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NSN 2920-01-087-0997 CAGE 1Y875 DWG NO.: SAW-10870997
PACKAGE NOMENCLATURE: SOLENOID REPAIR KIT

PACKAGE CONTENTS

QTY	NAME OF ITEM	PART NUMBER
1	SOLENOID	SAW-14827506
1	LINK SCREW	2E-6450
1	JUMPER	00-8903
1	ROLL PIN	0A-8028
1	COTTER PIN	00-8043
1	BOOT	2E-6601

A new solenoid has been released which replaces the solenoid assembly previously used on Leece-Neville electric shift cranking motors.

When the original solenoid is initially replaced with the new solenoid it will be necessary to replace the link screw assembly in the shift mechanism. Once this modification has been made, it will not be required if future new style solenoid replacement is needed. The following procedure should be followed to install the replacement solenoid.

SOLENOID REMOVAL (FIGURE 1)

1. Remove lead assembly and jumper from original solenoid and remove 1/8" pipe plug from terminal end of solenoid housing.

2. Remove two (2) capscrews which secure solenoid to motor.

3. Pull solenoid back to disengage solenoid from motor housing.

4. Insert adjusting tool, Ordnance No. 10935617 into solenoid and unscrew solenoid plunger from linkage. Solenoid can now be removed from the motor.

PREPARATION FOR SHIFT LINKAGE REMOVAL

1. Before removing housings, index the nose housing, shift housing and field ring with punch marks to insure their proper location when reassembling motor.

2. Remove brush band cover. Lift brushes from commutator. NOTE: Do not lift brushes by their pigtails.

3. Remove six (6) socket head screws from nose housing and remove housing from armature shaft.

4. Remove five (5) socket head screws from shift housing and slide shift housing from armature shaft. The drive assembly will also slide off the shaft at this time. CAUTION: Thrust washers are used between the armature and shift housing, and at both ends of the drive. Do not lose these washers and be sure they are identified so that they may be replaced in the same position when reassembling the motor. The shift linkage may now be removed from the housing in the following manner.

SHIFT LINKAGE REPLACEMENT (FIGURES 1 & 2)

1. Remove socket head screw and washer which retains shift fork shaft, and remove shaft from housing. Shift fork and link may now be removed.

2. Remove cotter pins and roll pins which retain link screw and coupling to shift fork. Install new link screw, using roll pin and cotter pin supplied in the solenoid kit.

3. Reinstall shift fork assembly into housing and replace shaft. Reinstall retaining screw and washer. Housings may now be assembled to motor in the following manner.

HOUSING REPLACEMENT

1. Reinstall the two (2) thrust washers on the armature shaft if these have been removed. The steel washer is installed first, against the armature, followed by the fiber washer.

2. Slide the shift housing part way into the shaft and install the two (2) fiber washers.

3. Insert the drive into the housing, being certain that the shift fork engages the collar on the drive.

4. Slide the shift housing and drive assembly the rest of the way onto the shaft and reinstall the five (5) soc. head screws which secure it to the field ring. Be sure the punch marks are lined up.

5. Install the steel thrust washer on the shaft and slide the nose housing into place. Reinstall the six (6) soc. head screws which secure the housing. Be sure punch marks are in line. The new solenoid may now be installed.

SOLENOID INSTALLATION (FIGURE 2)

1. Remove original rubber "O" ring from shift housing pilot hole and install rubber boot furnished with the kit. Slide the small end of the boot over the link screw so that boot enters the housing. Snap the lip on the large end of the boot into the original "O" ring groove.

2. Pull starter drive forward toward nose so that link screw protrudes from solenoid pilot hole. Hold solenoid in place so that the threaded hole in the solenoid plunger lines up with the link screw and screw solenoid plunger onto screw. This is done by inserting a ¼" timing socket (See Fig. 3) into hole on terminal end of solenoid. Screw plunger 12 turns onto the link screw and reinstall the two (2) capscrews which secure solenoid to motor, using Loctite "A" on screw threads.

3. Connect the jumper furnished with the kit between the motor field terminal and the No. 3 terminal of the solenoid.

4. Connect the ground lead assembly removed from the original solenoid to terminal No. 4 of the new solenoid. The solenoid may now be timed.

SOLENOID TIMING

1. Connect full battery voltage across terminals No. 1 and No. 4 of the solenoid, and momentarily jumper terminals 3 and 4 together. This will pull the solenoid into its normal operating position. With the solenoid energized check the spacing with a .187 timing gauge between the face of the pinion and the nose housing thrust washer. Timing gauge can be made from a piece of 3/16" bar stock. (See Figure4).

2. The .187" clearance is obtained by screwing the solenoid plunger in a forward direction with the ¼" timing socket inserted into the terminal end of the solenoid. Screw the plunger on the link screw until the required .187 clearance

is obtained with the solenoid energized. CAUTION: De-energize the solenoid when turning the adjustment.

ABUTMENT CHECK

1. Place a .812 gauge against face of pinion. The gauge can be made from a piece of 13/16 bar stock. (See Figure 5).

2. Connect a continuity tester such as a battery powered test light, diode tester, or ohmmeter between solenoid terminals 2 and 3 to determine if contacts close.

3. Energize solenoid as previously described by connecting battery voltage between terminals 1 and 4 and momentarily jumpering terminals 3 and 4. Drive should move forward against the .812 gauge. At this time contacts should be open, as indicated by no circuit on the continuity tester.

4. Complete the installation by inserting the rubber plug supplied with the kit into the adjusting hole of the solenoid

DISASSEMBLY OF OLD STYLE SOLENOID

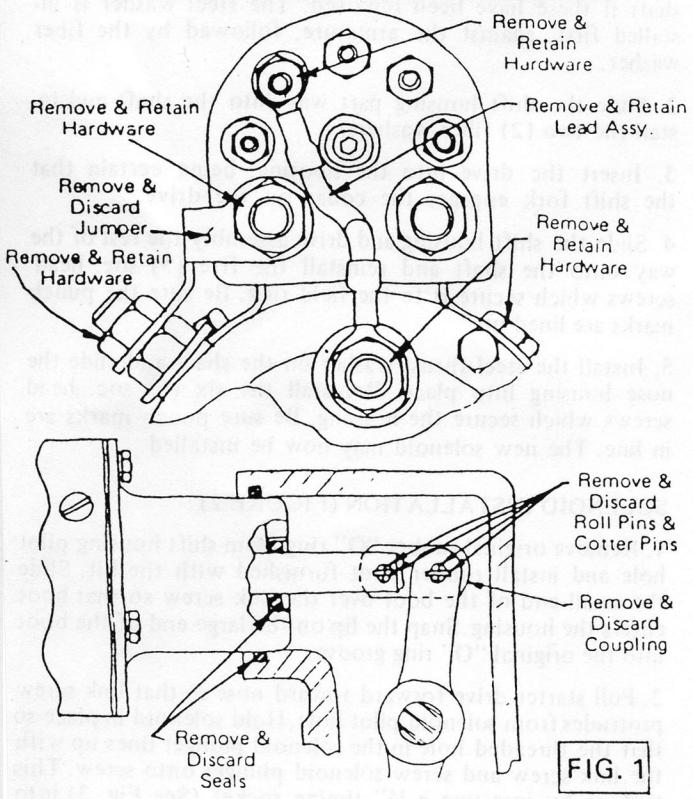


FIG. 1

ASSEMBLY OF NEW STYLE SOLENOID ON OLD STYLE MOTORS

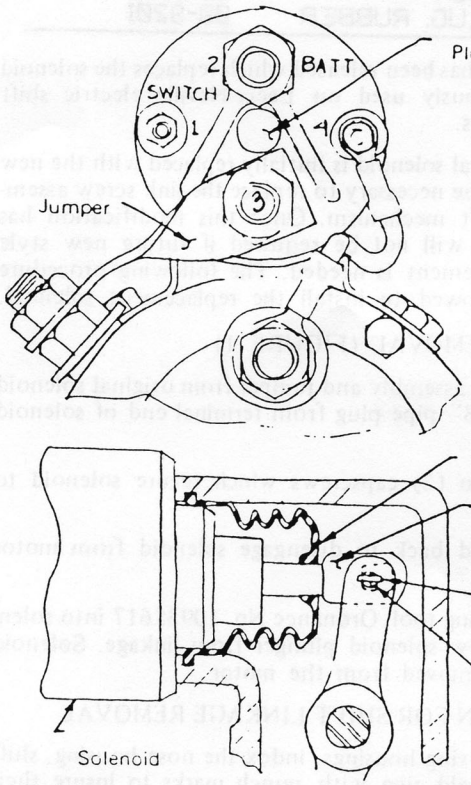
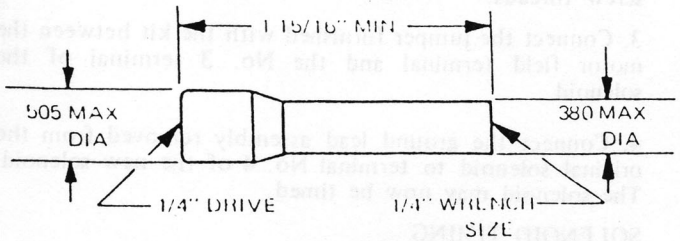


FIG. 2

TIMING SOCKET



LONG LENGTH SOCKET

SUGGESTED SOURCE SNAP ON TOOLS CORP
KENOSHA, WISCONSIN
STOCK NO STMD8
FED SPEC GGG W 641D. TYPE II CLASS 2
STYLE "B" THIN WALL SOCKET (12 POINT)
LONG LENGTH 1/4" DRIVE

FIG. 3

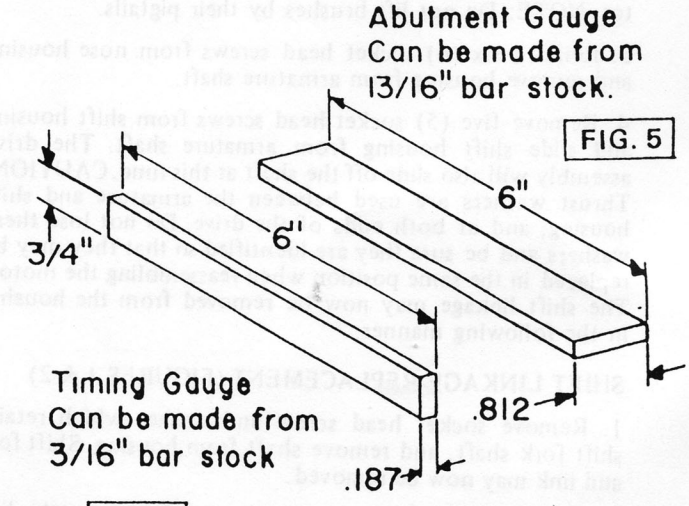


FIG. 5

FIG. 4