

SECTION 6D

ENGINE ELECTRICAL

CONTENTS

Starting Motor	6D-1	Installation.....	6D-6
Disassembly	6D-1	10 SI Series Generator.....	6D-7
Cleaning and Inspection	6D-2	Disassembly	6D-7
Testing and Repairs.....	6D-3	Cleaning and Inspection	6D-8
Assembly	6D-4	Testing	6D-8
Pinion Clearance	6D-5	Reassembly	6D-11
Starting Solenoid	6D-6	Special Tools	6D-11
Removal.....	6D-6	Specifications.....	6D-12
Replacement of Contacts.....	6D-6		

STARTING MOTOR

DISASSEMBLY (Figs. 6D-1S and 6D-2S)

1. Disconnect the field coil connector(s) from the motor solenoid terminal.
2. Remove through bolts.
3. Remove Commutator end frame, field frame assembly and armature assembly from drive housing.
4. Remove overrunning clutch from armature shaft as follows:
 - a. Slide two piece thrust collar off end of armature shaft.

b. Slide a standard half-inch pipe coupling or other metal cylinder of suitable size (an old pinion of suitable size can be used if available) onto shaft so end of coupling or cylinder butts against edge of retainer (fig. 6D-3S). Tap end of coupling with hammer, driving retainer towards armature end of snap ring.

c. Remove snap ring from groove in shaft using pliers or other suitable tool. If the snap ring is too badly distorted during removal, it may be necessary to use a new one when reassembling clutch.

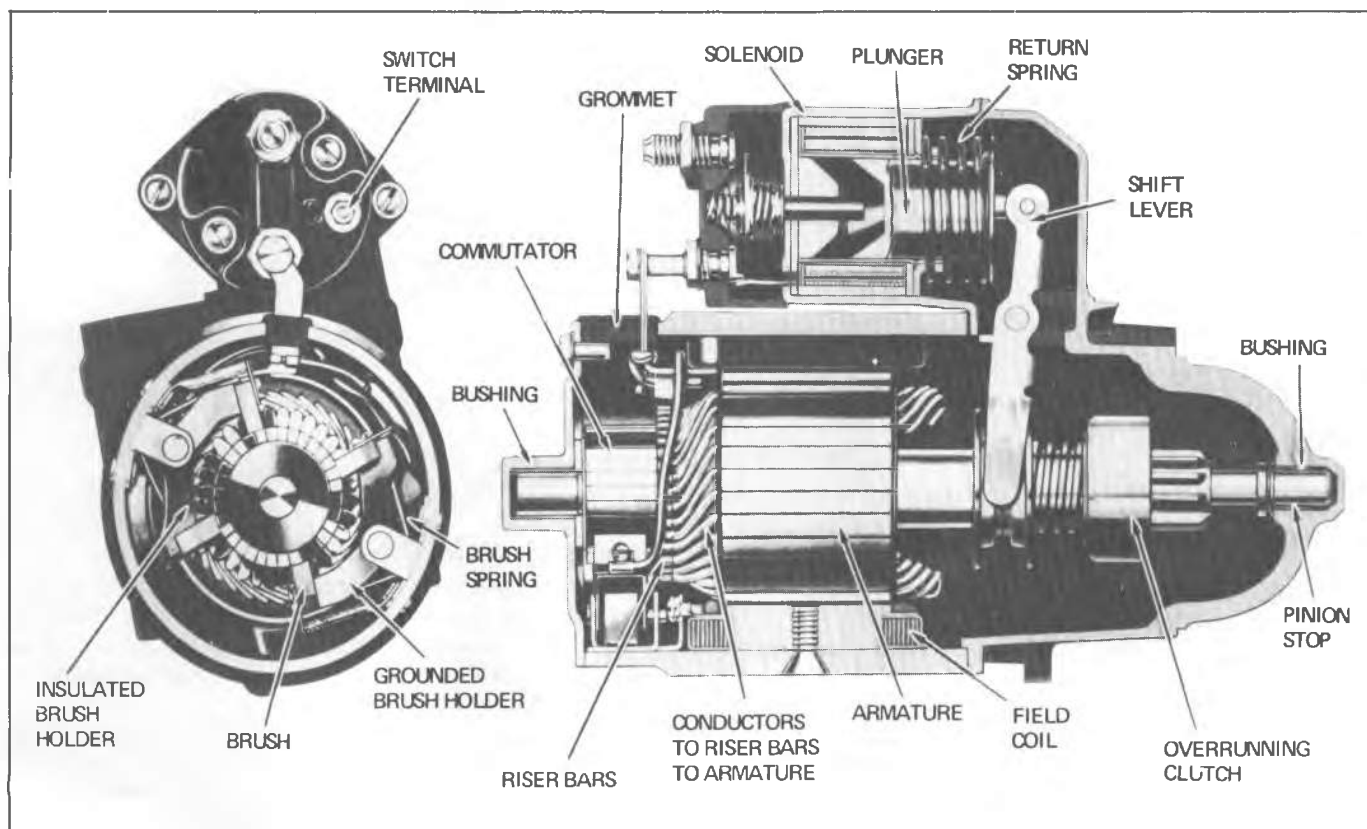


Fig. 6D-1S--Starting Motor Cross Section

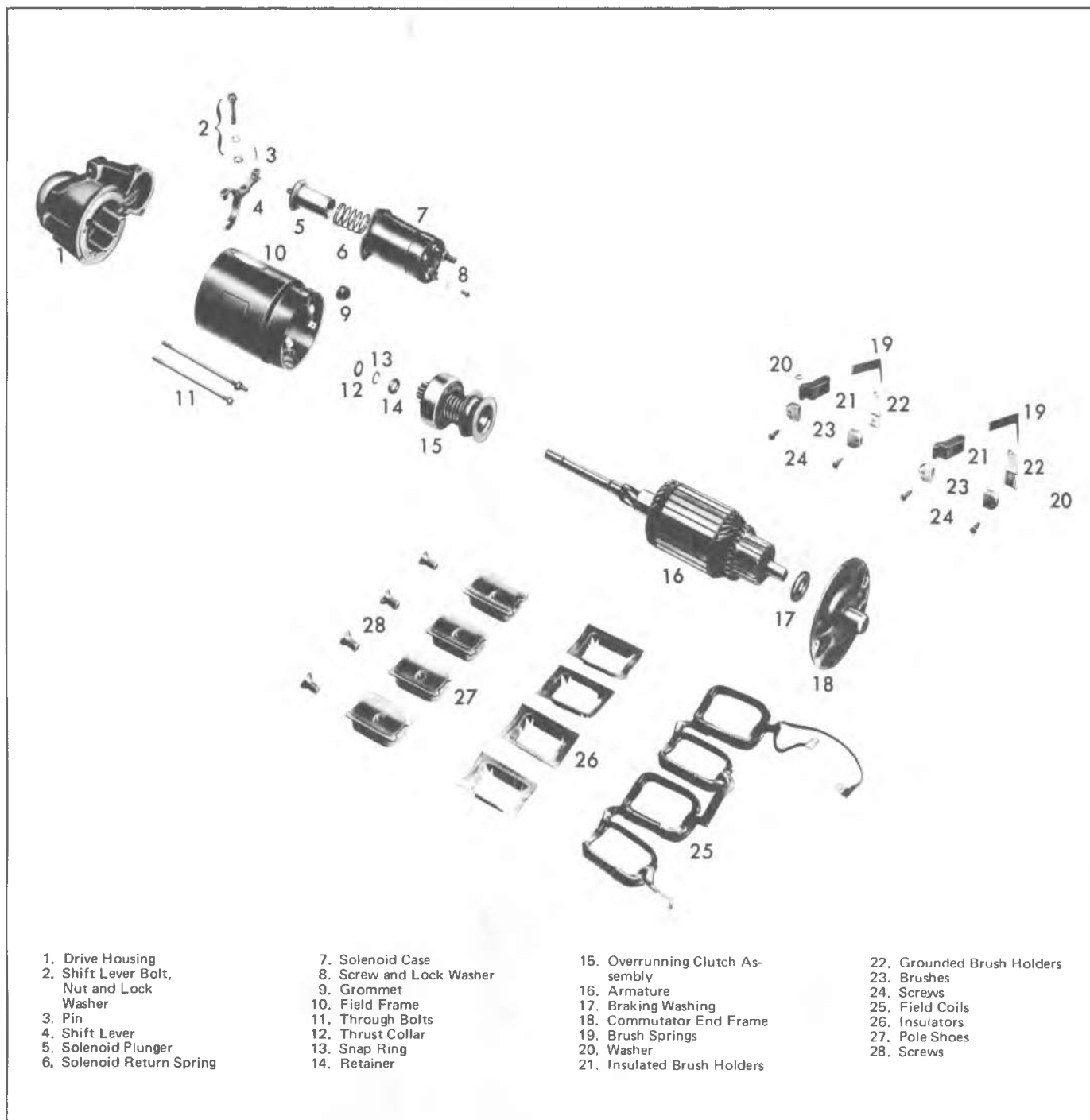


Fig. 6D-2S—Starting Motor Parts Layout

- d. Slide retainer and clutch from armature shaft.
- 5. Disassemble brush rigging from field frame.
 - a. Release "V" spring from slot in brush holder support.
 - b. Remove support pin.
 - c. Lift brush holders, brushes and spring upward as a unit.
 - d. Disconnect leads from each brush.
 - e. Repeat operation for other set of brushes.

CLEANING AND INSPECTION

With the starting motor completely disassembled except for removal of field coils, the component parts should be cleaned and inspected as described below. Field coils need be removed only where defects in the coils are indicated by the tests described in this section.

1. Clean all starting motor parts, but do not use grease dissolving solvent for cleaning the overrunning clutch, armature, and field coils since such a solvent would dissolve the grease packed in the clutch mechanism and would damage armature and field coil insulation.

2. Test overrunning clutch action. The pinion should

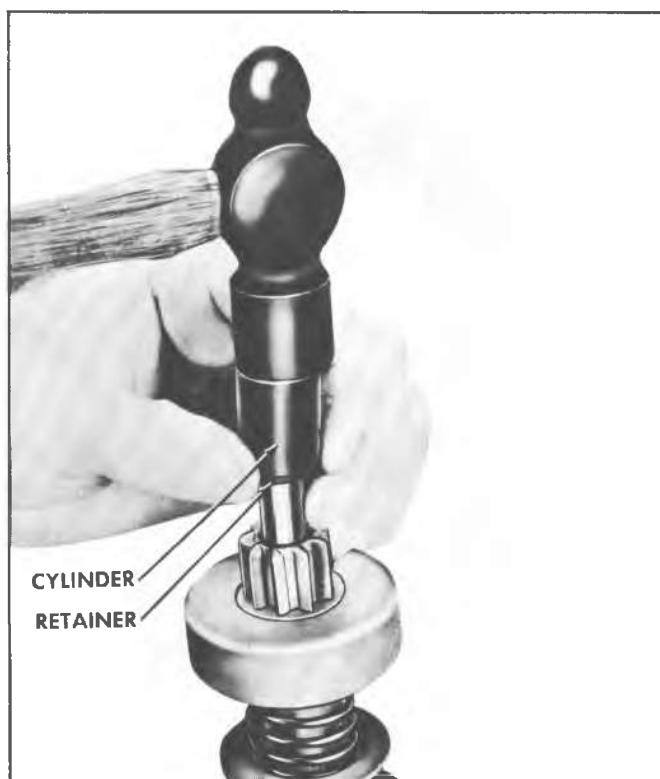


Fig. 6D-3S—Driving Retainer Off Snap Ring

turn freely in the overrunning direction and must not slip in the cranking direction. Check pinion teeth to see that they have not been chipped, cracked, or excessively worn. Check the spring for normal tension and drive collar for wear. If necessary the spring or collar can be replaced by forcing the collar toward the clutch and removing lock ring from end of tube.

3. Check brush holders to see that they are not deformed or bent, but will properly hold brushes against the commutator.

4. Check the condition of the brushes and if pitted or worn to one-half their original length, they should be replaced.

CAUTION: Some starter motor models use a molded armature commutator design and no attempt to undercut the insulation should be made or serious damage may result to the commutator. Undercutting reduces the bonding of the molding material which holds the commutator bars and since the molding material is softer than the copper bars, it is not necessary to undercut the material between the bars of the molded commutator.

5. Check fit of armature shaft in bushing of drive housing. Shaft should fit snugly in the bushing. If the bushing is worn, it should be replaced. Apply a silicone lubricant to this bushing before reassembly. Avoid excessive lubrication.

6. Check fit of bushing in commutator end frame. If this bushing is damaged or worn excessively, the end frame assembly must be replaced. Apply a silicone lubricant to this bushing before reassembly. Avoid excessive lubrication. Lubricant forced onto the commutator would gum and cause poor commutation with a resulting decrease in cranking motor performance.



Fig. 6D-4S—Armature Short Circuit Test

CAUTION: Some starter motor models use a molded armature commutator design and no attempt to undercut the insulation should be made or serious damage may result to the commutator. Undercutting reduces the bonding of the molding material which holds the commutator bars and since the molding material is softer than the copper bars, it is not necessary to undercut the material between the bars of the molded commutator.

7. Inspect armature commutator. If commutator is rough or out of round, it should be turned down and undercut. Inspect the points where the armature conductors join the commutator bars to make sure that it is a good firm connection. A burned commutator bar is usually evidence of a poor connection. See "Turning the Commutator," described under Testing and Repairs.

TESTING AND REPAIRS

Armature Test For Shorts

Check the armature for short circuit by placing on growler and holding hack saw blade over armature core while armature is rotated (fig. 6D-4S). If saw blade vibrates, armature is shorted. Recheck after cleaning between the commutator bars. If saw blade still vibrates, replace the armature.

Armature Test For Ground

Place one lead on the armature core or shaft and the other on the commutator (fig. 6D-5S). If the lamp lights, the armature is grounded and must be replaced.

Field Coil Test For Open Circuit

Place one lead on the insulated brush and the other to the field connector bar (fig. 6D-6S). If the lamp does not light, the field coils are open and will require replacement.

Field Coil Test For Ground

NOTE: Be sure to disconnect the shunt coil before performing this test (when applicable).

Place one lead on the connector bar and the other on the grounded brush (fig. 6D-7S). If the lamp lights, the field coils are grounded.

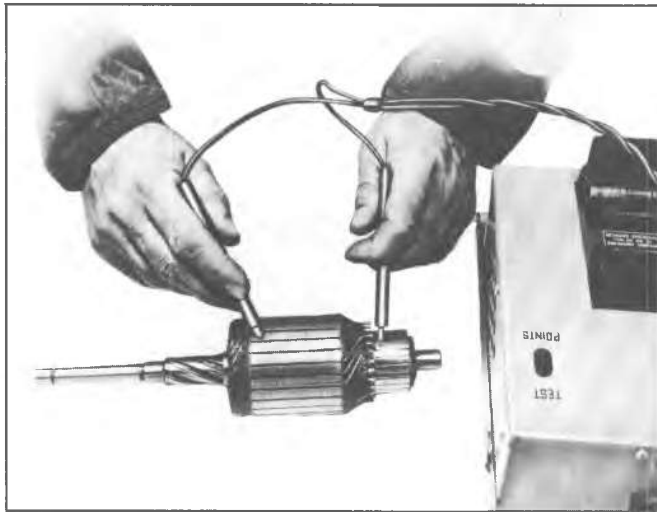


Fig. 6D-5S--Armature Ground Test

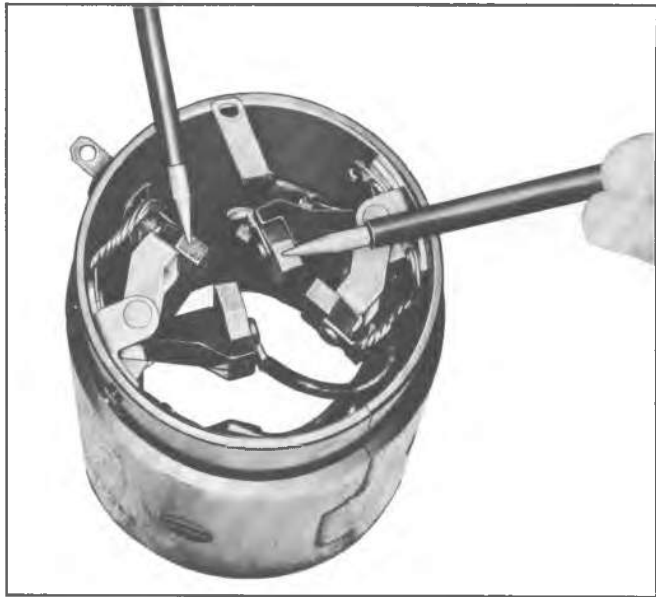


Fig. 6D-7S--Field Coil Ground Test

Field Coil Replacement

Field coils may be removed from the field frame using a pole shoe screwdriver and a pole shoe spreader. The spreader prevents distortion of the field frame. Careful installation of field coils is necessary to prevent shorting or grounding of the field coils as the pole shoe screws are tightened in place. Formed insulators are used to protect the field leads from grounding to the frame and must be replaced with assembly.

Loose Electrical Connections

When an open soldered connection of the armature to commutator leads is found during inspection, it may be resoldered provided resin flux is used for soldering. Acid flux should never be used on electrical connections.

When inspection shows commutator roughness, it should be cleaned as follows:



Fig. 6D-6S--Field Coil Open Circuit Test

Turning The Commutator

1. Turn down commutator in a lathe until it is thoroughly cleaned.

CAUTION: Some starter motor models use a molded armature commutator design and no attempt to undercut the insulation should be made or serious damage may result to the commutator. Undercutting reduces the bonding of the molding material which holds the commutator bars and since the molding material is softer than the copper bars, it is not necessary to undercut the material between the bars of the molded commutator.

2. Undercut insulation between commutator bars $1/32"$. This undercut must be the full width of insulation and flat at the bottom; a triangular groove will not be satisfactory. After undercutting, the slots should be cleaned out carefully to remove any dirt and copper dust.

3. Sand and the commutator lightly with No. 00 sandpaper to remove and slight burrs left from undercutting.

4. Recheck armature on growler for short circuits.

Brush Holder Replacement

If brush holders are damaged, they can be replaced by special service units.

Overrunning Clutch

The overrunning clutch (roll clutch design) used in the various starting motors is (fig. 6D-8S) designed to be serviced as a complete unit.

ASSEMBLY

After all parts have been thoroughly tested and inspected and worn or damaged parts replaced, the starter should be reassembled.

1. Assemble brush rigging to field frame.
 - a. Assemble brushes to brush holders.
 - b. Assemble insulated and grounded brush holder together with the "V" spring and position as unit on the support pin. Push holders and spring to bottom of support and rotate spring to engage the "V" in slot in support.
 - c. Attach ground wire to grounded brush and field lead

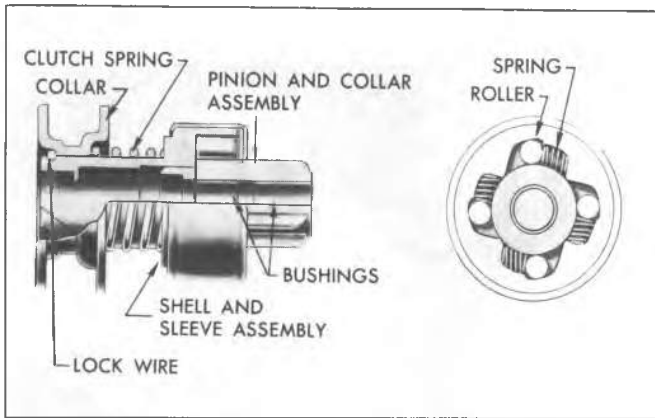


Fig. 6D-8S--Roll Type Clutch Cross-Section

wire to insulated brush.

d. Repeat for other set of brushes.

2. Assemble overrunning clutch assembly to armature shaft.

a. Lubricate drive end of armature shaft with silicone lubricant.

b. Slide clutch assembly onto armature shaft with pinion outward.

c. Slide retainer onto shaft with cupped surface facing end of shaft (away from pinion).

d. Stand armature on end of wood surface with commutator down. Position snap ring on upper end of shaft and hold in place with block of wood. Tap wood block with hammer forcing snap ring over end of shaft (fig. 6D-9S). Slide snap ring down into groove.

e. Assemble thrust collar on shaft with shoulder next to snap ring.

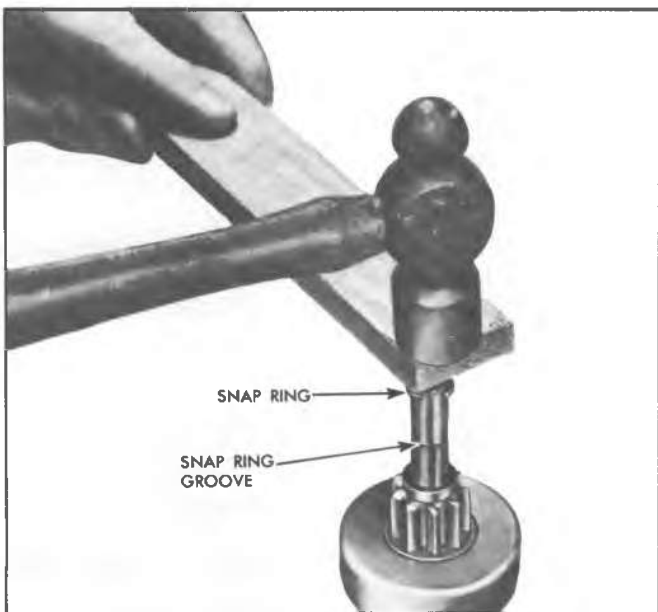


Fig. 6D-9S--Forcing Snap Ring Over Shaft

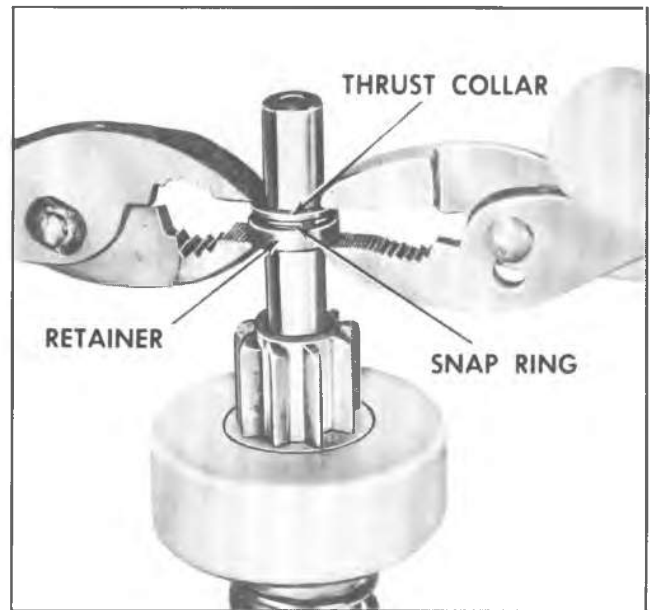


Fig. 6D-10S--Forcing Snap Ring Into Retainer

f. Place armature flat on work bench, and position retainer and thrust collar next to snap ring. Then using two pair of pliers at the same time (one pair on either side of shaft), grip retainer and thrust collar and squeeze until snap ring is forced into retainer (fig. 6D-10S).

3. Lubricate the drive housing bushing with a silicone lubricant. Make sure thrust collar is in place against snap ring and retainer and slide armature and clutch assembly into place in drive housing engaging shift lever with clutch.

4. Position field frame over armature and apply special sealing compound between frame and solenoid case. Position frame against drive housing using care to prevent damage to the brushes.

5. Lubricate the bushing in the commutator end frame with a silicone lubricant. Place leather brake washer on armature shaft and slide commutator end frame onto shaft.

6. Reconnect the field coil connectors to the "motor" solenoid terminal.

7. After overhaul is completed, perform "Pinion Clearance Check".

PINION CLEARANCE CHECK

1. Connect a battery, of the same voltage as the solenoid, from the solenoid switch terminal to the solenoid frame or ground terminal (fig. 6D-11S).

NOTE: Disconnect the motor field coil connector for this test.

2. Momentarily flash a jumper lead from the solenoid motor terminal to the solenoid frame or ground terminal. The pinion will now shift into cranking position and will remain there until the battery is disconnected.

3. Push the pinion back towards the commutator end to eliminate slack movement.

4. Measure the distance between the pinion and pinion stop (fig. 6D-12S). If clearance is not within specified limits (.010-.140) it may indicate excessive wear of solenoid linkage shift lever yoke buttons or improper assembly of the shift lever mechanism. Worn or defective parts should be replaced.

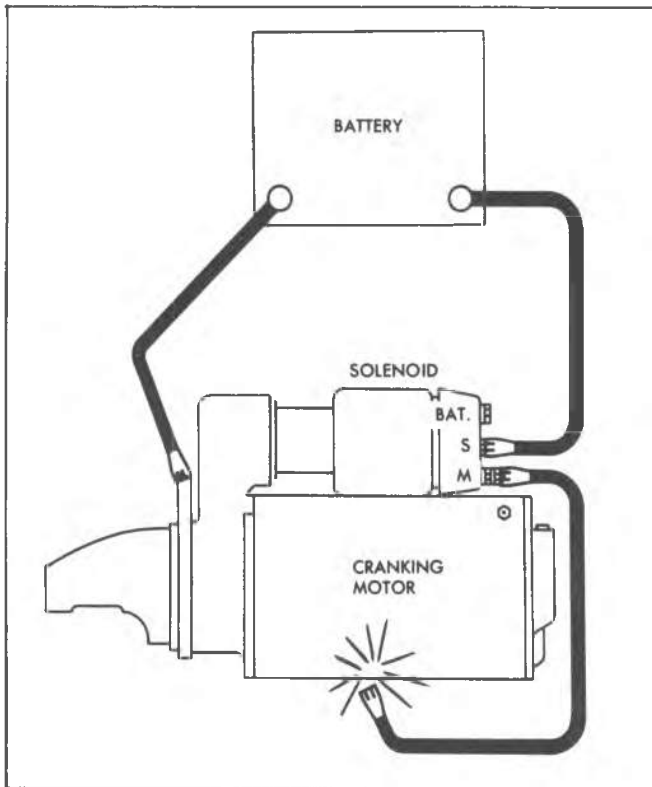


Fig. 6D-11S--Circuit for Checking Pinion Clearance

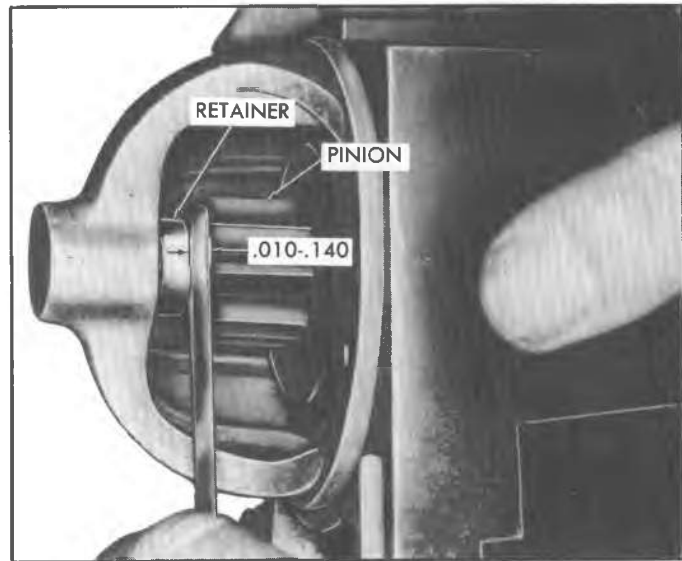


Fig. 6D-12S--Checking Pinion Clearance

STARTING SOLENOID

Removal

1. Remove the outer screw and washer from the motor connector strap terminal.
2. Remove the two screws retaining solenoid housing to end frame assembly.
3. Twist solenoid clockwise to remove flange key from keyway slot in housing; then remove solenoid assembly.

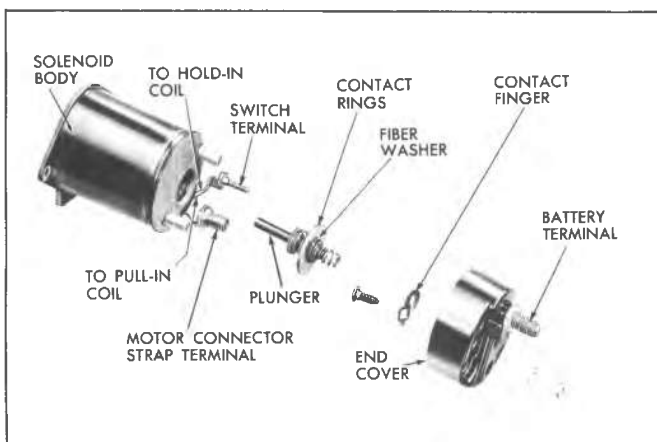


Fig. 6D-13S--Exploded View of Solenoid

Replacement of Contacts (fig. 6D-13S)

1. With solenoid removed from motor, remove nuts and washers from switch and motor connector strap terminals.
2. Remove the two solenoid end cover retaining screws and washers and remove end cover from solenoid body.
3. Remove nut and washer from battery terminal on end cover and remove battery terminal. Remove resistor by-pass terminal and contactor.
4. Remove motor connector strap terminal and solder new terminal in position.
5. Using a new battery terminal, install terminal washer and retaining nut to end cover. Install by-pass terminal and contactor.
6. Position end cover over switch and motor terminals and install end cover retaining screws. Also install washers and nuts on the solenoid switch and starting motor terminals.
7. Bench test solenoid for proper operation.

Installation

1. With solenoid return spring installed on plunger, position solenoid body to drive housing and turn counterclockwise to engage the flange key in the keyway slot.
2. Install two screws retaining solenoid housing to end frame.
3. Install outer screw and washer securing motor connector strap terminal.
4. Install starter motor as previously described.

10-SI SERIES GENERATOR

DISASSEMBLY (fig. 6D-1C)

1. Hold generator in a vise, clamping the mounting flange lengthwise.

2. Remove the four thru-bolts and separate the slip ring end frame and stator assembly from the drive end and rotor assembly by prying apart with a screwdriver at the stator slot.

NOTE: A scribe mark will help locate the parts in the same position during assembly.

3. Place a piece of tape over the slip ring end frame bearing to prevent entry of dirt and other foreign material, and also a piece of tape over the shaft at the slip ring end.

CAUTION: Brushes may drop onto the rotor shaft and become contaminated with bearing lubricant. Clean brushes prior to installing with a non-toxic cleaner such as trichlorethylene or a soft dry cloth.

4. Remove the stator lead attaching nuts and separate stator from end frame.

NOTE: At this point, with the two end frames separated the stator disconnected and the rotor removed electrical checks of the rotor, rectifier bridge, stator and diode trio brush lead clip may be made without further disassembly. Refer to the specific checks as outlined in this section.

5. Remove screw attaching diode trio to brush holder assembly and remove diode trio from end frame (fig. 6D-7C).

NOTE: Diode trio may be checked for a grounded brush lead clip at this point. Refer to diode trio checks.

6. Remove the rectifier bridge attaching screw and the

"BAT" terminal screw, and disconnect the capacitor lead. Remove rectifier bridge from the end frame.

7. Remove two attaching screws, and remove brush holder and regulator assemblies.

NOTE: Two insulators are assembled over the top of the brush retaining clips and the two screws have special insulating sleeves over the screw body.

8. Remove retaining screw and capacitor from end of frame (fig. 6D-6C).

9. Remove slip ring end frame bearing (if necessary). Refer to bearing replacement covered in this section.

10. Remove pulley retaining nut and slide washer, pulley, fan and spacer from shaft.

a. Single groove pulley--place 15/16" box wrench on the shaft nut and insert a 5/16" allen wrench into the shaft end hole to hold the shaft while removing the nut (fig. 2C).

b. Double groove pulley--place a 15/16" socket (with wrench flats on the drive end or use adapter J-21501 and a box wrench on the pulley retaining nut, insert a 5/16" allen wrench through the socket and adapter into hex hole in the shaft to hold the shaft while removing the nut.

11. Remove rotor and spacers from the drive end frame assembly.

12. Remove drive end frame bearing retainer plate screws, plate, gasket, bearing, and slinger from end frame (if necessary).

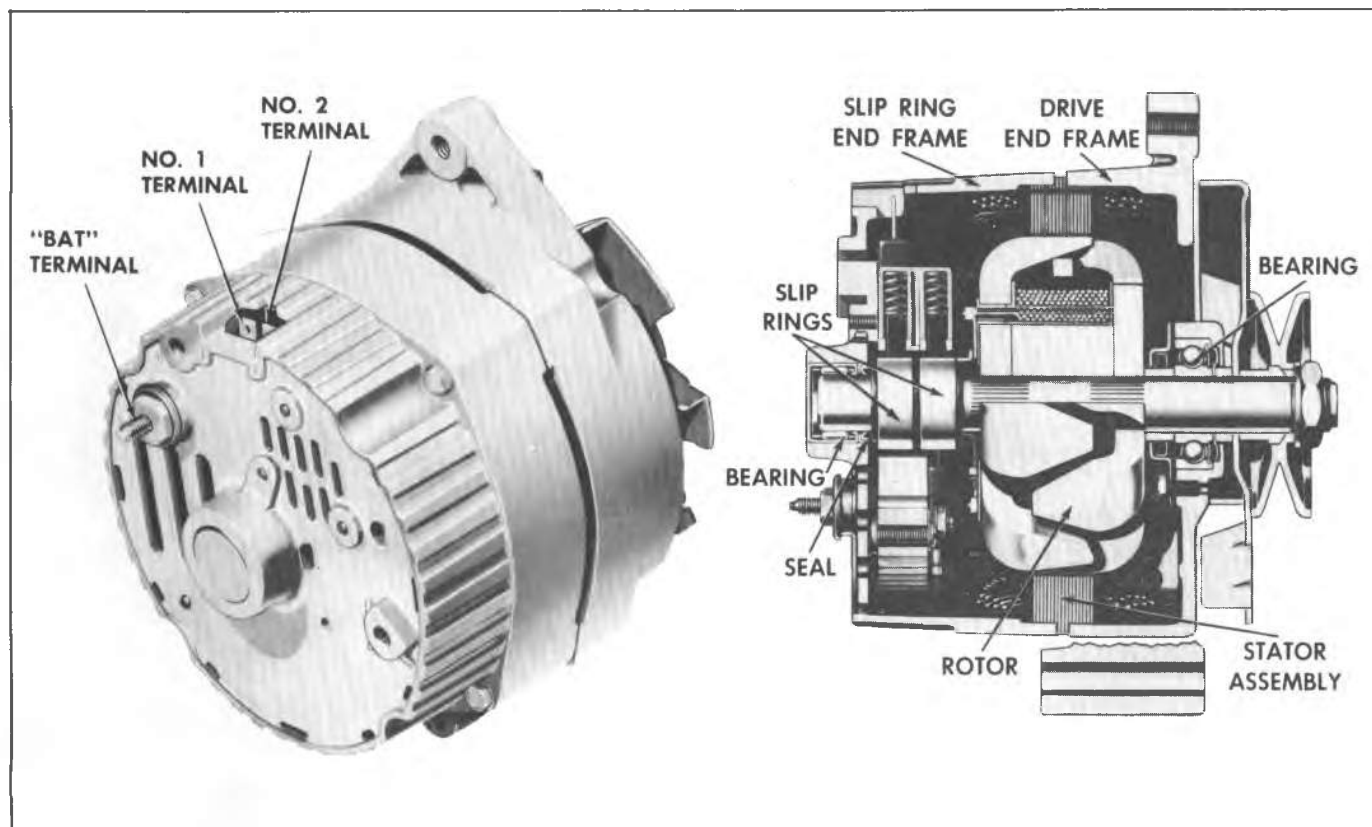


Fig. 6D-1C--10-SI Series Generator

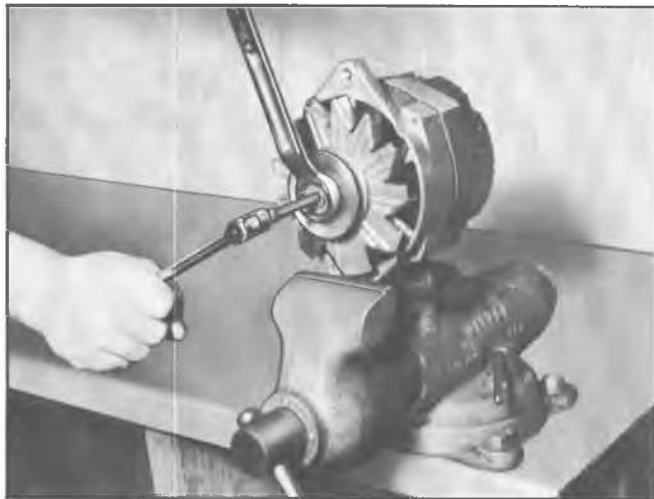


Fig. 6D-2C-Removing Pulley

CLEANING AND INSPECTION

With generator completely disassembled the components should be cleaned and inspected. Be sure testing equipment is in good working order before attempting to check the generator.

1. Wash all metal parts except stator and rotor assemblies.
2. Clean bearings and inspect for sealing, pitting or roughness.
3. Inspect rotor slip rings, they may be cleaned with 400 grain polishing cloth. Rotate rotor for this operation to prevent creating flat spots on slip rings.
4. Slip rings which are out of round may be trued in a lathe to .002" maximum indicator reading. Remove only enough material to make the rings smooth and concentric. Finish with 400 grain polishing cloth and blow dry.
5. Slip rings are not replaceable--excessive damage will require rotor assembly replacement.
6. Inspect brushes for wear. If they are worn halfway, replace. Inspect brush springs for distortion or weakening. If brushes appear satisfactory and move freely in brush holder, springs may be reused.

TESTING

Where specified, conduct the following tests using an ohmmeter with a 1-1/2 volt cell and use the lowest range scale for the readings.

Rotor Field Winding Checks (fig. 6D-3C)

The rotor may be checked electrically with a 110-volt test lamp or an ohmmeter.

Open Circuit

Connect one test lamp or ohmmeter lead to each slip ring. If the lamp fails to light or if the ohmmeter reading is high, the windings are open.

Short Circuit

The windings are checked for shorts by connecting a 12 volt battery and an ammeter in series with the two slip rings. Note the ammeter reading. An ammeter reading above the

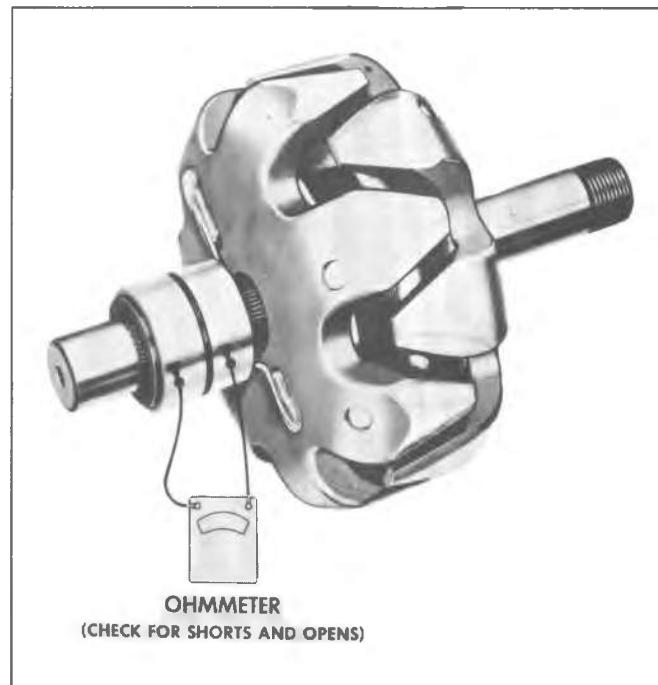


Fig. 6D-3C--Checking Rotor

specified field amperage draw indicates shorted windings. Refer to Specifications at the end of this manual.

Stator Checks (fig. 6D-4C)

Grounds

Connect a 110-volt test lamp or an ohmmeter from any stator lead to the stator frame. If test lamp lights or if ohmmeter reads low, the windings are grounded.

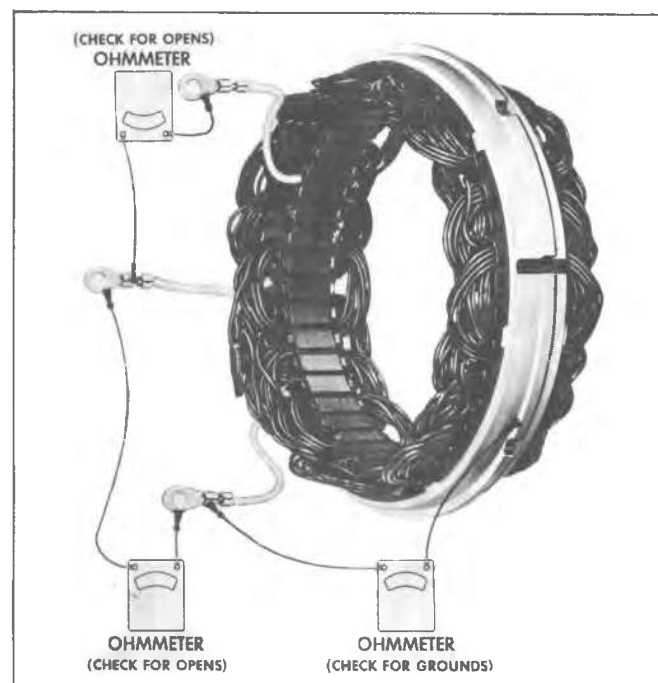


Fig. 6D-4C--Checking Stator

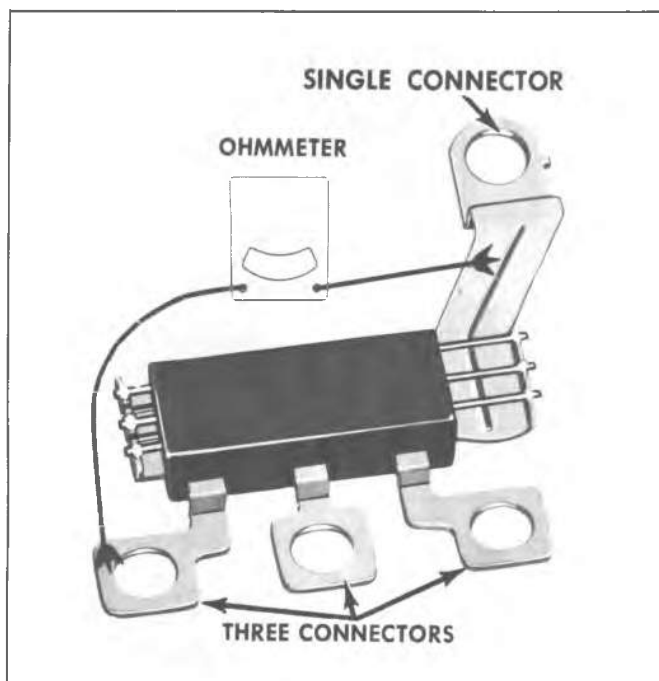


Fig. 6D-5C--Diode Trio Checks

Open Circuit

If lamp fails to light or if ohmmeter reads high when successively connected between each pair of stator leads, the windings are open.

Short Circuit

A short in the stator windings is difficult to locate without special test equipment due to the low resistance of the windings. However, if all other electrical checks are normal and the generator fails to supply rated output, shorted stator windings are indicated. Also, look for heat discoloration on the windings.

Diode Trio (fig. 6D-5C)

With the diode trio unit remove from the end frame, connect an ohmmeter to the single connect and to one of the three connectors. Observe the reading, then reverse the ohmmeter leads to the same connectors. A good diode trio will give one high and one low reading. If both readings are the same, replace the diode trio. Repeat this test between the single connector and each of the other two connectors.

NOTE: There are two diode trio units differing in appearance used in the generator but they are completely interchangeable.

The diode trio may also be checked for a grounded brush lead while still installed in the end frame. Connect an ohmmeter from the brush lead clip to the end frame as shown in Step 2, Figure 6D-7C, then reverse the lead connection. If both readings are zero, check for a grounded brush lead clip caused by omission of the insulating washer, of the insulating sleeve over the screw, or damaged insulating sleeve. Remove the screw to inspect the sleeve. If sleeve or screw are not grounded, replace regulator.

CAUTION: Do not use high voltage such as 110 volt test lamp to check the diode trio.

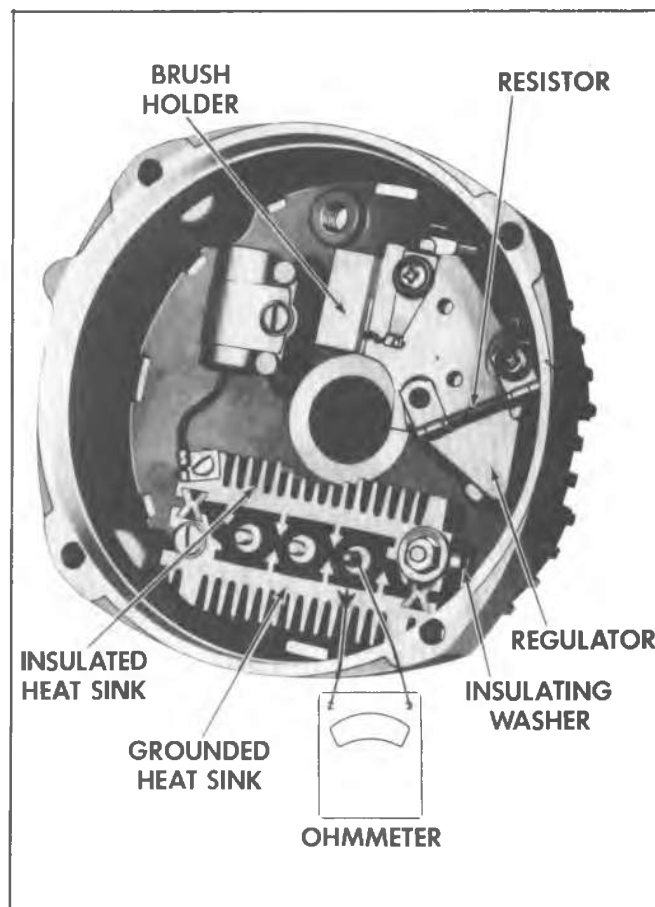


Fig. 6D-6C--Rectifier Bridge Checks

Rectifier Bridge Check (fig. 6D-6C)

Connect an ohmmeter to the grounded heat sink and one of the three terminals. Then reverse the lead connections to the grounded heat sink and same terminal. If both readings are the same, replace the bridge. A good rectifier bridge will give one high and one low reading. Repeat this same test between the grounded heat sink and the other two terminals, and between the insulated heat sink and each of the three terminals. When this is done all six diodes are checked with two readings taken for each diode.

NOTE: The diodes are not replaced individually. The entire rectifier bridge is replaced if one or more diodes are defective.

CAUTION: Do not use high voltage to check the rectifier bridge, such as a 110 volt test lamp.

Voltage Reg./Brush Lead Clip Check (fig. 6D-7C)

Connect an ohmmeter from the brush lead clip to the end frame as shown in Step 1, Figure 6D-7C. Then reverse lead connections. If both readings are zero, either the brush lead clip is grounded or the regulator is defective.

A grounded brush lead clip can result from omission of the insulating washer, omission of the insulating sleeve on the screw, or a damaged insulating sleeve. Remove the screw and inspect the sleeve. If it is satisfactory, replace the regulator unit.

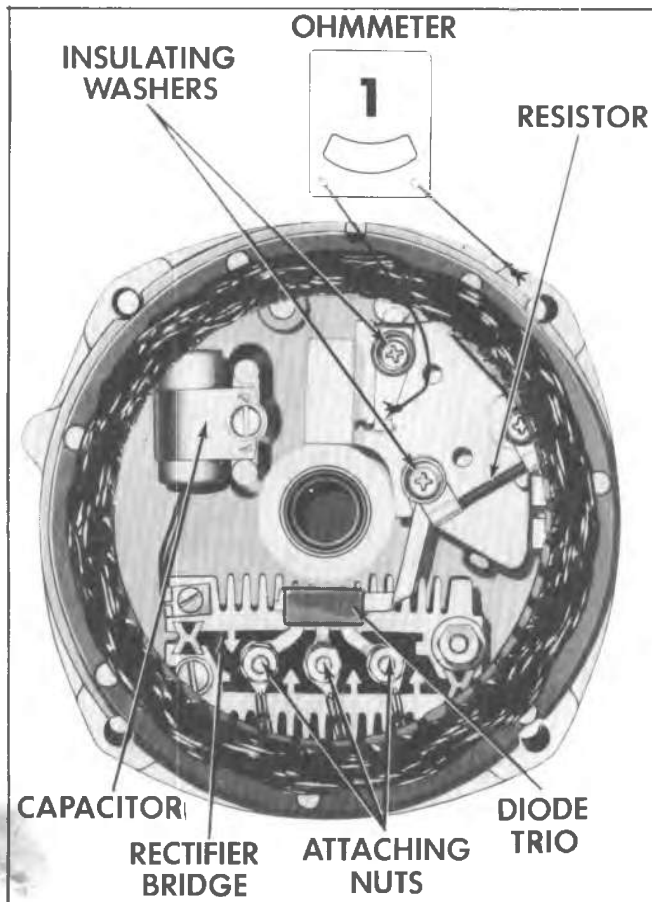


Fig. 6D-7C--Brush Lead Clip Checks

REPAIRS

Brush Holder and Regulator Replacement (fig. 6D-7C)

1. If not previously removed, remove the three stator lead attaching nuts, the stator, diode trio brush lead screw and diode trio from the end frame.

2. Remove the remaining two screws from the brush holder and regulator and remove these units from the end frame.

NOTE: The two screws retaining the brush clips have insulating washers over the tops of the brush clips and special insulating sleeves over the screw body above the threads. If they are damaged or missing a ground will result causing uncontrolled or no output.

3. Replace defective unit and reassemble using reverse of removal procedures.

NOTE: The screw nearest regulator terminals does not have an insulating washer, but may or may not have an insulating sleeve.

Slip Ring Servicing

If the slip rings are dirty, they may be cleaned and finished with 400 grain or finer polishing cloth. Spin the rotor, and hold the polishing cloth against the slip rings until they are clean.

CAUTION: The rotor must be rotated in order that the slip rings will be cleaned evenly. Cleaning the slip rings by hand without spinning the rotor may result in flat spots on the slip rings, causing brush noise.

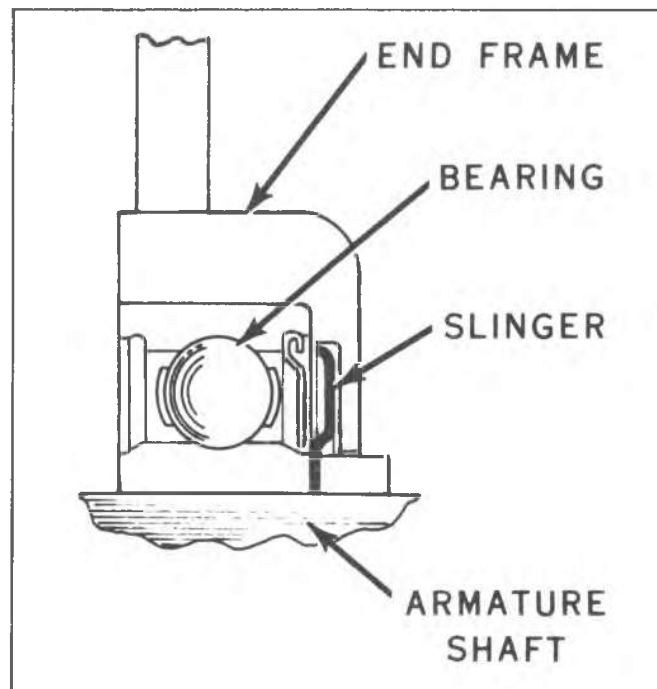


Fig. 6D-8C--Drive End Bearing Cross Section

Slip rings which are rough or out of round should be trued in a lathe to .002 inch maximum indicator reading. Remove only enough material to make the rings smooth and round. Finish with 400 grain or finer polishing cloth and blow away all dust.

Drive End Frame-Bearing Replacement/Lubrication

1. The drive end frame bearing can be removed by detaching the retainer plate bolts and separating retainer plate and seal assembly from end frame, and then pressing bearing out using suitable tube or pipe on outer race.

2. Refill bearing one-quarter full with Delco-Remy No. 1948791 grease or equivalent. Do not overfill.

3. Press bearing into end frame using tube or pipe as in Step 1 with bearing and slinger assembled as shown in Figure 6D-8C.

4. Install retainer plate. Use new retainer plate if felt seal is hardened or excessively worn.

NOTE: Stake retainer plate bolts to plate.

Slip Ring End Frame-Bearing Replacement

1. Replace the bearing if the grease supply is exhausted. Make no attempt to re-lubricate and reuse the bearing.

2. Press out from outside of housing, using suitable tool over outer race of bearing.

3. To install, place a flat plate over the bearing and press in from outside of housing until bearing is flush with the outside of the end frame. Support inside of end frame around bearing bore with a suitable tool to prevent distortion. Use extreme care to avoid misalignment.

4. Install new seal whenever bearing is replaced. Lightly coat the seal lip with oil and press seal into the end frame with the seal lip toward the inside of the end frame.

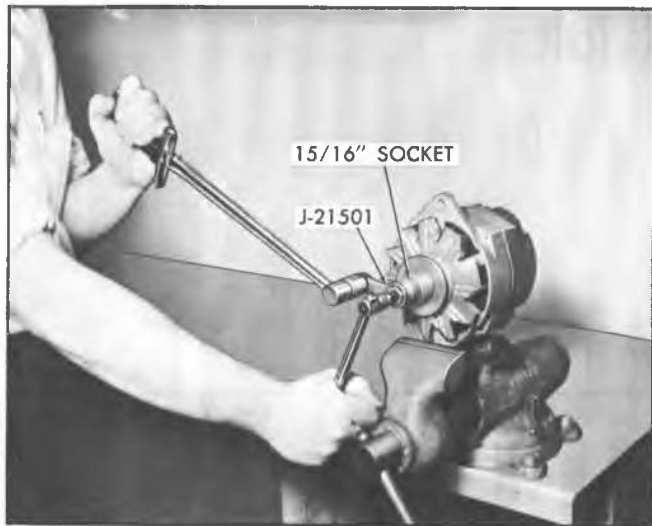


Fig. 6D-9C-Installing Pulley Nut

REASSEMBLY

1. Install rotor in drive end frame and attach spacer, fan, pulley, washer, and nut.
2. Using adapter J-21501, insert an allen wrench into hex .

shaped hole at end of shaft and torque the shaft nut to 40-50 ft. lbs. (fig. 6D-9C).

3. Install capacitor and retaining screw in slip ring end frame.

4. Position brush holder and regulator assemblies in end frame and install two retaining screws.

NOTE: The two screws retaining the brush clips have insulating washers over the top of the brush clips and special insulating sleeves over the screw body above the threads. If the third screw does not have an insulating sleeve, it must not be interchanged with either of the other two screws.

5. Position rectifier bridge to end frame. Install attaching screw and the "BAT" terminal screw. Connect capacitor lead to bridge.

6. Position diode trio on rectifier bridge terminal and install screw attaching brush lead clip to brush holder.

CAUTION: *Insulating washer on the screw must be assembled over top of the connector.*

7. Position stator in end frame. Connect stator leads to rectifier bridge terminals and install attaching nuts.

8. Position slip ring end frame to drive end frame and install four thru bolts.

NOTE: Remove tooth pick from brush holder at opening in slip ring end frame before operating machine on vehicle.

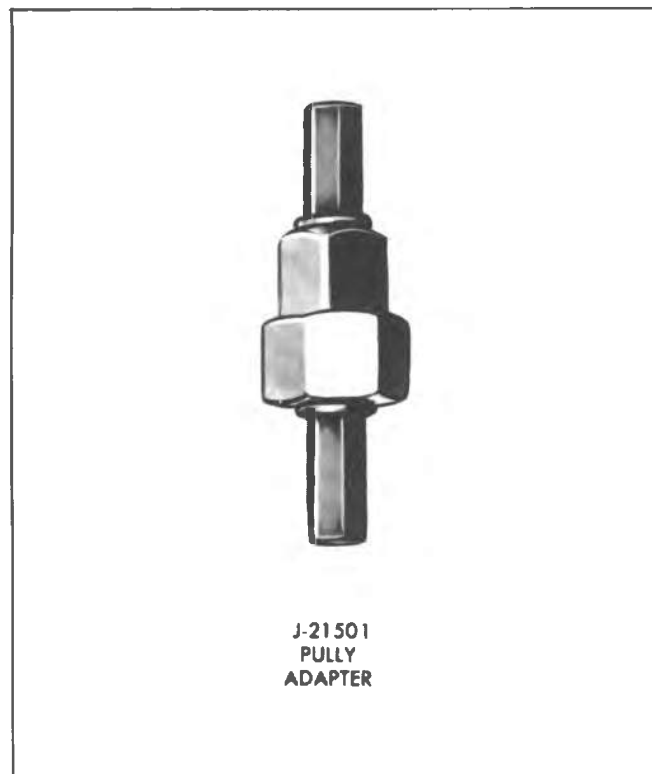
SPECIAL TOOLS

Fig. 6D-10C--Special Tool

SPECIFICATIONS

TRUCK BATTERY

MODEL NO.	APPLICATION	COLD CRANK RATE @ 0°F (-18°C)	AMPS FOR LOAD TEST	25 AMP. RESERVE CAPACITY (MINUTES)
85-4	250 L-6 (LD4)	275 Amps	130	60
85-5	292 L-6 (L25) 305 V-8 (LG9) 350 V-8 (LS9) 400 V-8 (LF4)	350 Amps	170	80
89-5	454 V-8 (LF8) RPO UA1	465 Amps	230	125
87-5	RPO TP2	430 Amps	210	100

PASSENGER BATTERY

MODEL NO.	APPLICATION	COLD CRANK RATE @ 0°F (-18°C)	AMPS FOR LOAD TEST	25 AMP. RESERVE CAPACITY (MINUTES)
Y87P	250 L-6 (L22) (Except Chevrolet)	275 Amps		60
85-4*	250 L-6 (L22) (Chevrolet)	275 Amps	130	60
R87P	305 V-8 (LG3) 350 V-8 (LM1) (Except Chevrolet)	350 Amps		80
85-5*	305 V-8 (LG3) 350 V-8 (LM1) (Chevrolet)	350 Amps	170	80
87-5*	350 V-8 (L48) 350 V-8 (L82) (Corvette)	430 Amps	210	100
89-5*	RPO UA1	465 Amps	230	125

*Freedom Type

TRUCK GENERATOR

MODEL NO.	APPLICATION	DELCO REMY SPEC. NO.	FIELD CURRENT AMPS 27°C (80°F) @ 12 VOLTS	COLD OUTPUT* AMPS @ 5000 RMP	RATED HOT OUTPUT** AMPS
1102394 1102491 1102889	All L-6 (Base) (Except G-20, 30 & P-Truck) All C-K-G Truck Base V-8 (Except K31303 & G30003)	4519	4-4.5	33	37
1102485 1102841 1102887	292 L-6 (L25) (Base) (G-20, 30 & P-Truck) All P-Truck Base V-8 (Except P31832)	4521	4-4.5	38	42
1102480 1102486 1102886 1102888	P31832 Truck (Base) All L-6 or V-8 with RPO K76 454 V-8 (FL8) (Base) K31303 & G30003 Truck Base V-8	4522	4-4.5	57	61
1101016 1101028	Optional (COPO)	4525	4-4.5	76	80

*Generator temperature approximately 27°C. (80°F.).

**Ambient temperature 27°C. (80°F.).

Note: The only difference between generators within each group above is the position end frame is rotated.

PASSENGER GENERATOR

MODEL NO.	APPLICATION	DELCO REMY SPEC. NO.	FIELD CURRENT AMPS 27 C (80°F) @ 12 VOLTS	COLD OUTPUT* AMPS @ 5000 RPM	RATED HOT OUTPUT** AMPS
1102491	All L-6 (Base)	4519	4-4.5	33	37
1102474	Corvette — with C60	4522	4-4.5	57	61
1102478	Nova L-6 — with C60	4520	4-4.5	51	55
1102479	Nova V-8 — with C60	4520	4-4.5	51	55
1102480	All (Except Corvette & Nova) V-8 — with C60	4522	4-4.5	57	61
1102484	Corvette (Base)	4521	4-4.5	38	42
1102486	All (Except Nova) L-6 — with C60	4522	4-4.5	57	61
1102394	All (Except Corvette) V-8 (Base)	4519	4-4.5	33	37

*Generator temperature approximately 27°C. (80°F.)

**Ambient temperature 27°C. (80°F.).

TRUCK STARTING MOTOR

MODEL NO.	APPLICATION	SPEC. NO.	VOLTS	FREE SPEED AMPERES	RPM
1108778	250 L-6 (LD4) (C & K-10)	3573	9	50-80*	5500-10500
1108779	250 L-6 (LD4) (G-Van)	3573	9	50-80*	5500-10500
1108780	292 L-6 (L25)	2438	9	50-80*	3500-6000
1109056	305 V-8 (LG9) (C & K)	3573	9	50-80*	5500-10500
1109798	305 V-8 (LG9) (G-Van)	3573	9	50-80*	5500-10500
1109052	350 V-8 (LS9)	3563	9	65-95*	7500-10500
1108776	400 V-8 (LF4) 454 V-8 (LF8)	3563	9	65-95*	7500-10500

*Includes Solenoid

PASSENGER STARTING MOTOR

MODEL NO.	APPLICATION	SPEC. NO.	FREE SPEED		
			VOLTS	AMPERES	RPM
1108774	250 CID L-6 Engine	3573	9	50-80*	5500-10500
1109056	305 CID V-8 Engine w/Auto Trans.	3573	9	50-80*	5500-10500
1108799	305 CID V-8 Engine w/Manual Trans.	3573	9	50-80*	5500-10500
1109059	350 CID V-8 Engine w/Manual Trans.	3563	9	65-95*	7500-10500
1109052	350 CID V-8 Engine w/Auto. Trans.	3563	9	65-95*	7500-10500

*Includes Solenoid