

Heavy Duty Clutch Troubleshooting Guide

Power On Clutch Styles: E, E Class S and E Class M

IMPORTANT

All wiring and electrical connections must comply with the National Electric Code (NEC) and any electric codes in effect. Follow local safety codes and standards including the Occupational Safety and Health Act (OSHA). Failure to comply with these instructions could cause personal injury and/or damage to property if the unit is installed, operated or serviced incorrectly. For definition of limited warranty and liability, contact: Rexnord Industries, Inc., Stearns Division, 5150 S. International Dr., Cudahy, Wisconsin 53110 (414) 272-1100.

Air Gap: Check the magnet body air gap with the coil energized. Manual force on the cage is not adequate to check air gap accurately. Check the closed magnet body air gap dimension by energizing the magnet and inserting the non-magnetic feeler gage between the magnet body and the armature. Measure between original surfaces in good condition. Adjust by depressing the lock pin then use the supplied spanner wrench to turn the armature clockwise. Repeat until the gap is the correct dimension. Turn the armature until the lock pin snaps into the nearest slot.

Clutch Size	Open Gap in. (mm)	Closed Gap in. (mm)
4	.06 (1.5)	.025 (.64)
5	.06 (1.5)	.031 (.79)
6	.09 (2.29)	.031 (.79)
8, 10 and 12	.13 (3.3)	.031 (.79)
14	.15 (3.8)	.040 (1)
16 and 20	.19 (4.8)	.040 (1)

Linings: Replace friction discs when torque has dropped due to disc contamination or wear. The Style E, E Class S and E Class M are dry running clutches. Oil contamination on the discs can result in slippage and loss of torque. Those clutches with carrier ring friction discs use rivet construction to allow friction material replacement. The disc pack locates on the hub. A disc could slide off the hub if hub shift or misalignment has occurred.

Brushholders: The replaceable carbon brushes center on the collector rings and are in direct contact with the rings. Check for wear, contact and misalignment. Brushholder assemblies with clock springs (5-24-1401, 5-24-1402, 5-24-1403 and 5-24-1404) have 1 to 1.5 lbs of force against the brush. If adjustment is necessary, loosen the set screw, rotate the spring pin with a screwdriver and re-tighten the set screw. Double brush holder assembly repair directions detail on Sheets 1242-19A.

Arcing can happen through brush misalignment, poor brush contact, collector ring damage such as nicks or cracks, excess wear, excess varnish on the collector rings, vibration or a run-out condition.

Coil: Check for broken or disconnected leads between the collector ring and magnet body. Check for ground faults and spliced connection faults. Check magnet body resistance with the brushes isolated from the collector rings. Isolate by placing a piece of cardboard, or other non-conductive material, between the brushes and collector ring. Coil resistance appears in the Stearns Division catalog and installation sheets. Check voltage at the coil and at the collector ring. Consistent overvoltage creates excess coil heating. Under voltage will delay armature pull in which may result in coil heat, disc heat or clutch slippage. User re-wound coils must have sufficient varnish penetration to create a solid assembly preventing a coil to magnet body short or winding shorts.

Control Circuit: Check if voltage drops to zero upon de-energization. A diode used in parallel with the clutch can cause unwanted delay in current decay time. Substitute a suitable capacitor or RC network.

Spline Condition: Check for notching which limits movement of the disc pack in the cage or on the hub spline. Smooth with a file if possible. Notching may appear in one area or several spots. Replace thread matched parts, such as the cage and armature, as a set. Replace worn or notched splined carriers,

intermediate discs and hubs. Check for oil, rust or grit accumulation in the splined areas that limit disc pack movement.

Clutch Armature/Cage Movement: Manually close some of the air gap. The armature may limit cage movement if threaded too far into the cage. Check pressure plate and cage teeth for peening that may have occurred at installation. Check cage and armature condition.

Threading: Check for wear and backlash which could cause cage hangup and torque drop. Thread damage may occur when using a tool other than a spanner wrench in adjustment.

Hub Position: If the clutch does not fully release on de-energization, check hub positions. Clearance between shafts is necessary for normal shaft end play.

Alignment: See Installation Sheet. Misalignment is the most common cause of eccentric clutch wear.

Balance: Dynamic balancing recommended over 1000 rpm in sizes up to and including 14 inches, 800 rpm in the 16 and 20 inch size. A balanced clutch assembly has an orientation marking on the magnet body and the cage. Only full assemblies are balanced.

NOTE: Nameplate information includes serial number, model number, DC amps and voltage. Each clutch has a unique serial number. The serial number appears on the nameplate and is generally cold stamped into the magnet body.

Also available through Stearns Division (provide serial number with request):

Installation and air gap information:

Style E: 8-078-882-00

Style E Class S: 8-078-883-00

Repair parts list: SB 416-XX

