



MGM Brakes
A Division of Indian Head Industries

SERVICE DATA BULLETIN

EB 10-002: e-Stroke CCM Service Kit Instructions for Gen1-Gen2- Tractor/Truck/Bus Applications

This procedure provides instruction for replacing Gen 1 and Gen2 CCM's with the following Gen3 CCM Service Kits:

9090116 - 2-Axle Truck / Bus Kit BOM		
Replaces CCM P/Ns: 8290106, 9090114		
QTY	P/N	Description
1	8291101	CCM, GEN 3, 2-Axle Bus
1	8290301	GEN 3 Power Adapter
1	9090106	Kit, Warning Light, 12ft
1	8090550	100psi, Pressure Transducer, GEN 3
1	8290246	20ft, Pressure Transducer Harness, GEN 3
4	8290222	GEN 3 Sensor Harness Adapter
1	9494001	Printed Instruction - EB 10-002

9090117 - 2-Axle Truck / Bus, GEN 2 Kit BOM		
Replaces CCM P/N: 8290110		
QTY	P/N	Description
1	8291116	CCM, GEN 2, 2-Axle Bus
1	8290301	GEN 3 Power Adapter
1	9090106	Kit, Warning Light, 12ft
1	8290246	20ft, Pressure Transducer Harness, GEN 3
4	8290222	GEN 3 Sensor Harness Adapter
1	9494001	Printed Instruction - EB 10-002

9090120 - 3-Axle Tractor / Truck / Bus Kit BOM		
Replaces CCM P/Ns: 8290103, 8290105, 8290113, 9090115		
QTY	P/N	Description
1	8291106	CCM, GEN 3, 3-Axle Tractor / Truck / Bus
1	8290301	GEN 3 Power Adapter
1	9090106	Kit, Warning Light, 12ft
1	8090550	100psi, Pressure Transducer, GEN 3
1	8290246	20ft, Pressure Transducer Harness, GEN 3
6	8290222	GEN 3 Sensor Harness Adapter
1	9494001	Printed Instruction - EB 10-002

9090121 - 1-Axle Truck / Bus Kit BOM		
Replaces CCM P/N: 8290114		
QTY	P/N	Description
1	8291122	CCM, GEN 3, 1-Axle Bus
1	8290301	GEN 3 Power Adapter
1	8290199	Warning Light, Red
1	8090550	100psi, Pressure Transducer, GEN 3
1	8290246	20ft, Pressure Transducer Harness, GEN 3
2	8290222	GEN 3 Sensor Harness Adapter
1	9494001	Printed Instruction - EB 10-002

Installation:

Step 1: Park vehicle, chock wheels, and Shut OFF ignition power.

Step 2: Label all harnesses connected to the existing e-Stroke CCM with function and wheel designations.

Step 3: Plug adapter harnesses into [appropriate](#) CCM Connectors as follows:

8290301 – CCM P1 - Power
8290222 – CCM P4 – Axle 1 Left
 CCM P5 – Axle 1 Right
 CCM P6 – Axle 2 Left
 CCM P7 – Axle 2 Right
 CCM F9 – Axle 3 Left
 CCM F10 – Axle 3 Right
8290246 – CCM P8 – Pressure Transducer

Step 4: Individually disconnect each harness from existing CCM and connect to the appropriate input / adapter harness of the new CCM.

Step 5: Remove existing CCM and install [replacement](#) CCM. The [NEW](#) CCM should be mounted in an interior location away from areas which could damage the CCM or harnesses. The CCM P2 Connector should remain accessible for diagnostic purposes. Secure harnesses near CCM with cable ties.

Step 6: Pressure Transducer Installation:

The e-Stroke pressure transducer is intended to measure brake application pressure. Bus applications typically have a brake treadle valve output manifold with multiple ports containing other pressure switches and transducers. The recommended mounting location is on the **Brake Treadle Valve Secondary Delivery Output**, Not Tank Pressure.

- **GEN 2 Applications (8290110, 8290113 CCM):** Locate existing 8090075 e-Stroke 50psi Pressure Transducer and replace with 8090550 100psi Pressure Transducer.
- **GEN 1 Applications (8290103, 8290105, 8290106, 8290114 CCM):** The 8090550 Pressure Transducer includes a 1/4" npt male fitting. Either locate a spare 1/4" npt port in the brake treadle valve secondary delivery output or add one using standard 1/4" npt brass fittings.
- Install the 8090550 Pressure Transducer into the air-port using thread sealer. Verify the connection to be leak free after installation.

Step 7: Route the 8290246 Pressure Transducer Harness from the CCM (P8) to the 8090550 Pressure Transducer and secure using cable ties every 12".

Step 8: A warning light should be added if the existing e-Stroke system does not include one. P/N 9090106 Warning Light Kit includes a 1/2" panel mount amber warning light with 12 ft harness and identification labels. This harness connects to the P/N 8290301 Power Adapter Harness Alarm 1 Output lead. The Alarm 1 Output operates with the same voltage that powers the e-Stroke system. If the system is powered by 24V DC then Alarm 1 will output 24V DC with an active alarm. The e-Stroke system input power voltage should be identified before an aftermarket or existing warning lamp is used. The 9090106 Warning Light Kit is compatible with 12 or 24V DC power.

Functionality Test:

Note: I/O systems are commonly used to operate existing integrated dash warning lights. In some cases vehicle speed logic may be used to stop warning light function when the vehicle is parked. Consult vehicle OEM for specific I/O operation.

Step 9: **Clear the CCM diagnostic memory. Verify system power is OFF. Press and hold the red button on the face of the CCM and switch ignition power ON. Hold push button for 5 seconds and release.**

Step 10: Switch the system power *ON* and verify warning light bulb check. The e-Stroke CCM alarm outputs will briefly bulb check *ON* (1-3 sec) after ignition power is turned on.

Step 11: With the system power *ON*. Press and hold the red push button on the face of the CCM for 5 seconds to clear the stored Fault history. The warning light will blink 10 times indicating that the CCM fault history has been cleared.

Step 12: Build air system pressure to 100-110psi using either the engine compressor or external compressed air supply.

Step 13: Verify wheels are properly chocked, release parking brake, and any brake interlock functions (i.e.: Door, Transmission, Driver's Seat Interlocks). Allow a few seconds for the brakes to fully release.

All Warning Lights should remain OFF

Step 14: Apply service brake foot pedal to 90-100psi (for at least 4 seconds), then release the foot pedal (for at least 4 seconds). Repeat this pressure application a few times to cycle the vehicles braking system.

Warning Light should remain OFF both during and after the brake applications. If the Warning Light turns ON during or after the brake applications proceed to Step 15 to acquire fault codes.

Step 15: Apply parking brakes.

Warning Light should remain OFF with J1587 / J1708 connection to CCM.

Warning Light should turn ON after 24 second delay without J1587 / J1708 connection to CCM.

Step 16: Check CCM memory for any stored e-Stroke faults. The CCM Memory can be checked by pressing the red push button on the face of the CCM to initiate the diagnostic blink code sequence with the warning light. Reference the Blink Code Table on Page 3 for definitions, and EB 08-011 for additional information.

A Blink Code of **1 – 1** indicates no stored faults in the CCM memory.





The CCM memory can also be checked using one of the available e-Stroke Diagnostic Kits:

- P/N 9090109 – e-Stroke RS-232 Diagnostic Program (Lap Top) – Reference EB 08-012 for Operating Instructions
- P/N 9090110 – e-DT Hand Held Diagnostic Tool – Reference EB 08-013 for Operating Instructions
- [P/N 9090111 – e-Stroke J1939 Diagnostic Program \(Lap Top\) – Reference EB 08-012 for Operating Instructions](#)

Step 17: Trouble Shooting: If the e-Stroke system deviates from the above functionality proceed as follows:

1. Follow Step 16 to retrieve the e-Stroke fault codes.
2. Inspect and repair the e-Stroke system or vehicle braking system as appropriate for the recorded fault condition.
3. Repeat Steps 9-16 upon completion of foundation brake or e-Stroke system repair to verify proper functionality.

**Reference the e-Stroke Technical Manual (P/N 8090091)
for additional Technical & Troubleshooting information.**

 Warning Light Blink Code Operation			
Applies to CCMs with P/N 8291xxx Prefix.		Reference EB 08-011	
CCM Push Button Operation:			
Press CCM Button for 1 second to begin e-Stroke fault blink code sequence			
Press CCM Button for 5 seconds to clear e-Stroke stored fault blink codes			
Blink Code Timing:			
0.5 seconds	Lamp On		
0.1 seconds	Lamp Off		
1.5 seconds	Pause In-Between Digits		
4 seconds	Pause In-Between Faults		
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 Warning Light Blink Code Definitions			
First Digit	Type of Fault	Second Digit	Location of Fault
1	No Fault	1	No Fault (Only with First Digit = 1)
2	Non-Functioning Brake	1	Axle 1 - Left
3	Over-Stroke Brake	2	Axle 1 - Right
4	Dragging Brake	3	Axle 2 - Left
5	e-Stroke Sensor Fault	4	Axle 2 - Right
6	Lining Wear Warning	5	Axle 3 - Left
		6	Axle 3 - Right
		7	Axle 4 - Left
		8	Axle 4 - Right
7	e-Stroke System Fault	1	Pressure Transducer
		2	SAE J1708 / J1939 Communication
10	e-Stroke Fault Codes Cleared		
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Example Blink Code Definition:

Brake System Fault: Axle 2 Right – Dragging Brake
Blink Code: 4 – 4

MGM Brakes e•STROKE® Technical Support:

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