



M AINTENANCE I NSTRUCTION

AC BLOWER MOTOR MODELS I-4459, I-4496 AND I-4717

DESCRIPTION

Blower motors of the type shown in Fig. 1 are used to force cooling air through drilling rig drive motors and generators. They are rated at 7-1/2 HP and furnish 2600 cfm of air (at 7.2" of water when measured at the bottom brush inspection cover of either the drive motor or generator on which they are mounted). They are designed to operate on either 220 or 440 volt, 3 phase, 60 cycle alternating current. The external leads provided must be properly connected to suit the voltage employed and the direction of rotation desired.

These blower motors are totally enclosed with cooling provided by a shielded, self-contained fan. Model I-4459 is externally grease lubricated, while Models I-4496 and I-4717 are equipped with sealed grease bearings requiring no attention until the overhaul period is reached.

The Models I-4459 and I-4496 with their mounting bases are interchangeable on all SR8 or SR10 power unit drive motors. They cannot be used in place of motor I-4717 in its application on an SR10 generator due to space restriction. The Model I-4717 motor may, however, be used on any drive motor providing the right mounting base and closure plate are used.

MAINTENANCE

With the exception of the lubrication on blower Model I-4459, the maintenance for all three blower models will be the same due to their similarity of design and construction. The intervals at which

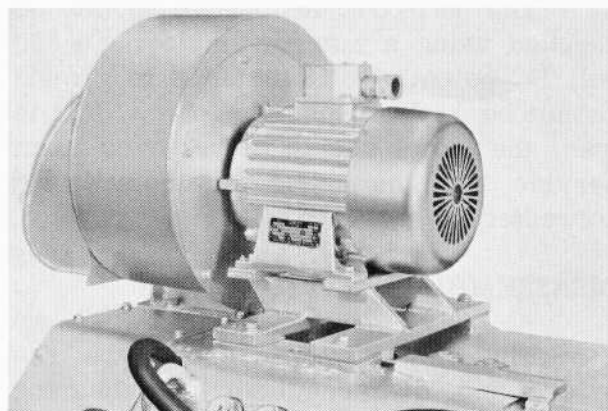


Fig. 1 - Blower Motor Model I-4717

these blower motors should be inspected or given attention is outlined in the Scheduled Maintenance Program, Maintenance Instruction 1704.

CLEANING AND INSPECTION

Dirt and dust should be wiped away from the motor, blower fan, and housing. Deposits of dirt allowed to accumulate on the fan may cause an unbalanced condition that could be transmitted to the motor bearings and eventually cause their failure.

The condition of bearings can be checked during periods of shutdown by rotating the blower shaft by hand. The shaft should turn freely, but if roughness is felt or the shaft tends to stick in spots, it is likely that the bearings are at fault and should be replaced. In such instances it is advisable to remove the blower assembly and replace it with a spare one rather than chance a blower failure and possible drive motor damage.

Motor I-4459 will require periodic lubrication. The lubrication periods as

well as the type and quantity of grease to be used is outlined in Maintenance Instruction 1704. When lubrication is necessary, remove both the top filler plug and the relief plug located on the side of the bearing reservoir. After adding grease, run motor for a few minutes before replacing plugs.

The motor insulation should be checked using a megger employing a 500 volt DC potential. Resistance to ground should be at least one megohm. If it is less, the motor should be removed from service and the cause determined and corrected.

DISASSEMBLY

The blower motor should be removed and disassembled when bearing troubles are suspected or in cases where low insulation resistance readings are encountered. With motor removed, the procedure is as follows:

1. Remove shield covering motor cooling fan.
2. Remove cooling fan from rotor shaft.
3. Remove lubricating tubes from motors equipped for external lubrication.
4. Remove the four screws from each bearing assembly.
5. Mark both end housings with their relation to the frame to aid in re-assembly.
6. Remove the four cap screws holding each end housing to frame.
7. Remove end housings, using a brass bar and mallet if necessary, tapping lightly at mounting hole locations.
8. Remove rotor from stator, then remove the bearing cover, gasket, lock nut, and washer from end of rotor.
9. Slip the bearing housings back away from the bearings. Then, using a

bearing puller, remove bearings from shaft. Discard the bearings as new ones should always be applied when the motor is assembled.

10. Remove bearing housings by sliding off the shaft.

CLEANING AND INSPECTION OF PARTS

Using air under low pressure, blow away all dust and dirt, using wiping cloths as necessary. Clean parts thoroughly with Stoddard's solvent, using caution to prevent solvent from being applied to insulation.

Inspect parts carefully, replacing those that have worn or are defective.

Using a megger, check phase-to-phase resistance of the stator and resistance to ground. See Maintenance Data for proper resistance values.

If stator passes these electrical tests, it should be given a varnish treatment to restore the protective coating on the insulation. This is done as follows:

1. Preheat stator for 3 hours in an oven set at 160° C.
2. Dip in clear baking varnish 8136692 thinned with Xylol 8089758 for 5 minutes.

NOTE: Maintain varnish viscosity by using a #4 Ford cup and holding between 40 and 50 seconds at 21.1° C. Varnish temperature should be maintained between 20° C. and 50° C.

3. Remove stator and let drain for 5 minutes, wiping all varnish from machined surfaces.
4. Place stator in an oven set for 160° C. and bake for 4 hours.

ASSEMBLY

1. Place a small amount of grease into bearing housing and end frames.

2. Place bearing housings on shaft in their proper position.
3. Using new bearings, press them on rotor shaft to their proper positions, applying pressure only to the inner race.
4. Apply lock washer and lock nut to rotor shaft and tighten in place.
5. Apply new gaskets to bearing covers and install in place.
6. Install end housing over shaft and align to bearing housing. Fasten together using the four screws previously removed.
7. Carefully install assembled rotor and end housing to motor frame. Position to match mating marks previously made, then install the four capscrews and tighten securely together.
8. Install the other end frame, attaching it to bearing housing and motor frame with screws previously removed. Tighten securely.
9. Replace lubricating tubes if used.

10. Apply motor cooling fan and shield.

After assembly has been completed, test for freedom of rotation, then apply power for a short bearing run to determine if bearings will overheat. If operation proves satisfactory, the blower motor may then be reinstalled for service.

Refer to Figs. 2 and 3 for lead connection.

MAINTENANCE DATA

Resistance @ 25° C.

Phase-to-Phase

Models I-4459, I-4496	1.50 ohms
Model I-4717	1.47 ohms

NOTE: A variation of more than 2% in phase-to-phase resistance is condemning and requires investigations to determine cause.

Minimum Megger Reading 1 megohm

Hi-Pot 1200 volts

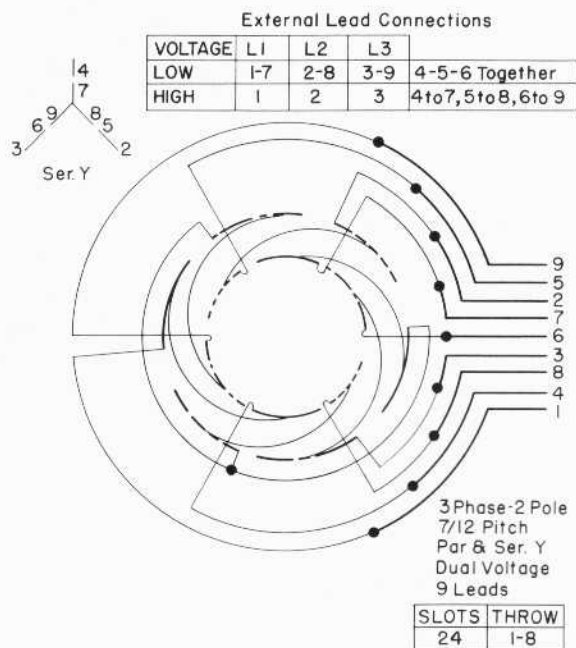


Fig. 2 - Connection Diagram
Model I-4717 Motor

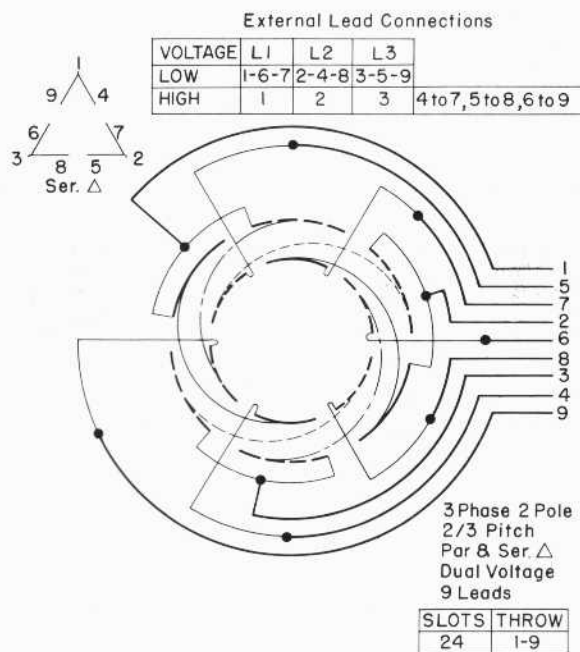


Fig. 3 - Connection Diagram
Model I-4459 And I-4496 Motors