

TROUBLE SHOOTING THE MODEL 8074 & 8274 WINCHES

In cases where the winch lacks power or will not run at all, check the power supply first. The winch cannot pull to its rated capacity if the electrical system is inadequate.

The battery should be at least 70 Amp/Hour capacity. It should be fully charged at the start of the winching operation. Use a hydrometer to check the specific gravity.

Specific Gravity Readings

1.260 to 1.280	Fully Charged	1.170 to 1.190	One-Quarter Charged
1.230 to 1.250	Three-Quarter Charged	1.140 to 1.160	Just about flat
1.200 to 1.220	One-Half Charged	1.110 to 1.130	All the way down

It is important that all cells produce an equal reading. If not, one or more cells could be weak and voltage will be low. If readings are uneven, use a battery tester with a combination voltmeter, ammeter and carbon pile rheostat. Follow the tester manufacturers procedures and recommendations. Check all connections to be sure they are tight and free from corrosion. Check the ground cable to be certain it is connected from the winch to a common ground of the battery.

If no electrical problem exists, remove the motor for inspection, (refer to Page 4.) Inspect visually for obvious damage such as burned insulation, solder melted from the armature, loose or burned brush wires, worn brushes, rust or corrosion and expanded armature windings rubbing on the field coils. Check the motor mounting boss on the upper housing, if it is broken the armature will rub against the field coils. If no damage is apparent:

Check continuity between motor terminals "F1" and "F2"

Check for a short between either terminal and the motor housing

Check terminal "A" for a short to the housing

Check the armature commutator for a short to the shaft

Check the armature on a growler

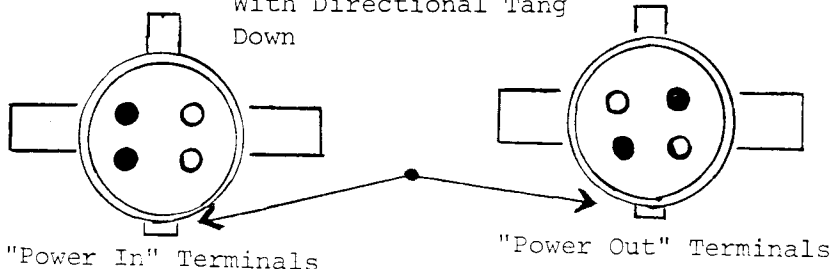
A stuck solenoid can also cause a lack of power condition. Refer to solenoid checking procedure.

In cases where the winch operates in one direction only:

Check the remote control lead for continuity.

S/N 196114 and Lower

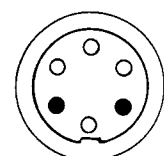
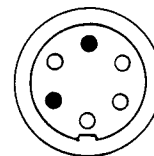
Male Plug Oriented
With Directional Tang
Down



S/N 196115 and Higher

"POWER IN" TERMINALS

"POWER OUT" TERMINALS



REMOTE CONTROL PLUG
ORIENTED WITH
DIRECTIONAL TANG DOWN

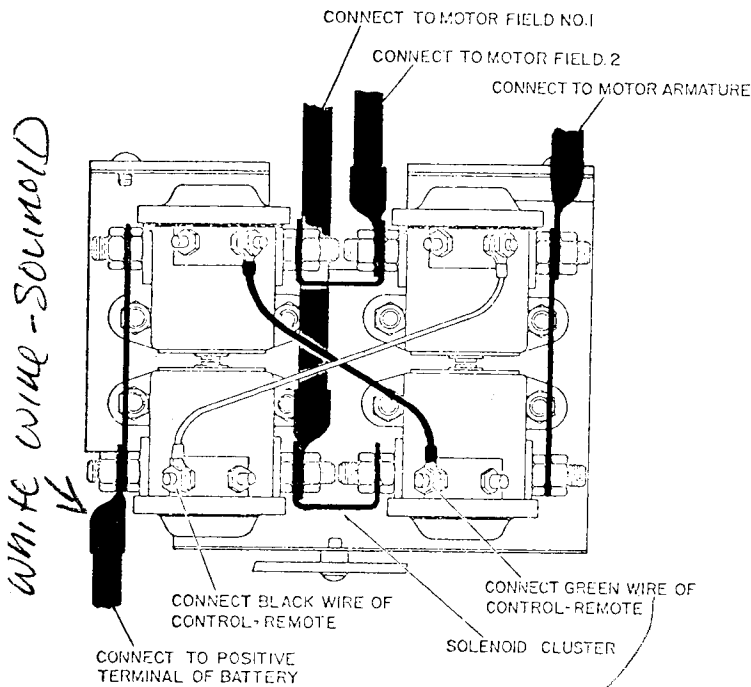
If the remote control is okay check the solenoids as follows:

Check all mounting bolts to be certain they are tight and the solenoids are grounded.

Isolate the solenoids by removing the power cable and the three leads from the motor terminals.

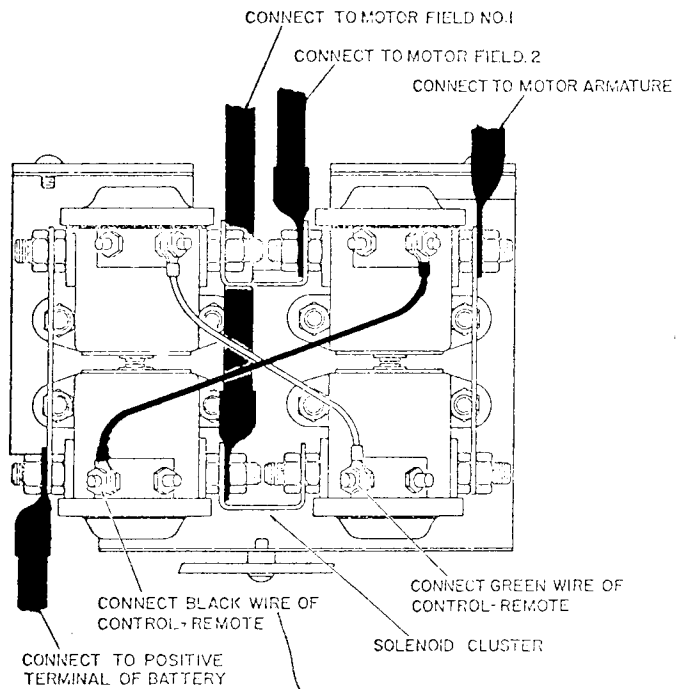
Check each solenoid for continuity across the big terminals, continuity would indicate stuck points and replacement would be necessary.

Connect a jumper wire from the positive battery terminal to an activating terminal on the solenoid being checked. It should click when activated and show continuity across the big terminals. Check each solenoid.



"Power In" Circuit

The Top L.H. and the bottom R.H. solenoids are activated while powering in.



"Power Out" circuit

The top R.H. and the bottom L.H. solenoids are activated while powering out.

Brake does not function properly:

The brake is cam actuated. It will stop the load immediately upon release of the switch when "powering in".

When "Powering Out" the load will not stop immediately. Inertia in the armature causes the load to travel a short distance after the switch is released. The lighter the load, the further the travel can be. Jogging the switch will allow the operator to stop at the desired point.

If the brake slips, remove it (Procedure illustrated on the following pages) and inspect parts for cause such as oil or corrosion.

When the brake is not loaded you should be able to hold the inner brake plate and rotate the outer brake plate approximately one inch. If you cannot, remove and disassemble the brake to check for cause of binding.

Check the brake pawl to be certain it is free on the casting boss.

Winch will not Free spool easily:

Jog the switch in the "power out" mode to release the automatic brake; if the brake drags, check brake function.

Re-align winch on the mounting plate. Loosen the mounting bolts on the case and move it until you find the position in which the drum rotates most freely. Tighten the bolts. This is usually necessary only on mounting kits not made at our factory.

Do not jerk the wire rope while free spooling out. A sudden increase in line speed will cause the brake to actuate, even with the clutch disengaged. This is a safety factor in case of accidental clutch disengagement.

Remove the drum support bracket; clean the bushing and the drum shaft; grease lightly and reassemble.

Motor Removal

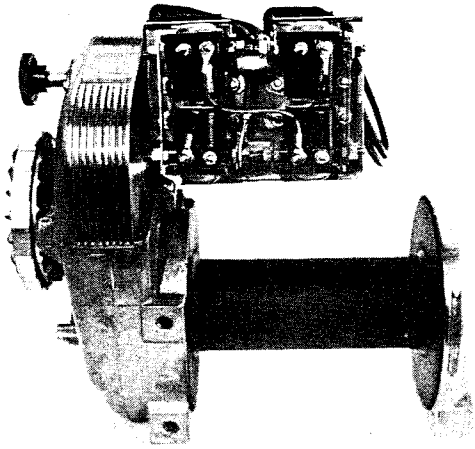


Fig. 1

Motor and solenoid test procedures are outlined on the preceding trouble shooting pages.

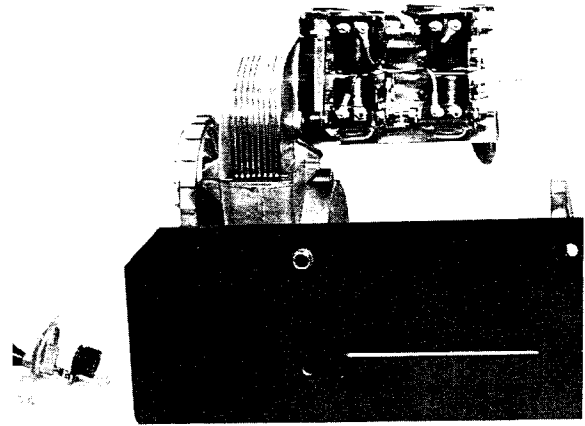


Fig. 3

Remove the two motor bolts and take off the motor.

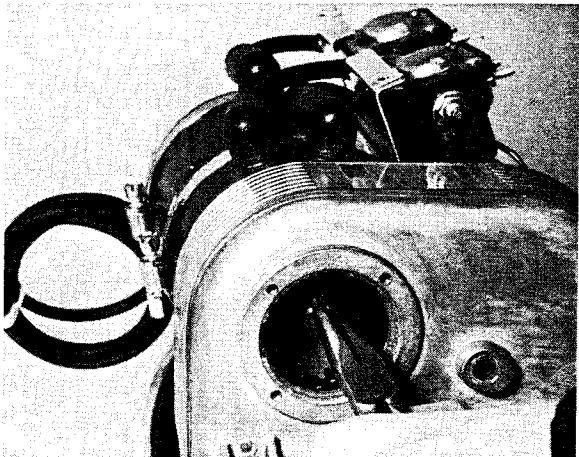


Fig. 2

With the clutch in the engaged position, remove the four screws holding the clutch assembly to the case. Slide the clutch assembly out just far enough to see the key on the armature shaft. Rotate the drum to bring the key to the top of the shaft. Remove the clutch assembly and the key as shown.

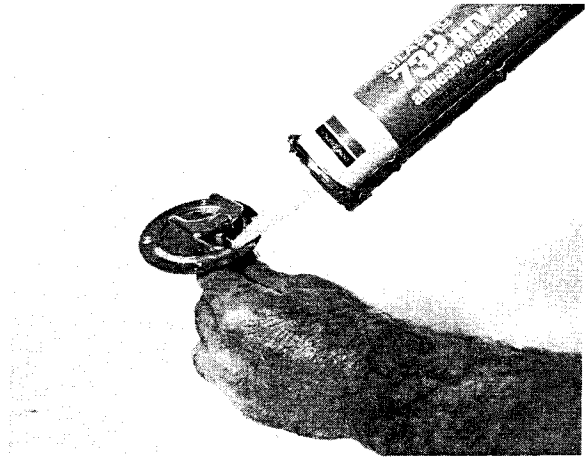


Fig. 4

Re-assemble in reverse order. Put a bead of silicone sealant around the clutch assembly.



Fig. 5

Locate the motor pinion gear onto the shift fork and install on the case. Use care to avoid dropping the drive key.

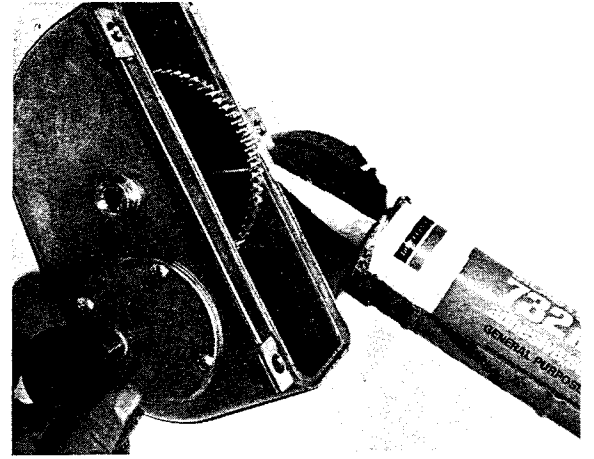


Fig. 7

Apply silicone sealant in the groove of the upper housing as shown, and install it on the lower housing. Install and torque the socket head screws to 11 ft. lbs. (1.52 KG-M).

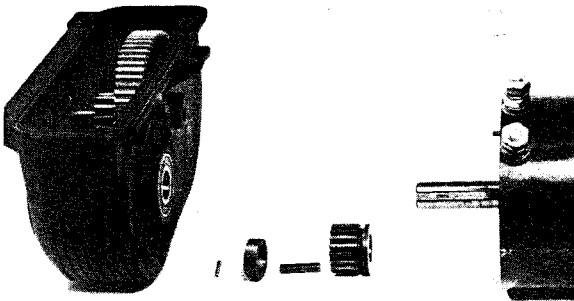


Fig. 6

The Model 8074 winch motor cannot be removed until the upper housing is separated from the lower housing. Refer to Fig. 1 in winch disassembly. When the roll pin is driven out of the armature shaft the parts will separate as shown.

Brake Disassembly

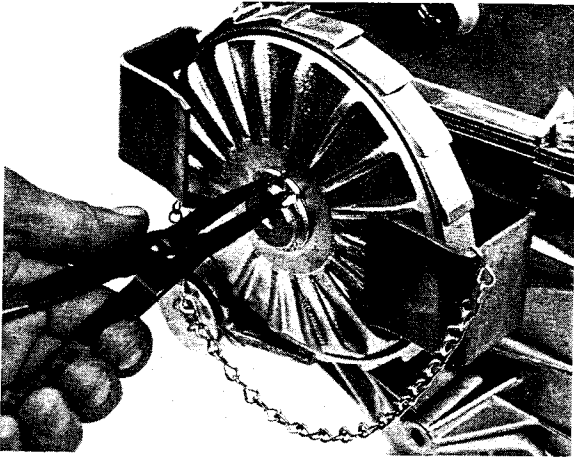


Fig. 1

Use special tool #9194 to hold the brake assembly together while removing it from the winch. Remove the snap ring as shown and the brake assembly will slide off the shaft.

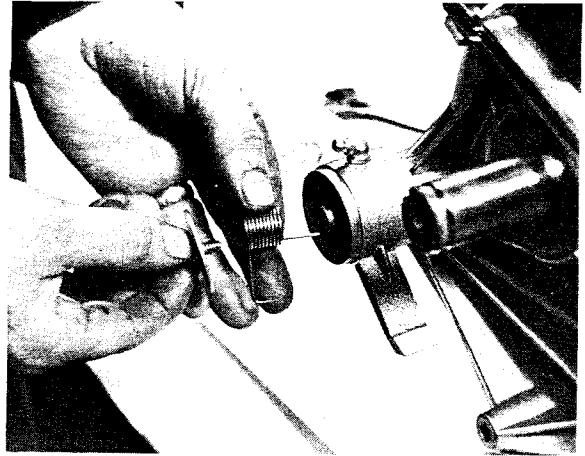


Fig. 3

Clean and lubricate the brake pawl and the mounting boss on the case. Install the pawl with the arm at the three o'clock position. Install the spring with the bent arm pointing down. Assemble the washer and cap screw torque to 150 inch pounds. Turn the brake pawl one full turn clockwise for correct spring tension.

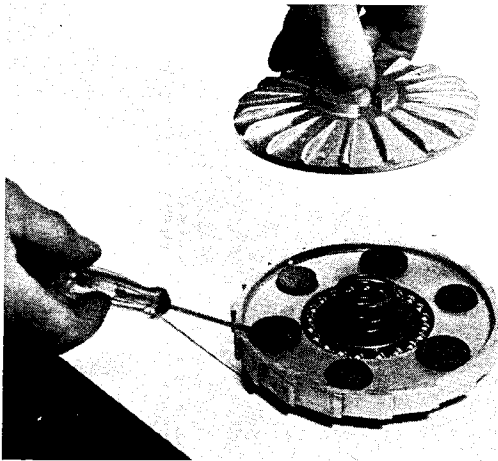


Fig. 2

Lay the brake assembly on a flat surface and hold down firmly while removing the special tool. Be careful. A spring is compressed between the plates. Replace the brake pads if they are oily. Alternate the pads when re-assembling so half the shoulders are on each side of the ratchet plate.

S.N. 46946 and Higher use discs instead of pads. They are not bonded to any surface.

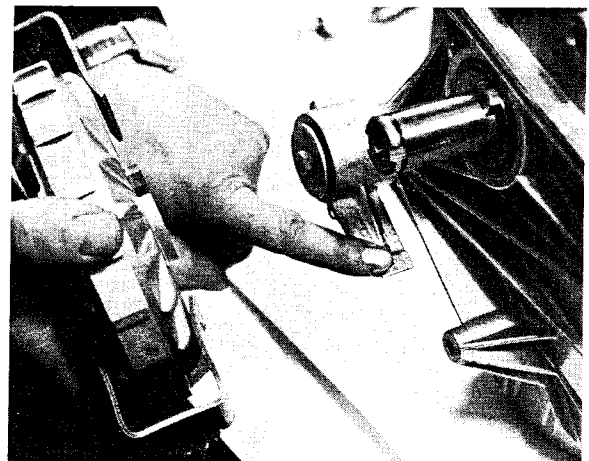


Fig. 4

Clean the shaft and coat very lightly with grease. Hold the pawl down and slide the brake assembly onto the shaft. Be certain both keys are in place before replacing the snap ring.

Winch Disassembly

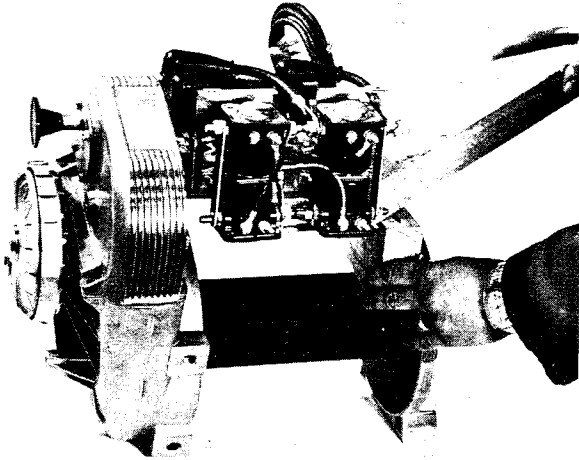


Fig. 1

Remove the three socket head screws holding the top housing to the bottom housing of the winch. Remove the upper housing as shown above. Remove the oil from the lower housing.

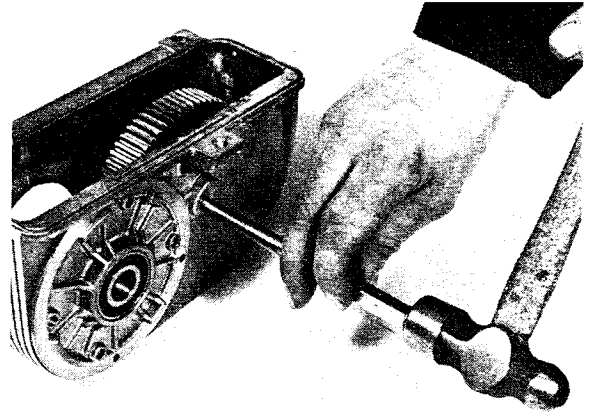


Fig. 3

The cluster gear shaft must be driven away from the motor mount side. We recommend that the housing be returned to the factory for this operation. Without a special support fixture it is almost impossible to avoid damage to the cluster gear bearings and cracking or bending the housing when replacing the parts.

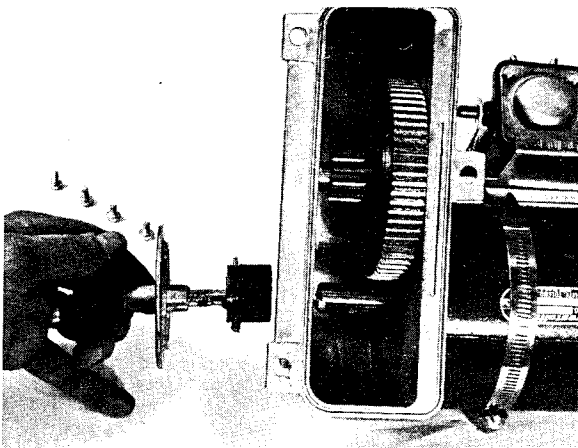


Fig. 2

Remove the four screws and pull out the clutch assembly.

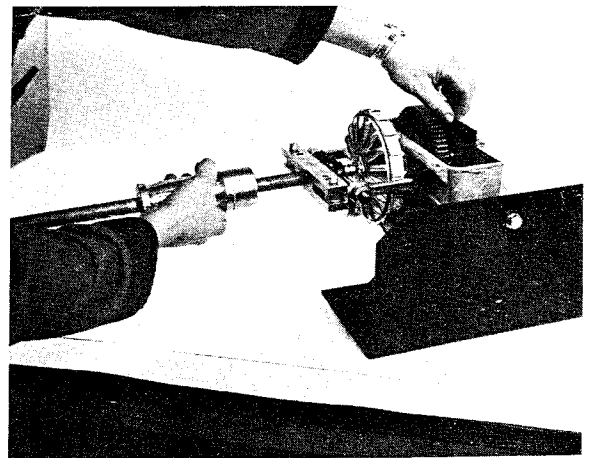


Fig. 4

The winch housing should be secured in a mounting bracket as shown. This shows the proper method of using a slide hammer to remove the brake and brake shaft from the case. Note that the lock plate is lifted approximately $\frac{3}{4}$ inch to allow the shaft to come out. It is not necessary to remove this shaft in order to remove the drum. Refer to Fig. 7, Page 32.

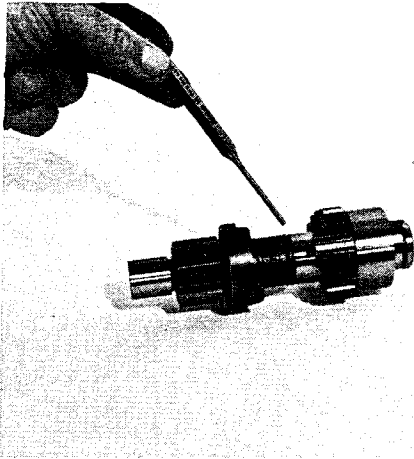


Fig. 5

Use special tool #9194 to hold the brake assembly together. Remove the snap ring and pull the brake shaft out of the brake assembly. Clean and check the splined cam to be certain it is free on the shaft. Replace the 'O' ring on the brake shaft.

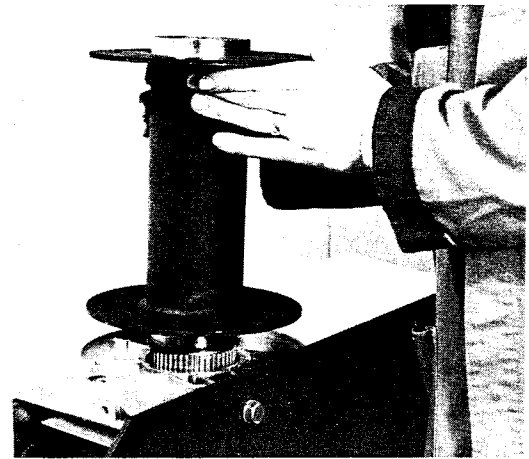


Fig. 7

Turn the winch housing horizontal to the mounting bracket. Pull the lock plate out until it releases the drum shaft. Lift the drum assembly from the case as shown. Clean the lower housing and drum shaft as necessary. Remove the silicone sealant from the mating surfaces of the upper and lower housings.

The drum shaft bushing in the lower housing must be seated to the correct depth in order for the seal ring to seal effectively. The dimension from the machined surface of the case to the bushing should be .190 inches (4.8 mm). If this dimension is not correct the bushing must be relocated, obtain a Warn Winch special tool No. 9167 and proceed as follows:

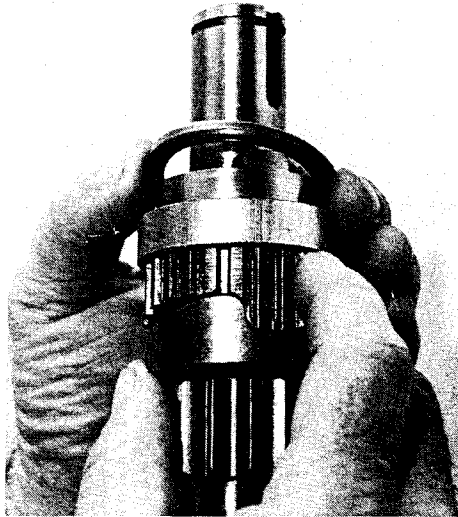


Fig. 6

Grease the shaft lightly and slide it into the splined cam. Replace the bushing and seal on the splined cam as shown. Slide the brake shaft into the brake assembly. Be certain both keys are in place; then replace the snap ring.



Fig. 8

This special tool locates the bushing correctly without damage.

P/A 9167
~~*9166*~~



Fig. 9

Locate the special tool over the bushing as shown. Tap lightly with a hammer until the tool seats against the case.

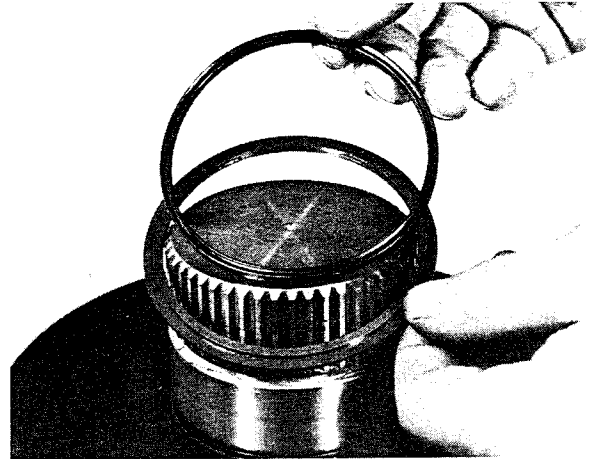


Fig. 10

Place the thrust washer on the drum shaft with the flat side down as shown. The step side must face the seal. If the thrust washer is flat on both sides, it must be replaced. Place a new seal on the shaft and lightly grease the shaft, seal, thrust washer and bushing. Too much grease will create a hydraulic action that will roll the seal lips back during installation and result in leakage.

Slide the drum shaft into the lower housing using care not to cut or roll the seal ring.

Slide the lock plate down to engage the groove in the drum. Turn the winch upright and replace the drum support bracket.

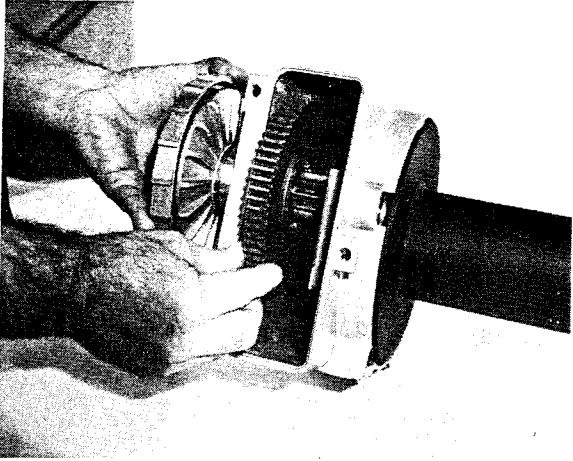


Fig. 11

Install the intermediate gear into the case. Coat the housing bore with lock-tite sealer and put the brake shaft through it into the lock plate. Hold the brake pawl slightly to clear the brake during installation.

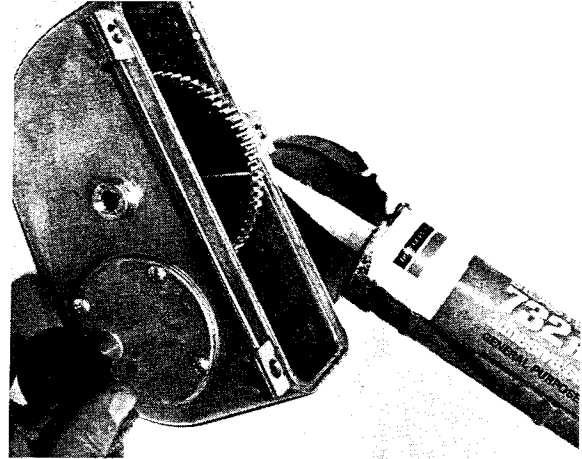
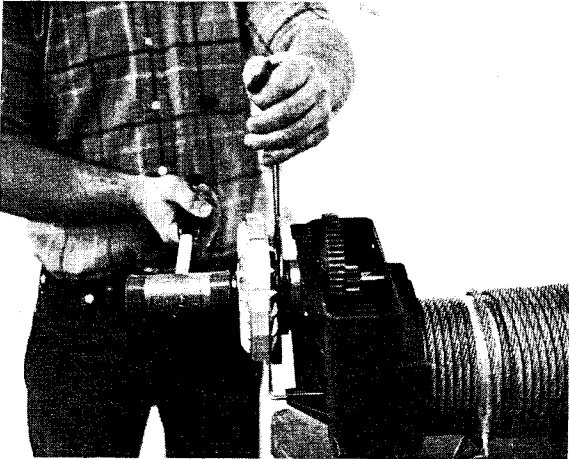


Fig. 13

Apply silicone sealant in the groove of the upper housing as shown and install it on the lower housing. Install and torque the socket head screws to 11 ft. lbs. (1.52 KG-M).



9196

Fig. 12

~~9167~~

Use special tool #9167 between the seal and the brake disc. Tap the brake shaft with a soft face hammer until the seal is seated flush with the case. Remove the special tool. Push the brake assembly in until the lock plate drops down and locates the shaft in place.

Add 1/2 pint (0.2 liters) of automatic transmission fluid type "F" or SAE 20 non-detergent motor oil in the case.