

## ELECTRIC MOTOR SERVICE

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ELECTRIC  
MOTORS



# ELECTRIC MOTOR SERVICE

A motor operation and maintenance manual is furnished by the motor manufacturer for every Bobcat. It is important that you study the manual before operating this equipment.

**NOTE:** The best rule for electrical maintenance is **KEEP THE APPARATUS CLEAN AND DRY.**

## PREVENTIVE MAINTENANCE

1. The terminal connections, assembly screws, bolts and nuts should be tight. Keeping the motor mounting bolts tight will help prevent vibration and loosening of terminal and assembly connections.
2. The insulation resistance of motors in service should be checked periodically at about the same temperature and humidity conditions. This should be done to determine possible deterioration of the insulation.

If these checks, at regular intervals, show a wide variation, the cause should be determined. If the motor has been subjected to excessive moisture, it should be reconditioned. It should be re-wound or re-insulated if necessary.



**All maintenance performed on an electric motor must be done by a licensed electrician.**

## BEARING REPLACEMENT

Use a bearing puller to remove the worn bearing. If a puller is not available and a hammer must be used, the blows should be transmitted through a hardwood block. If you have access to a bearing puller, use it with a metal plate which has holes drilled to match the tapped holes in the cap. To install a bearing, use steady pressure on the inner race. Use a piece of pipe of the correct size to slip over the shaft. The end which comes in contact with the inner race of the bearing must be cut straight. If you use a hammer, transmit the blows through a hardwood block. All bearings must be replaced with the identical part used by the motor manufacturer.

## BEARING LUBRICATION

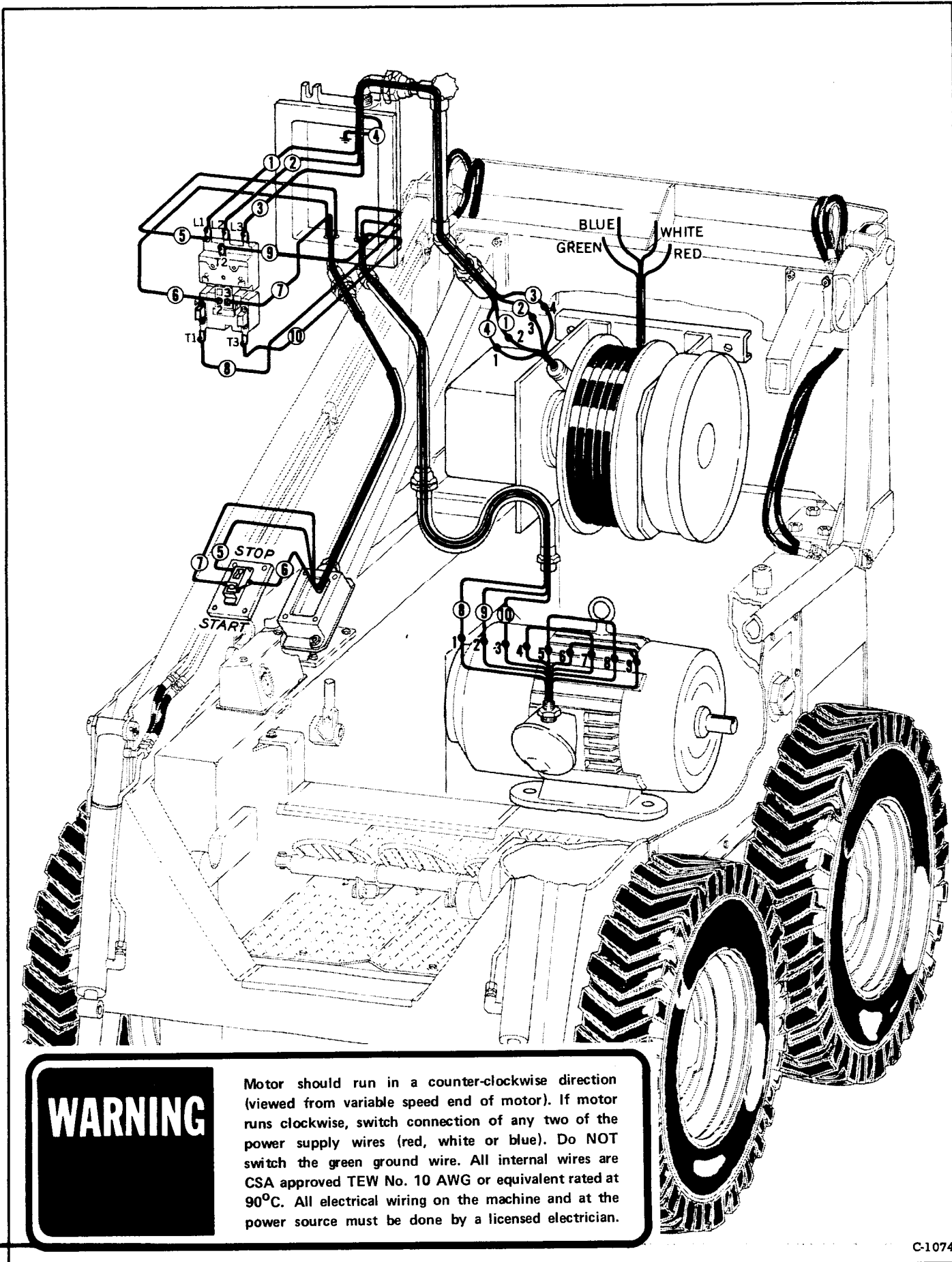
To lubricate, remove the filler plug and grease with a clean lubricant until grease appears at the drain hole or along the shaft. One-half to one cubic inch of grease is sufficient.

## RELUBRICATION PERIOD

Grease lubricated motors are properly lubricated at the time of manufacture. They should be relubricated according to the instruction plate on the motor. If no plate is provided, relubricate every 12 months with one of the following lubricants or their equivalent.

Standard Oil of Indiana	- - - - -	Stanobar No. 2
Standard Oil of New Jersey	- - - - -	Andok B
Master Lubricants Company	- - - - -	Lubriko M-6, M-21, M-32
New York & New Jersey Lubricant Co.	- - - - -	F-925, S-58, S-58M
Gulf Refining Company	- - - - -	Precision No. 2 & No. 3
The Texas Company	- - - - -	Starfok H, M & No. 2
Sinclair Refining Company	- - - - -	A.F. No. 2
Tidewater Associated Oil Company	- - - - -	Tycol Armitage O
Union Oil Company of California	- - - - -	Strona HT-1
Shell Oil Company	- - - - -	Alvania No. 2
Standard Oil Company of California	- - - - -	Chevron O.H.T.
Socony Mobil Oil Company	- - - - -	Mobilux Grease No. 2

**NOTE:** Any parts or service requirements for this electric motor should be referred to your Reliance Dealer.



C-1074

Fig. 561 Wiring Diagram

## ELECTRIC CABLE REPLACEMENT

Because the electrical power supply cable is subjected to constant flexing during use, it may eventually need replacement.

### WARNING

A job may require that you turn a full 360 degrees. The power supply cable will be subjected to twisting if you always turn in one direction. Rotate alternately left and right. A white line painted on the length of cable will corkscrew to reveal twisting.



All electrical wiring on the machine and at the power source must be done by a licensed electrician.

With the power cable disconnected at the power source, follow this procedure:

1. Remove the small cover from the reel spring housing.
2. Remove the two small pins (pawls) from between the spring hub and the shaft. This will remove tension from the reel spring and make it possible to remove the cable from the reel.
3. The sealing compound which seals the cable into the shaft must be melted out to make removal of the old cord possible.
4. Disconnect the cable from the leads on the reel and remove the cable from the anchor clamp. Remove the cable from the machine.

**NOTE:** The new cable must be the same length and rating as the old cable. On M-600 electric machines (with 15 H.P. motors) use cable with this specification: Cord, reeling, No. 10-4 strand, 52 ft. long, CSA or UI approved, Class II Group F & G rating. On M-500 electric machines (with 10 H.P. motors) use cable with this specification: Cord, reeling, No. 12-4 strand, 62 ft. long, CSA or UL approved, Class II Group F & G rating.

5. Connect the new cable to the leads on the reel and anchor the cable to the side of the spool with the anchor clamp.
6. The cable must be resealed into the shaft with a sealing compound to make the unit explosion proof.
7. Replace the two pawls between the spring hub and the shaft.
8. Wind all of the cable onto the spool by hand, turning the spool in the direction in which it turns free of spring tension. (A ratchet device permits the spool to turn free in one direction but winds the spring in the other direction).
9. Thread the cable through the swivel (Figure 562).
10. Before connecting the outer end of the cable to the power source, make sure that all the cable can be drawn off the reel by hand without winding the spring up tight. If the spring becomes solidly wound before the end of travel is reached, it will break. Be sure the cable reels up when you release it. For 50 feet of spool cable, a MAXIMUM spring prewind of 7 turns should insure proper cable reeling.

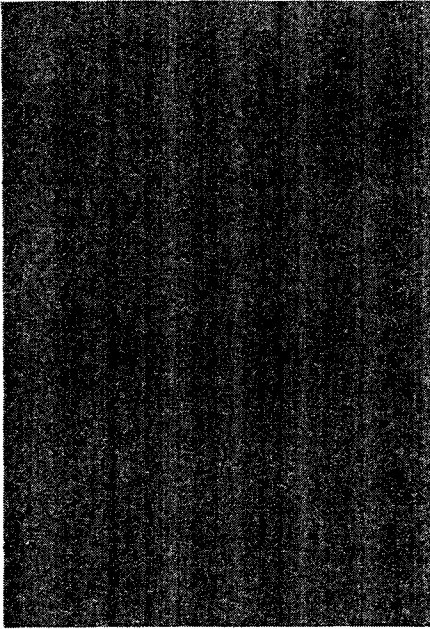
Use minimum tension for the least cable and spring strain. This will vary with the application.

11. Connect the new cable to the power source, See *CAUTION* on page 220.

## REEL SPRING REPLACEMENT

If the reel spring breaks and will no longer wind the cable onto the reel, the spring assembly must be replaced. Follow this procedure.

1. Remove the spring hub cover and gasket.
2. Remove the four small bolts which hold the spring assembly to the reel frame.



3. Remove the two small pins (pawls) from between the shaft and the spring hub.
4. Slide the old spring assembly off the shaft and replace with a new one.
5. Replace the pawl springs.
6. Replace the four bolts which attach the housing to the frame and tighten them.
7. Apply the correct tension to the spring.
8. Replace the gasket and hub cover.

### CABLE REEL LUBRICATION

Most bearings are sealed ball bearings and require no lubrication for their entire life. In a few exceptions the bearing housings have grease fittings and where these occur they should be lubricated regularly. Bronze sleeve bearings should be oiled periodically.

### SPRING LUBRICATION

To keep the springs fully active, remove one of the round head machine screws from the spring housing and squirt 3 ounces of Arctic Light Oil into the spring housing. Do not use grease.

### CABLE SWIVEL

The cable swivel at the end of the mast helps keep the electric power supply cable from being damaged. The cable must be passed through the swivel as shown in Figure 562.

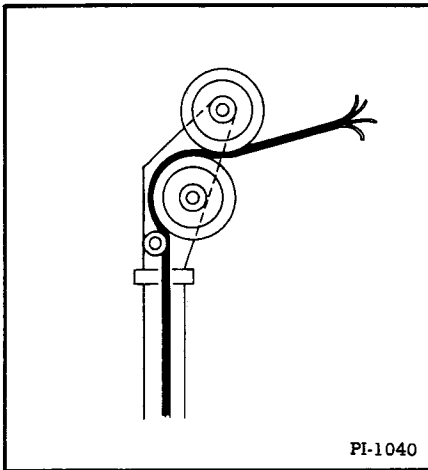


Fig. 562 Cable Swivel

<b>WARNING</b>	<b>If you use an electrical cable of larger diameter than original equipment, it will bind in the swivel rollers and fail to rewind.</b>
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