

## SECTION 12 – Miscellaneous Procedures

### 1 General Information

This section covers certain operations that may need to be carried out at some time in the life of the machine which are not normal installation or maintenance requirements. During these operations it is important to remember that the machine must be kept clean and dry with suitable protection and by leaving the heaters on whenever it is safe to do so. Consideration should be given to the use of temporary electric fan heaters (approximately 3kW type) if the frame heaters are not available. Combustion heaters (Paraffin, Kerosene and Calor Gas etc) generate moisture and are not suitable.

### 2 Rotor Withdrawal and Threading

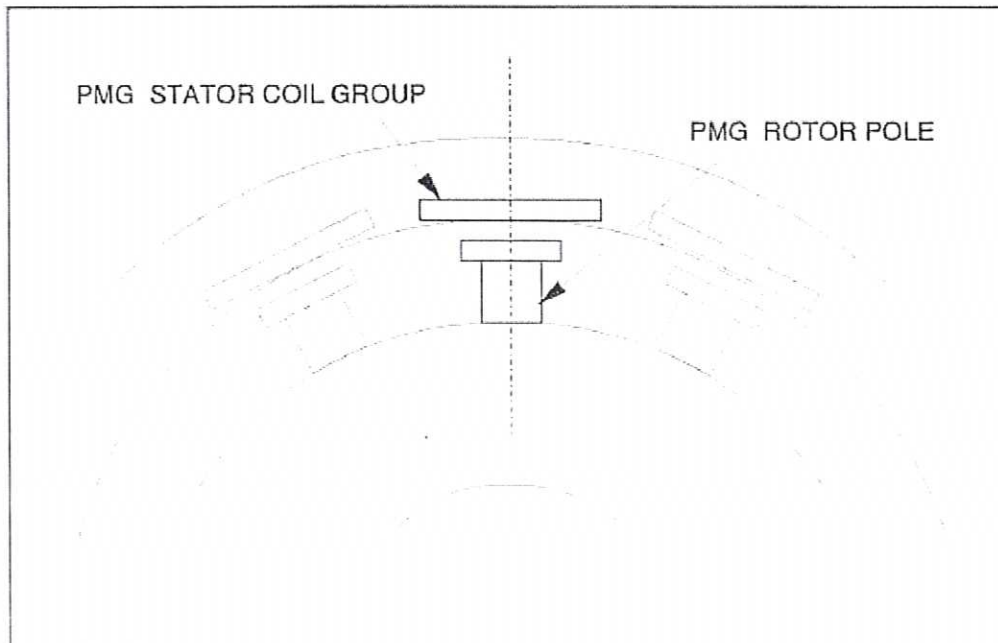
Rotor withdrawal and threading equipment with instructions on procedure will be quoted on request.

### 3 Pilot Exciter Magnetisation

The pilot exciter is shipped from the works fully magnetised and stabilised. With normal use it should not be necessary to re-magnetise the permanent magnets.

Measure the pilot exciter open circuit RMS Voltage at rated speed. If the measured voltage is less than the value given on the pilot exciter rating plate, adopt the following procedure: -

- (1) If for any reason the magnets have been removed then they must be replaced with alternate poles outermost, e.g. North - South - North etc.
- (2) Obtain a heavy duty DC power supply to give 90 volts minimum. E.g. - 8 heavy-duty 12-volt batteries in good condition connected in series with very short copper links of 25-sq. mm. minimum cross section area.



- (3) Connect the power supply via a 200-amp cartridge fuse in series with a 500-amp switch to pilot exciter terminals 1 & 2. The leads/links must have a minimum cross section area of 25-sq. mm. They should also be as short as possible to minimise extra resistance.
- (4) Set the centre line of a rotor pole in line with the centre line of a stator coil group. A small plugged hole for viewing is incorporated in the pilot exciter casing. Otherwise the inboard endplate may be removed.
- (5) Switch the current for 1 to 2 seconds to remagnetise the permanent magnets. Do not apply for more than 2 seconds as this can cause overheating and deformation of the stator coils.
- (6) Re-assemble and stabilise pilot exciter voltage by running at rated speed for one minute with the pilot exciter terminals short-circuited. (Short circuit current will not exceed 65 amps.)

## 4 Cleaning a Seriously Contaminated Machine

Before cleaning a seriously contaminated machine it is usually necessary to remove the rotor.

The machine and its enclosure are designed to minimise the possibility of the cooling ducts and passages becoming blocked with dirt. However, if the cooling performance has been seriously affected by the accumulation of dirt, then the machine should be cleaned (another option is to consider completely rewinding the machine).

During the cleaning operation it is essential that:

- All components are protected from the damaging effects of the weather, eg. Dust, rain, moisture etc.
- Care is always taken to ensure that contaminants are not moved into more inaccessible areas.
- If solvents are used then the area concerned must always be well ventilated.

The choice of cleaning method will depend upon the level of contamination, accessibility and availability of cleaning equipment.

**Note A** *During the cleaning operation it is important that a safe working environment is achieved, eg. Isolate electrical supplies including heaters, provide adequate ventilation, wear suitable protective clothing, use proper support for heavy items etc.*

### 4a Cleaning by Hand (preferred method)

Clean readily accessible surfaces by hand using an industrial vacuum cleaner, lint free cloth, brushes and, if necessary, aided by the sparing use of a solvent (e.g. 'Pro Natur' (Orange Oil) or equivalent). Any solvent used must be proven non-damaging by conducting a small trial on an easily repaired section of the winding. The winding materials must not soften or be affected in any way.

Loosen accumulated dirt by using rags, brushes, blunt hooks, scrapers, strips of insulation material, wood, and probes etc. The probes are best manufactured locally from pieces of wire of between 0.7mm and 4mm diameter (carefully radius the cut ends). Pull-throughs are sometimes found useful for use on long ducts, as are bottlebrushes. Take care not to damage the machine surface below the dirt layer.

If a suitable working area and protective clothing, masks, goggles etc. are available, then dust and dirt may be removed using clean, dry, low pressure compressed air (1.5 - 2 Bar g). When considering the use of compressed air, please remember that many contaminants form dangerous, even toxic, airborne particles.