

Maintenance – General Information

Dirt, heat, moisture, and vibration are common enemies of a generator. Keeping the generator clean and dry, maintaining proper alignment of the generator and its prime mover, and preventing overloads will result in efficient operation and long life.

Generators that are outdoors should be protected from the elements by suitable houses or enclosures.

Dirt and dust will conduct electricity between points of different electrical potential. Moisture will aggravate the problem further. Insulation system failure can result if corrective action is not taken. The condition of the insulation system can be tested by measuring insulation resistance (see section 8 - Generator Testing).

Insulation resistance should be checked when putting the generator into service after it has been in storage and any time contamination by moisture and dirt is suspected. Normally, moisture buildup is not a problem when the generator is running since heat produced internally will tend to keep it dry. Moisture can collect in the generator when it is shut down. The problem will be worse in humid environments or in areas where extreme temperature changes cause condensation (dew) to form inside the generator. Space heaters, air filters, and premium insulation systems, such as our VPI process, should be considered in difficult environments.

Accumulations of dust and dirt not only contribute to insulation breakdown, but they can also increase temperature by restricting ventilation and by blocking the dissipation of heat. Some machines are exposed to accumulations of materials such as talc, lint, rock dust, or cement dust which may obstruct the ventilation. The most harmful type of foreign materials include carbon black, metallic dust and chips, and similar substances which not only impede the ventilation, but also form a conductive film over the insulation, increasing the possibility of insulation failure. Machines operating in dirty places should be disassembled and cleaned periodically.

Air Intake and Exhaust

Check the area around the air intake and exhaust openings to be sure they are clean and unobstructed. Remove all foreign material and clean all screens (figure 5-1).

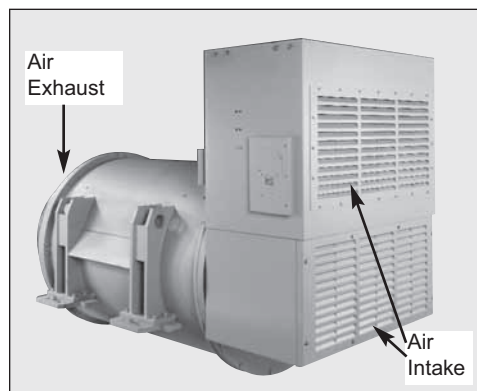


Figure 5-1

Electrical Connections and Windings

Inspect for loose or contaminated connections. Check wires for cracked or frayed insulation. Tighten connections and replace defective or oil-soaked insulation.

If inspection shows that varnish coatings on the windings have deteriorated, they should be recoated with insulating varnish. Please refer to Marathon Electric for insulation system requirements.

Lubrication

All generators are lubricated before leaving the factory and are ready for operation. As a general rule, bearings should be relubricated annually or at the indicated intervals in table 5-3, whichever occurs first. Unusually severe operating conditions, such as high ambient or dusty environments, require more frequent lubrication (every six months or one-half the table intervals, whichever occurs first).

Use Exxon® Polyrex® EM or equivalent anti-friction type, high quality grease with a lubrication temperature range of -22° to +350°F (-30° to +175°C).

During an overhaul, the grease reservoir should be thoroughly cleaned and new grease added. The reservoir should be 1/3 to 1/2 filled with new grease.

NOTE: ExxonMobil, Mobil and Polyrex are registered trademarks of Exxon Mobil Corporation or one of its subsidiaries.

CAUTION Be sure to use a grease that is compatible with SRI. Noncompatible lubricants can break down the grease and cause bearing failure.

Lubrication

To add or renew grease, proceed as follows:

1. Stop unit.
2. Wipe clean the grease plugs and surrounding parts.
3. Remove fill and drain plugs (figure 5-2).
4. Insert 1/8" N.P.T. grease fitting in fill pipe.
5. Free drain hole of any hard grease, using a piece of wire if necessary.
6. Using a low pressure grease gun, add grease according to the amounts in table 5-3.
7. Start unit with drain plug removed – fill pipe may be open or closed. Allow unit to run 15 minutes to allow excess grease to drain.
8. Stop unit, wipe off any drained grease, and replace filler and drain plugs.

CAUTION Use only clean grease from clean, closed containers and keep it from being contaminated while regreasing.

The amount of grease added is very important! Only enough grease should be added to replace the grease used by the bearing.

CAUTION Too much grease can be as harmful as insufficient grease – use the proper amount.

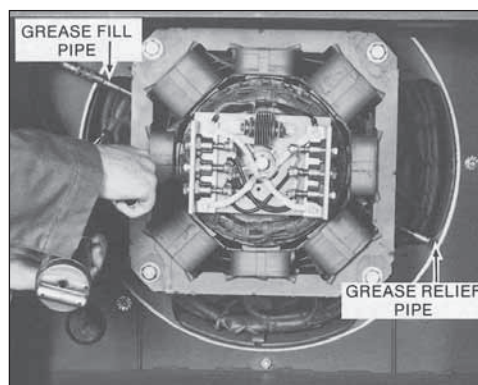


Figure 5-2

Table 5-3

Type	Frame Size	Bearing Size	Amount of Grease			Intervals ^①	
			Ounces	Cubic Inches	Teaspoons	60 Hz	50 Hz
Single Bearing Units	1020	326	2.3	4.2	14.0	4000	4800
Double Bearing Units	1020 1030	326	2.3	4.2	14.0	4000	4800

^① Hours of running time or annually, whichever occurs first.