INSTALLATION AND MAINTENANCE

Installation of MP Clutch/Brakes

Installation Procedure

1. The unit is shipped ready for installation. It consists of clutch and brake that are precisely aligned to each other. Its zero gap design is most suited for applications that require extremely rapid cycles. It is designed particularly for fast response. Hence, in order for it to perform as designed, it requires a rapid-over excitation circuit.

2. Flexible couplings should be used to connect the input and the output shafts to avoid overstressing the bearings.

3. Care should be taken not to introduce oil, grease or dust to the inside of the clutch/brake unit because they can decrease torque and ultimately damage the unit.

4. The maximum side load, as measured from the center of the input/output shafts, should be limited to the following to maintain bearing life. Also, it is preferable such side load is as close as possible to the bearing.

Table 1

Model	5	10	20	40	80	120	250	500
Max Side Load [lbs]	21	43	56	76	81	173	173	225

Maintenance

Under normal operating conditions, it should require little maintenance during its life. However, internal parts are replaceable. The clutch and brake usually wear at the same rate and should be replaced as such unless one component is wearing at a faster rate. Upon replacing clutch and/or brake parts, all wear surfaces should be replaced at the same time to maintain life and optimal performance.

Loss of Torque

The most common service problem is loss of torque. The following quick checks can easily be made and will usually take care of the problem:

1. Check for wear: The unit may be worn out and need replacing.

2. Check the friction surfaces for contaminants: Remove if any are present (see Contamination).

3. Check for proper power input: Use a DC voltmeter across the field terminals and verify that normal voltage is being supplied. If the power control has a potentiometer, this should be turned to full power for this test. The voltage should also be read as the potentiometer is turned down and should be approximately proportional.

4. If the voltage is zero or low, the wiring should be checked for a grounded (shorted) or open coil.

   A. Grounded coil: With the power off and one lead disconnected, measure the resistance between one field terminal and the field shell. The ohmmeter should register no change (infinite resistance) with a good unit. Repeat with other terminal. If the ohmmeter shows a reading, this means there is some grounding to the shell, and the field should be replaced.

   B. Open coil: With the power off and both leads disconnected, measure the resistance between the two field terminals. The ohmmeter should give a reading very close to the following. An open coil would give no reading (infinite resistance) and must be replaced.

Table 2

Model	5	10	20	40	80	120	250	500
Coil Resistance [Ω] (DC 90V – 20°C)	0.15	0.21	0.28	0.33	0.48	1.68	1.03	0.87

Contamination

Care should be taken so that contaminants such as oil, grease, etc. do not come in contact with the working faces of the unit. In some cases it may be necessary to provide a cover or baffle to prevent this. Oil and grease on the friction surfaces should be removed by wiping with a small amount of environmentally friendly grease solvent. However, depending on the permeability of the grease or oil, it may be impossible to remove completely, so if the unit shows signs of slippage it needs to be replaced.

Heat

If the unit appears to be running hot, first check the temperature on the outside of the field. The field temperature can be around 150°F in an ambient temperature of 72°F due to the heat generated by the coil and operation of the unit. Excessive heat may be a source of failure and can be corrected by:

- Insuring that the input voltage is correct.
- Providing ventilation of the unit.
- Reducing system inertia and/or cycle rate.