

CAUTION

**READ THIS BEFORE REMOVING
MOTOR FROM CARTON**

**HONEYWELL MOTOR
PRODUCTS PK 91021**

INSTALLATION INSTRUCTIONS LOW INERTIA PM DC MOTORS

Never carry or support motor by its shaft.

This motor has been designed with a precision machined face and pilot mounting surface on the end bell to assure shaft alignment to load. When mounting this motor, care should be taken to insure the motor shaft and load shaft are in alignment. Due to the extremely high performance of this motor, even slight misalignment in the application can upset the motor's precise balance. Shaft misalignment can create excessively high side-loading on the bearings, which can cause premature bearing failures. This motor should be protected from overloading. If the load should jam and stall the motor with full voltage applied, it would

create sufficiently high current to damage the rotor beyond repair. Each application requires special consideration to determine what type of safety device will be needed to protect the motor. Most applications can use standard fuses, others require slow acting fuses and some must have over-load protective devices. Refer to the applicable Engineering "M" Drawing for ratings and full operating specifications. If air cooling is specified, care must be taken to insure that the proper mass air flow is maintained during operation of the motor. A "no air" vane operated trip relay should be incorporated in the pneumatic system.

MAINTENANCE AND SERVICE RECOMMENDATIONS

HONEYWELL MOTOR PRODUCTS' DC Control Motors are high quality, precision components. But as in all mechanical devices, misapplication, wear and unpredictable situations may cause failures. These three areas bear careful consideration.

1. **Brushes:** All brushes have a definite life. The life expectancy for each application should be determined by periodic inspection and a recommended replacement schedule developed.
2. **Bearings:** Double-sealed, precision ball bearings provide long, trouble-free life. No additional lubrication is required. Misalignments, exceptionally high speed, extreme side and end loading tend to shorten

the life of the bearings. If premature bearing failure occurs, the system design should be reviewed to determine if excessive bearing loading is occurring.

3. **Rotor:** The rotor is as trouble-free as any portion of the motor. However, if the load should jam and stall the motor with full voltage applied, it would create sufficiently high current to damage the rotor beyond repair. The major concern is over heating. If air cooling is specified, care must be taken to insure that the proper mass air flow is maintained during operation. "Hot Spot" temperatures, exceeding 155°C may cause distortion of the rotor and create rubbing on internal stationary parts. The rotor assembly must be completely replaced if this occurs.

MOTOR BRUSH INSPECTION/REPLACEMENT

The following is the recommended procedure to follow when performing periodic inspection of brushes:

1. Remove and identify the brushes so they can be returned to the same brush holder. Note the scribe mark on the brush; this provides you with an easy orientation mark.
2. Check brush springs for excessive distortion.
3. Check the brush length. If the brush is .20 inches long or less, the brush has attained expected life and should be replaced.

4. Replace the brushes in the sequence that they were taken out. It is important to install the brushes in the same holder and in its relative position, to be assured of proper performance upon initial running.

If new brushes are installed following the inspection procedure, these brushes should be run in until the minimum contact area appears to be greater than 75% of the total brush area. (The run in period should be from 6 to 8 hours, with no load on the shaft. The run in voltage should be approximately twice the motor's rated voltage, but do not exceed 60 VDC. Reverse the direction of rotation approximately every minute.)

**CAUTION
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REPLACEMENT**

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DC ANALOG TACHOMETER BRUSH INSPECTION/REPLACEMENT

IF IT BECOMES NECESSARY TO REMOVE AND EXAMINE THE TACHOMETER BRUSHES, THEY SHOULD BE IDENTIFIED SO THEY CAN BE REINSTALLED IN THE SAME ORIGINAL LOCATION AND IN THE SAME ORIENTATION.

TACHOMETER BRUSH REPLACEMENT

1. Install brushes into square brush holders, then insert springs.
2. Observe care when installing the brush cap terminals to the brush holders to prevent distortion of the springs.
3. Brushes should be run in until the minimum contact area appears to be greater than 75% of the total brush area.

The run-in period should be at about double the rated speed of the associated motor and for approximately 8 hours.

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