index to Federal Supply Code for Manufacturers

81336—Corps of Engineers

4. Explanation of Columns Contained in Section III

a. Item. This column contains numerical sequenced item numbers, assigned to each component application, to facilitate reference.

b. Component Application. This column identifies the component application of each maintenance or operating supply item.

c. Source of Supply. This column lists the basic number of the technical service assigned supply responsibility for the item. Those spaces left blank denote Corps of Engineers supply responsibility. Other technical services basic number is as follows:

9—Ordnance Corps

d. Federal Stock Number. When a Federal stock number is available, it will be shown in this column and used for requisitioning purposes.

e. Description. The item name and a brief description are shown.

f. Quantity Required for Initial Operation. This column lists the quantity of each maintenance or operating supply item required for initial operation of the equipment.

g. Quantity Required for 8-Hours Operation. Quantities listed represent the estimated requirements for an average eight hours of operation.

h. Notes. This column contains informative notes keyed to data appearing in the preceding columns.

5. Comments and Suggestions

Suggestions and recommendations for changes to the Basis Issue Items List and/or Maintenance and Operating Supplies Table shall be submitted on DA Form 2028 to the Commanding Officer, U.S. Army Mobility Support Center, ATTN: SMOMC-MC, Box 119, Columbus 16, Ohio. Direct communication is authorized.

Section II. BASIC ISSUE ITEMS LIST

Source codes				Federal stock No.	Description	Unit of issue	Expendability	Quantity authorized	Quantity issued with equipment	Illustration	
Technical service	Source	Maintenance	Recoverability							Fig.	Item
	M	O			GROUP 01 ENGINE 0114 HAND CRANKING DEVICES ROPE ASSEMBLY, STARTING (81336) ERO-2520						
10	P	O		4020-240-2146	MANUFACTURE FROM: CORD, NYLON (4 ft required)----- GROUP 22 MISCELLANEOUS BODY, CHASSIS OR HULL AND ACCESSORY ITEMS 2201 CANVAS, RUBBER OR PLASTIC ITEMS	FT	----	----	(*)		
10	P	O		6115-874-0384	COVER, CANVAS ----- GROUP 26 ACCESSORIES PUBLICATIONS, TEST EQUIPMENT AND TOOLS 2602 ACCESSORIES			1	1		
10	P	O		7520-559-9618	CASE, MAINTENANCE AND OPERATION- AL MANUALS: cotton duck, water repellent, mildew resistant. 2603 COMMON TOOLS			1	1		
10	P	O		5120-277-9491	SCREWDRIVER, FLAT TIP: wood handle flared tip, ¼ in. w, 4 in. lg blade.			1	(*)		
10	P	O		5120-240-5328	WRENCH, OPEN END ADJUSTABLE: single head, 1½ in. jaw opening 8 in. lg.			1	(*)		
10	P	O		5120-223-7396	PLIERS, SLIP-JOINT: straight nose, w/cutter 6 in. lg.			1	(*)		
12					2605 PUBLICATIONS DEPARTMENT OF THE ARMY OPERATOR, ORGANIZATIONAL AND FIELD MAINTENANCE MANUAL TM 5-6115-267-15.			2	2		
12					DEPARTMENT OF THE ARMY OPERATOR, ORGANIZATIONAL FIELD AND DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOL LISTS TM 5-6115-267-25P.			2	2		
12					DEPARTMENT OF THE ARMY OPERATOR, ORGANIZATIONAL AND FIELD MAINTENANCE MANUAL TM 5-2805-206-14.			2	2		
12					DEPARTMENT OF THE ARMY LUBRICATION ORDER LO 5-2805-206-14.			1	1		
12					DEPARTMENT OF THE ARMY OPERATOR, ORGANIZATIONAL AND FIELD MAINTENANCE REPAIR PARTS AND SPECIAL TOOL LISTS TM 5-2805-206-14P.			2	2		

Section III. MAINTENANCE AND OPERATING SUPPLIES

Item	Component application	Source of supply	Federal stock number	Description	Quantity required for initial operation	Quantity required for 8 hours operation	Notes
	0306			GASOLINE: automotive bulk.			(1) Tank capacity.
		10	9130-160-1818		2 gal (1)	5.12 gal (2)	(2) Average fuel consumption is 0.64 gph (gallons per hour) of continuous operation.

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