

# MGM Brakes

A Division of Indian Head Industries, Inc.

## TECHNICAL BULLETIN

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**SUBJECT: EB 14-003: e-Stroke Service and Troubleshooting Reference Guide**

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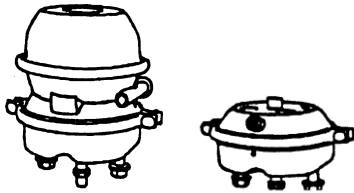
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### ***-- Double Check Before You Replace --***

1. **Use** an MGM Diagnostic Tool for inspection and troubleshooting.
  - **Review** e-Stroke ECU fault history and save data for future analysis
  - **Always** clear ECU fault history after service and inspection
2. **Always** confirm the correct wheel is being inspected by unplugging the e-Stroke Sensor at the suspect wheel end and verify a sensor fault (after 60 seconds) with an MGM Diagnostic Tool. This confirms if the harness is installed correctly between the wheel and ECU input.
3. Similar faults on the Right and Left Sides of the same axle are typically caused by a control system issue (Valve, Brake Pedal, Interlock, Air-Line) rather than a wheel end issue (Actuator, Foundation Brake or Caliper).
4. Faults reported on a Single Wheel Only are likely to be from a mechanical or electrical issue with the Actuator, Sensor, Harness, Foundation Brake or Caliper.
5. AVM data may be reviewed to identify repeating issues with reference to time. Single fault occurrences or faults which have not repeated after weeks in service may have already been serviced and may not require attention (check ECU and clear fault history).

**Always** Verify previous service records before making any component replacement.

6. **Disc Actuator Re-Installation:** Ensure the Actuator Boot and ESP Sensor Seal Height is greater than  $[\geq]$  3mm (0.118 in) and the Caliper, Actuator & Sensor Mounting Surfaces (both sides) are clean prior to re-installation. **Always** remove Sensor from Actuator to clean.
7. **Disc Brake: Non-Function and/or Over-Stroke Faults on One Wheel Only**
  - Could be indicating a Low Caliper Running Clearance condition
  - The Caliper Running Clearance may be too tight (out of spec), or the Tappet / Pistons may have different clearances and are out of sync
  - **Check** that the Caliper Running Clearance (both tappet pistons) meets the manufacture's specification
  - **Inspect** the Caliper for signs of high temperature operation or moisture contamination
8. **Disc & Drum Brake: Non-Function Faults**
  - **Check** that Foundation Brakes apply with greater than  $[>]$  12psi service application
  - **Axle Left & Right Faults - Check** that the e-Stroke diagnostic tool displays less than  $[<]$  0.5psi with no interlock or service brake application. Pressure transducer may need replacement.
  - **Drum Brake Single Wheel Only - Check** that the e-Stroke sensor is plugged into actuator sensor port completely



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### 9. Dragging Brake Fault

- **Note** that e-Stroke will only display an Active Dragging Brake Fault when the vehicle is moving greater than  $\geq$  5mph for more than 45 seconds for disc brake applications and 30 seconds for drum brake applications
- **Check** for Ice or Moisture in Air Lines, Valve Issues - *Cold Weather Conditions*
- **Check** Caliper, Foundation Brake, Automatic Slack Adjuster Function, Presence of Rust, or Moisture in Caliper (Single Wheel Fault)
- **Check** Sensor Ground – Black Wire to ECU (Single Wheel Fault)
- **Disc Brake Check** for Grease Build-up on Actuator Piston Rod Reflective **Black** and **Red** Surfaces (Single Wheel Fault). Wipe grease off with a clean rag.
- **Check** for complete Parking Brake Release (driver error is also a possible cause)

### 10. Multiple Faults on One Wheel Only – Sensor Troubleshooting

- **Note** that a combination of Over-Stroke, Drag, Non-Function and/or Sensor faults may indicate a faulty or corroded sensor connection or faulty Sensor
- **Inspect** Wheel End Connector and Harness for connection issues or corrosion
- **Inspect** Exterior Sensor Harness Connectors for a visible Purple Seal
- **Inspect** ECU Connectors for loose connector terminals
- **Inspect** Sensor for signs of damage being careful to not damage with removal
- **Check** Sensor Voltage at ECU connector (back pin connector with volt meter) while system is powered and wheels chocked:

Test	Wires: Green (Signal +) to Black (Ground -) Voltage	
	Disc Sensor (8290360/363)	Drum Sensor (8290120)
<b>Brakes Released</b>	0.10 – 1.99V DC	2.4 – 2.6V DC
<b>Brakes Applied</b>	>2.00V DC	Greater Than $>$ 3.8V DC
<b>Sensor Fault</b>	< 0.10V DC after 60 seconds	
<b>Sensor Power: Red (Power +) to Black (Ground -) Voltage – More Than <math>&gt;</math>4.8V DC</b>		
<b>Note: Resistance measurement test is not conclusive to verify e-Stroke Sensor condition.</b>		

**Contact MGM Brakes for e-Stroke Technical Support - 1-877-437-8765**