

Summary	Motor Brake Troubleshooting Guide				
Products Affected	All Doors With EMD, US, or SEW Motors				
Key Word Tags	EMD, SEW, US, Brake, Troubleshooting				
Tools/Equipment (If Required)	Meter, Feeler Gauge, Screw Drivers, Wrenches				
Parts/Materials (If Required)					
Related Media					
Author	Jason Freimuth, RevA Mike Burzlaff	Issue Date	3/17/2000	Status	Active

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THE FOLLOWING CHECKS WILL BE PERFORMED ON HIGH VOLTAGE POWER. QUALIFIED ELECTRICAL PERSONNEL SHOULD PERFORM THESE TESTS.

1. Check motor for obvious damage to the brake cover, junction box, and gearbox. Look for discolored motor wires and water or heat marks on the case. Damaged parts such as brake cover and motor junction box should be replaced.
2. Turn off and lock out power to the control box. When power is disconnected, try to pull out all of the wires in the box by hand. If any pull out, it was not connected properly. Reconnect the wire and reapply power. Check door operation.
3. Note: The fuses on the transformer will interfere with this reading. Remove these fuses before this test and replace them after. Check 3-phase voltage coming into the top of the motor contactors. Check each line to ground and to the other two lines. This will determine if incoming power or fuses are bad.
4. Manually release the brake while jogging the door up or down. If the door runs, you will need to check the brake operation. See below for tips on different brands of brakes.
5. Disconnect (from the terminal strip in the control box) all of the wires that lead up to the motor junction box. (Single speed doors will have wires T1 through T3. Dual speed doors will have wires T1 through T6. EMD motors also have brake wires B1 through B3. SEW-Eurodrive brake wires are A1, A2, B1, and B2). Hold the jog buttons and check 3-phase voltage passing through the contactors to the terminal strip. In a 2-speed system, close jog should power T1, T2, and T3 while open jog powers T4, T5, and T6. This will determine if the contactors are bad or if the wires in the control box are still loose.
6. Turn off and lock out power to the control box. Take Ohm readings on the loose ends of the motor wires. Ohm readings will be taken from line to line. Reference table 1 for EMD normal Ohm readings. Eurodrive and US motors do not have a reference reading. If the readings vary

more than 10% or show opens or shorts, there is a potential motor or cable problem.

7. Remove the cover to the junction box on the side of the motor and disconnect motor wires. Take Ohm readings on the motor. If the readings vary more than 10% or show opens or shorts, the motor windings are bad and motor should be replaced. If the readings taken here are different than the readings in the control box, check the SOW cable between the motor and control box for opens or shorts.

Brake Troubleshooting

EMD

The EMD motor uses a 3-phase brake assembly. If one line is not providing power to the brake, it will chatter very rapidly and loudly. To check the brake, follow the motor troubleshooting procedures, but take your voltage and Ohm readings on B1, B2, and B3. The acceptable resistances are listed in Table 1. For brake adjustment, measure the air gap between the coil housing and the armature plate. If it is more than 0.025", tighten the 3 or 6 adjustment nuts until the gap is 0.008". If an audible clatter is heard, the gap should be reset to 0.008" no matter what it is at.

SEW-Eurodrive

In the motor junction box, there will be either a red or black rectifier. If the rectifier is cracked anywhere, it should be replaced. While the door is trying to run, make sure that full AC voltage is reaching the rectifier terminals 2 and 3. Terminals 3 and 5 should be putting out a DC voltage according to Table 1 DCV. These voltages will actually measure 10-20 % lower than what is shown. If the DC voltage is too low or is not present, replace the rectifier.

Disconnect power and remove the thin red, white, and blue wires that lead to the brake coil from the rectifier. Measure resistance across the red and white wires and also across the white and blue wires. The coil readings are listed in Table 1 as R-W and W-Blue. Measure the resistance from each brake wire to the brake coil body. If there is a short, the coil is damaged and needs to be replaced.

For brake adjustment, confirm the air gap is set between .010 and .020 with your feeler gauge. Note: if the brake disc is thinner than 0.354" (9mm), it must be replaced. Make sure that the releasing arm has 0.06" to 0.08 "of play after the adjustment.

US Motors / Stearns Brakes

If there is a loud clatter coming from the brake, remove the brake assembly and inspect the hub that is attached to the motor output shaft. If the hub is cracked, replace it. If the hub can be pulled off by hand, the two set screws need to be re-secured. Use a thread sealant while securing the set screws.

Most Stearns brake coils have two red and two black wires tied in series or parallel depending on voltage. Check the voltage at the two red wires while the door is trying to run. If this checks out, remove the coil wires from the flex conduit between the brake and junction box. Inspect the wires for cuts in the insulation. If cuts are present, either replace the coil or use electric tape to cover the cut and try running the brake again.

Table 1 – Motor/Brake Data

Motor		T1-T3		T4-T6		B1-B3	
EMD 200V		7.4		5.2		106	
EMD 230V		11.1		7.7		106.7	
EMD 460V		43.8		31.2		462	

Motor		R – W		W – Blue		DCV	
SEW 200V BM05		54.0		166		80	
SEW 230V BM05		68.0		209		96	
SEW 380V BM05		215		661		147	
SEW 460V BM05		271		832		185	
SEW 200V BM1		48.1		149		80	
SEW 230V BM1		60.5		187		96	
SEW 380V BM1		191		591		147	
SEW 460V BM1		241		744		185	
SEW 200V BM2		42.1		129		80	
SEW 230V BM2		53.0		163		96	
SEW 380V BM2		168		515		147	
SEW 460V BM2		211		649		185	

If you have any questions please contact Rytec Customer Support at 1-800-628-1909.