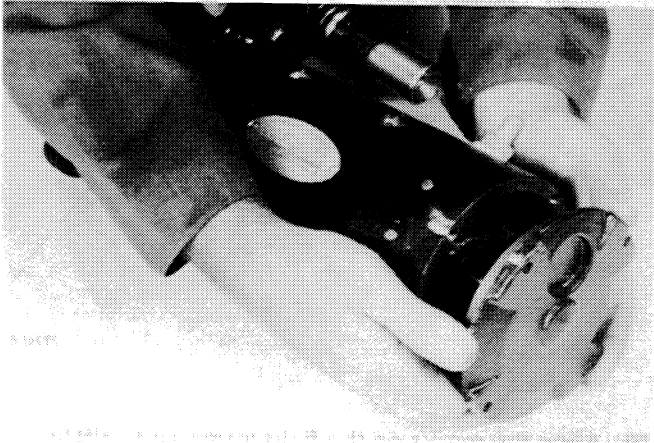
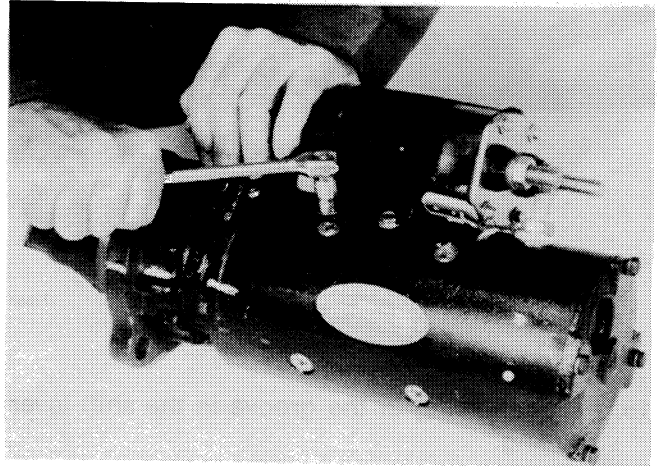


19. Fill the oil reservoir in the bearing bore of the end frame with SAE 10 engine oil. Then put the the end frame on the armature shaft. Align the marks on the end frame and field frame and push these parts together.



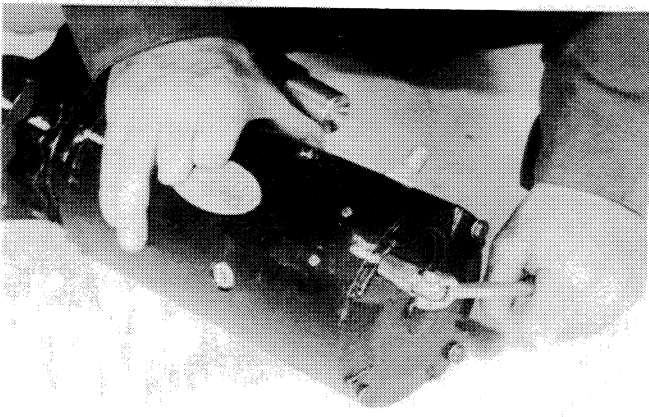
777402

22. Fasten the starter solenoid to the field frame with just two cap screws at this time. Before doing the next step, check and adjust the pinion clearance. See Checking Pinion Clearance for instructions.



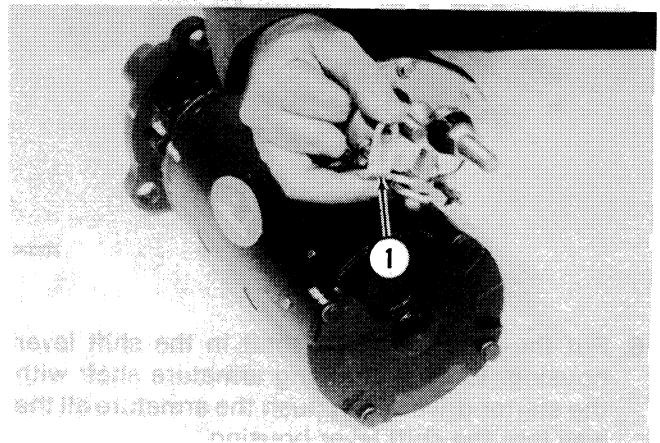
777401

20. Install and tighten the cap screws that hold the end frame and field frame together.



777407

23. Put the connector on the field terminal and starter solenoid MOT terminal.



1. Connector

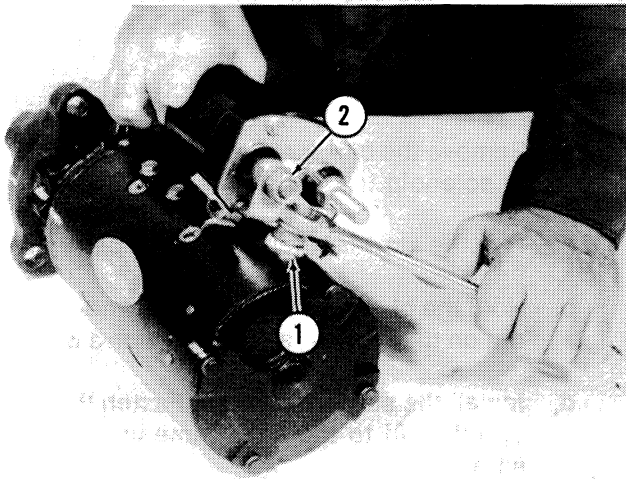
777406

21. Install the starter solenoid on the plunger. Put the boot on the tube on the starter solenoid.



777408

24. Install a lock washer and nut on the field terminal and MOT terminal. Tighten the nuts.



1. Field Terminal
2. MOT Terminal

777405

25. Remove the Allen head plug in the starter drive housing and the shift lever housing. Fill the oil wick that is under each Allen head plug with SAE 10 engine oil.

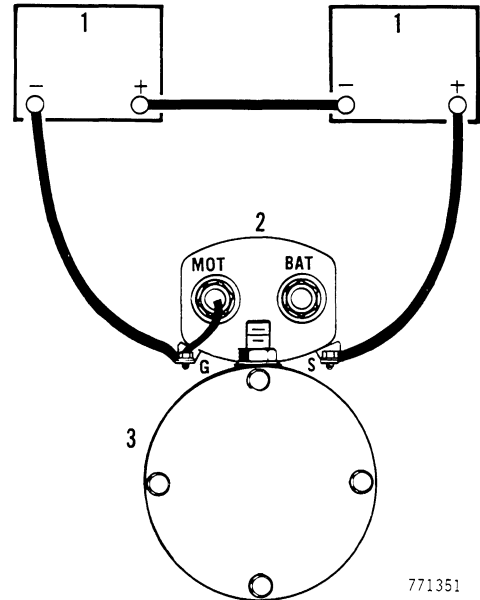
Checking Pinion Clearance

The pinion clearance must be checked when a new starter drive is installed or when the nut on the plunger for the starter solenoid has been moved from its original position.

1. The connector between the field terminal and MOT terminal must be removed before checking the pinion clearance.
2. Remove the nuts and lock washers from the field terminal and MOT terminal. Then remove the connector.

3. Remove the slotted plug from the rear of the shift lever housing.

4. Connect two 12 volt batteries to the starter solenoid.



771351

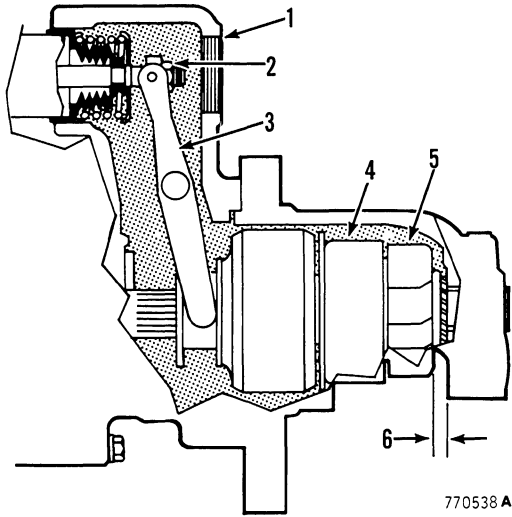
1. 12 VOLT BATTERY
2. STARTER SOLENOID
3. STARTER

5. Connect a jumper wire (12 to 8 gauge) to the ground terminal and MOT terminal on the starter solenoid.

NOTE: Do steps 6 and 7 rapidly to prevent damage to the coils in the starter solenoid.

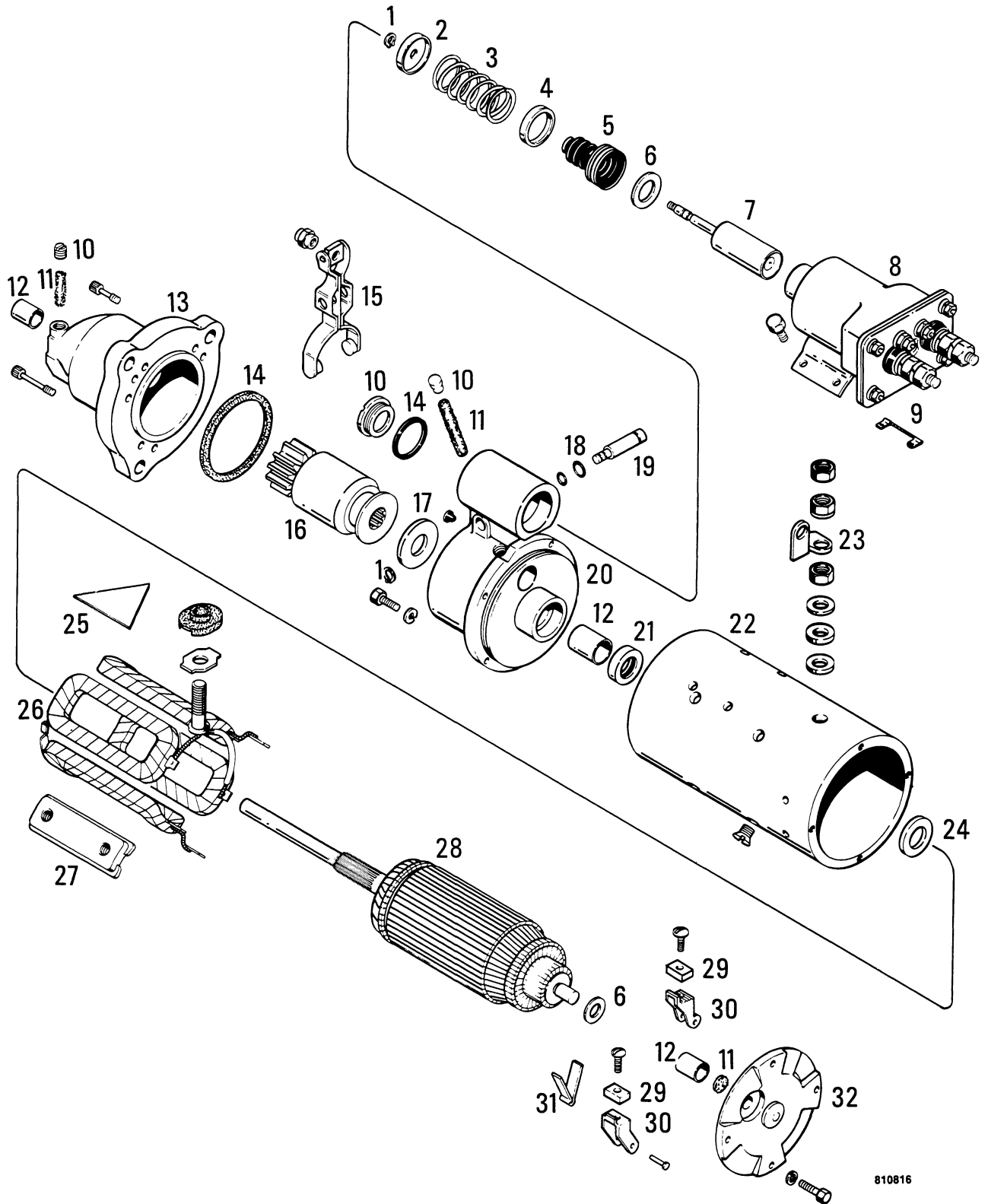
6. Push the starter drive toward the shift lever housing to put the starter drive in the correct position.

7. Measure the space from the end of the pinion to inner surface of the starter drive housing.



1. PLUG REMOVED
2. TURN NUT TO GET THE CORRECT PINION CLEARANCE
3. SHIFT LEVER
4. STARTER DRIVE. PUSH TOWARD SHIFT LEVER TO REMOVE ANY FREE MOVEMENT
5. PINION
6. .33 - .39 INCH (8.4 - 9.9 mm)

8. Disconnect the jumper wire from the MOT terminal.
9. See page 4006-3 for the pinion clearance specification.
10. If the pinion is not in the correct position:
 - a. Remove the cap screws that fasten the starter solenoid to the field frame.
 - b. Pull the starter solenoid off the plunger.
 - c. Hold the plunger with one hand and turn the nut on the plunger as needed with a wrench.
 - d. Install the starter solenoid. Fasten the starter solenoid to the field frame with two cap screws.
 - e. Check the pinion clearance again.
11. Check and adjust the pinion clearance until the pinion clearance is correct.
12. Install and tighten the remainder of the cap screws that hold the starter solenoid in place.
13. Install the slotted plug in the shift lever housing. Tighten the slotted plug.



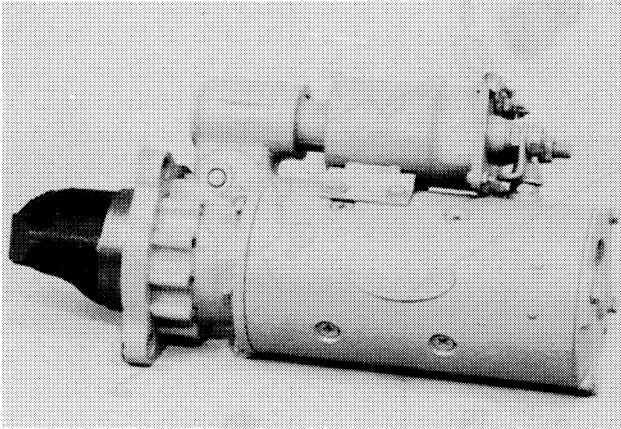
810816

- | | | | |
|----------------------|---------------------------|-------------------------|------------------|
| 1. Snap Ring | 9. Ground Wire | 17. Brake Washer | 25. Insulator |
| 2. Outer Spring Seat | 10. Plug | 18. O-ring | 26. Field Frame |
| 3. Spring | 11. Felt | 19. Shaft | 27. Pole Shoe |
| 4. Inner Spring Seat | 12. Bushing | 20. Shift Lever Housing | 28. Armature |
| 5. Boot | 13. Starter Drive Housing | 21. Seal | 29. Brush |
| 6. Washer | 14. Quad Ring | 22. Field Frame | 30. Brush Holder |
| 7. Plunger | 15. Shift Lever | 23. Connector | 31. Spring |
| 8. Starter Solenoid | 16. Starter Drive | 24. Thrust Washer | 32. End Cap |

L106562 and R46156 STARTERS

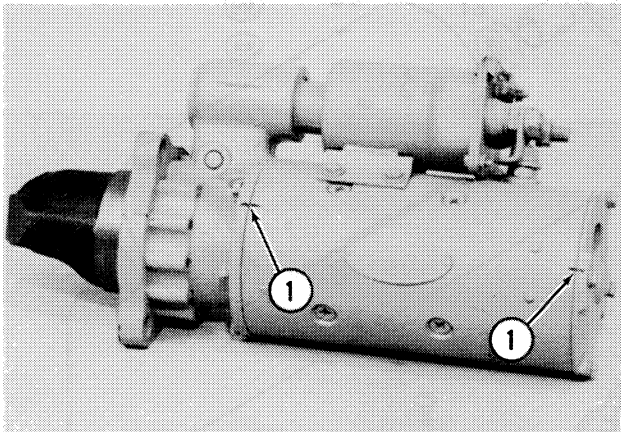
Disassembly

1. Clean the outside of the starter and put the starter on a clean bench.



126141

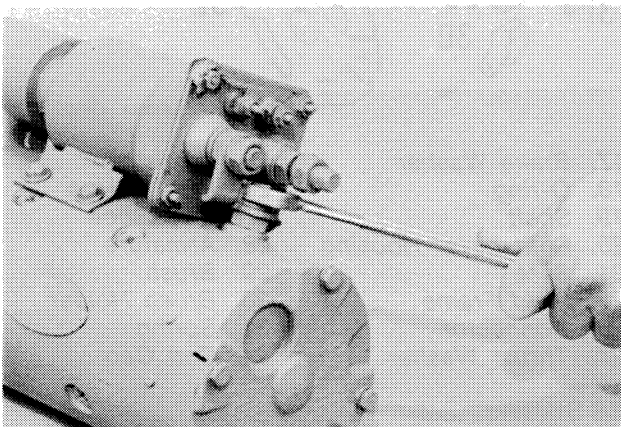
2. Put alignment marks on the end cap, field frame, shift lever housing, and the starter drive housing.



1. Alignment Marks

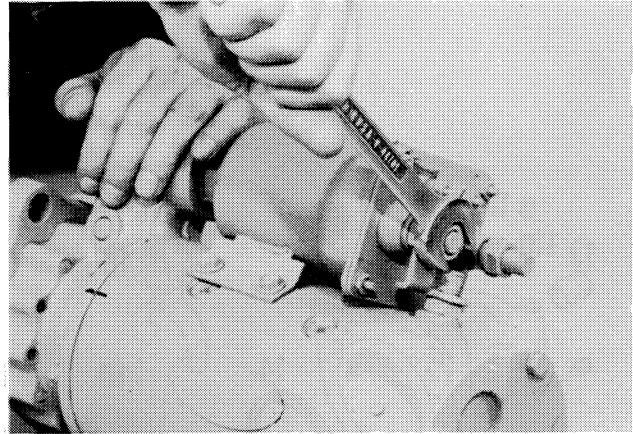
126142

3. Loosen and remove the nut that fastens the connector to the field terminal.



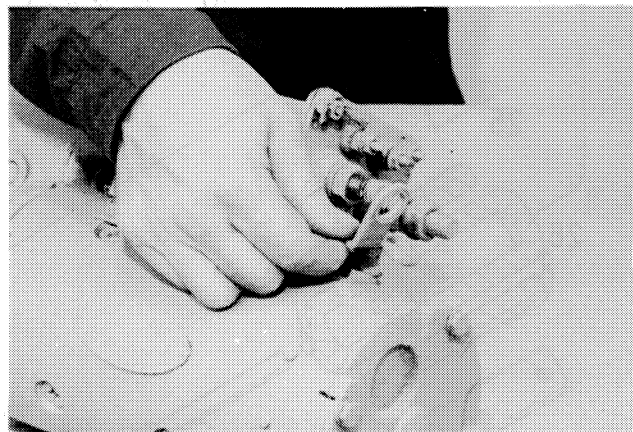
126143

4. Loosen and remove the nut that fastens the connector to the MOT terminal.



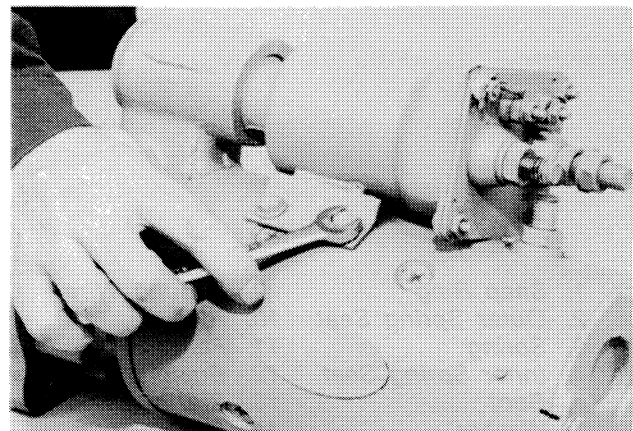
126144

5. Remove the connector.



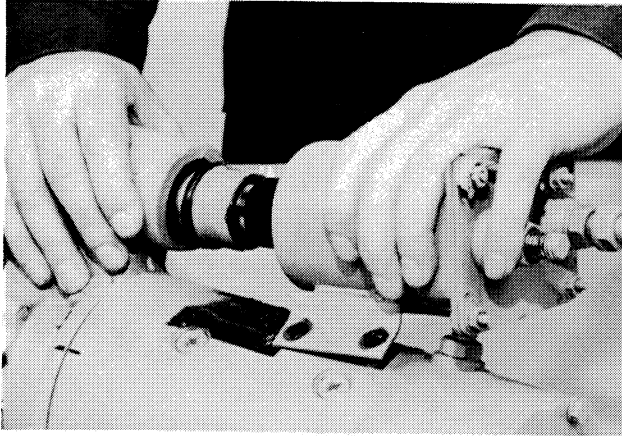
126101

6. Loosen and remove the cap screws that fasten the starter solenoid to the field frame.



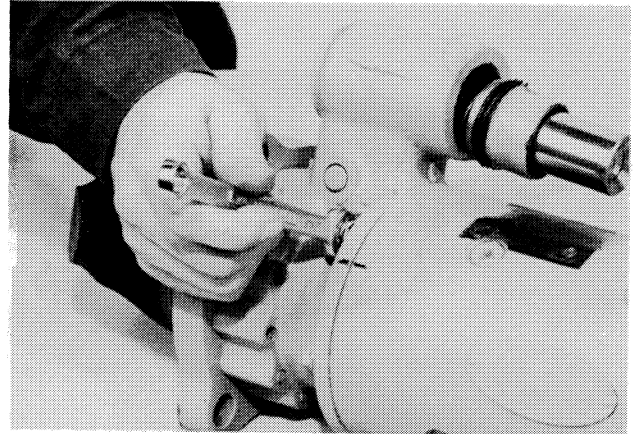
126103

7. Pull the starter solenoid from the plunger.



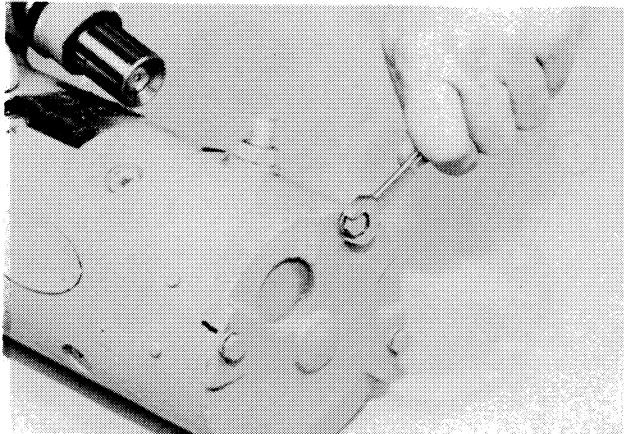
126104

10. Loosen and remove the cap screws that fasten the field frame to the shift lever housing.



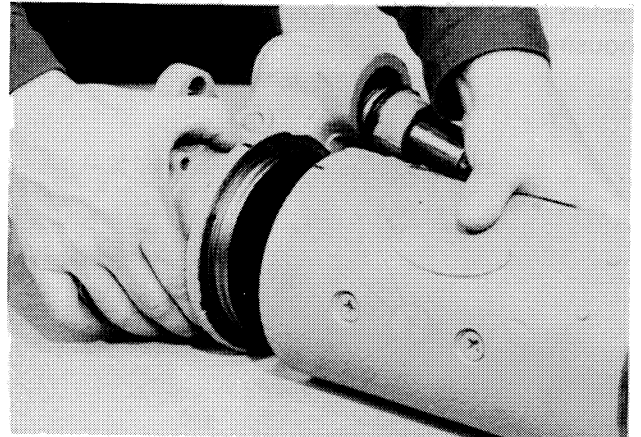
126108

8. Loosen and remove the cap screws that fasten the end cap to the field frame.



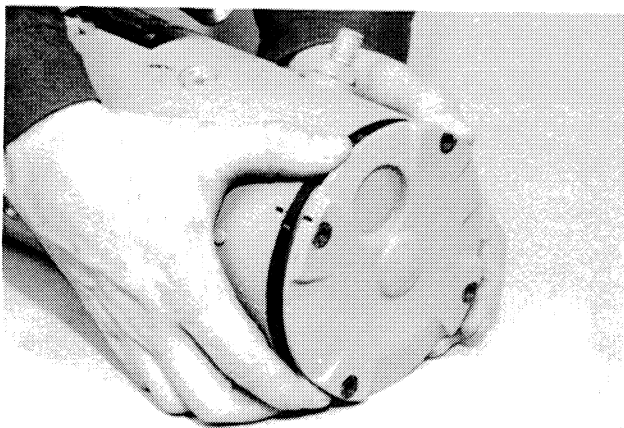
126105

11. Remove the field frame from the shift lever housing.



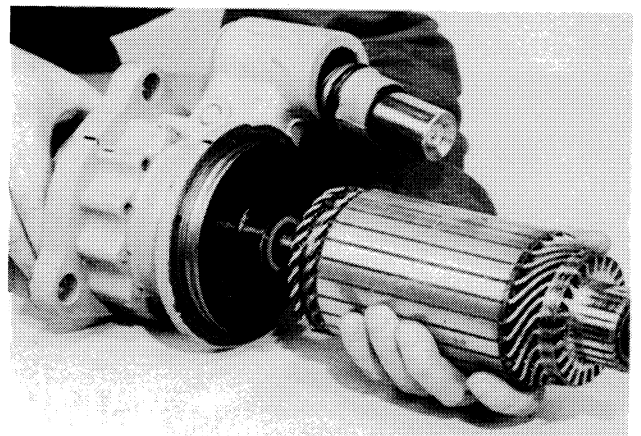
126109

9. Remove the end cap.



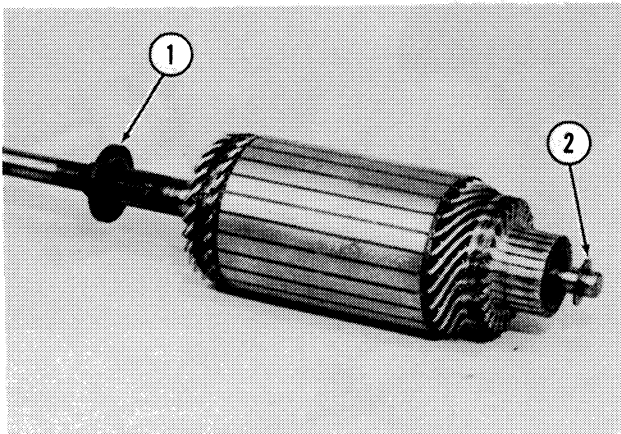
126107

12. Remove the armature from the shift lever housing.



126110

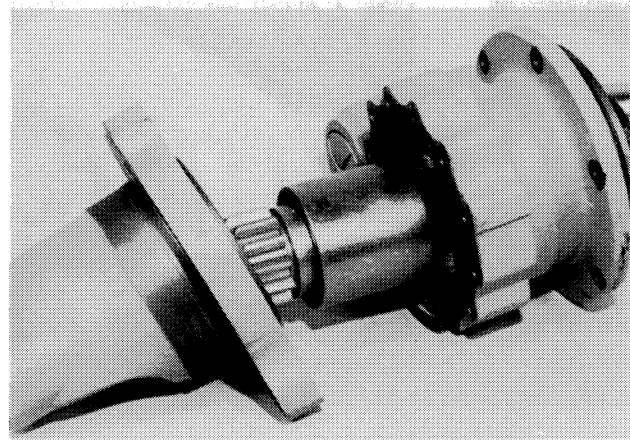
13. Remove the thrust washer and washer from the armature.



- 1. Thrust Washer
- 2. Washer

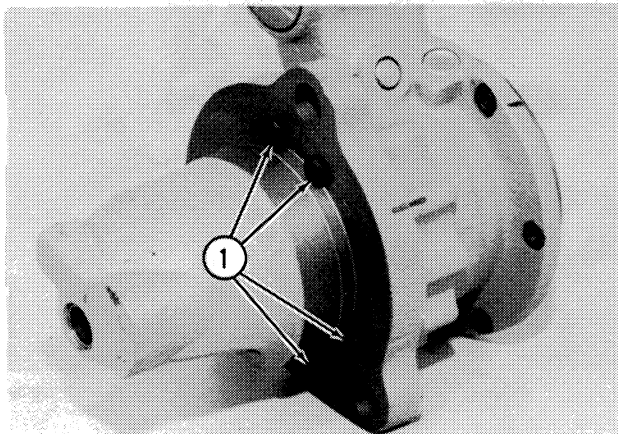
126111

15. Remove the starter drive housing from the shift lever housing.



100142

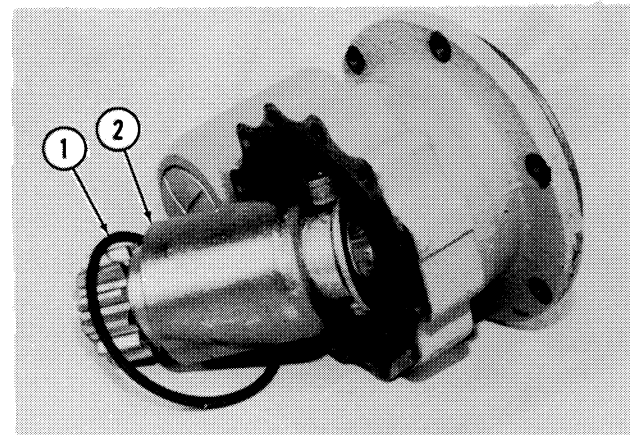
14. Loosen and remove the Allen head screws that fasten the starter drive housing to the shift lever housing.



- 1. Allen Head Screws

100140

16. Remove the starter drive and quad ring from the starter drive housing.



- 1. Quad Ring
- 2. Starter Drive

100143

Inspection

Cleaning

1. Use cleaning solvent to clean all metal parts except the field coil, the armature, and the starter drive.

Armature

1. Use an armature tester to test the armature.
2. Inspect the armature shaft for rough surfaces and rough or damaged splines.
3. Inspect the commutator for wear or burned areas.
4. If the commutator is rough or worn, put the armature in a lathe and do the following steps:
 - a. Remove material from the commutator bars until the commutator bars are clean and smooth.
 - b. Remove the insulation from between the commutator bars to a depth and width of 1/32 inch (0.8 mm). Use 00 sandpaper to remove any rough edges from the commutator. Do not use emery cloth.

Bushings

1. There are bushings in the end cap, shift lever housing, and the starter drive housing.
2. Inspect the bushings for wear, rough surfaces, and other damage. If necessary, replace the bushings according to the instructions in this section.

Brushes and Springs

1. If the length of any brush is 3/8 inch (9.5 mm) or less, replace the brushes.
2. If a spring has changed color or has weak tension, the spring must be replaced.
3. Check the tension of each spring manually to be sure that the spring has good tension.

Field Coil

1. See field coil tests on page 4006-45.

Shift Lever Housing

1. Inspect the oil seal. If the oil seal is worn or hard, install a new oil seal according to the instructions on page 4006-42.

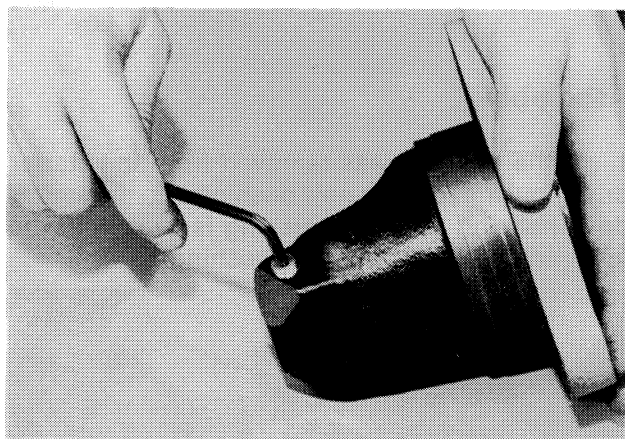
Starter Drive

1. Use a clean cloth to clean the starter drive. Do not use cleaning solvent.
2. Inspect the splines for wear or damage.
3. Check the teeth on the starter drive.
4. Check to be sure that the starter drive moves freely on the armature shaft.

Starter Drive Housing

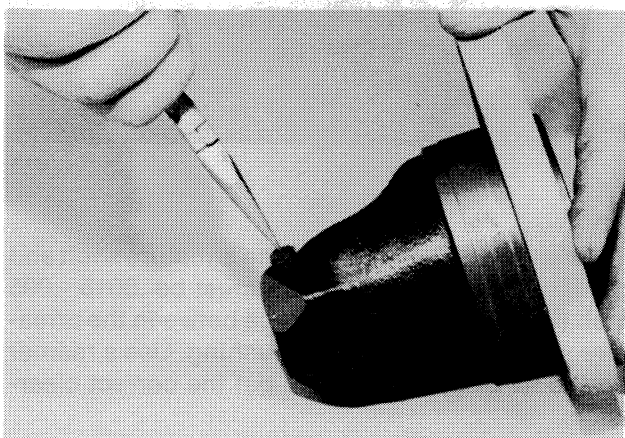
Disassembly

1. Loosen and remove the Allen head plug.



126112

2. Remove the felt.



126113