

MGM Brakes

A Division of Indian Head Industries, Inc.

TECHNICAL BULLETIN

SUBJECT: EB 08-011 e-Stroke GEN 3 System Warning Light Operation & Diagnostic Blink Codes

The e-Stroke GEN 3 System has up to 4 warning lights available:

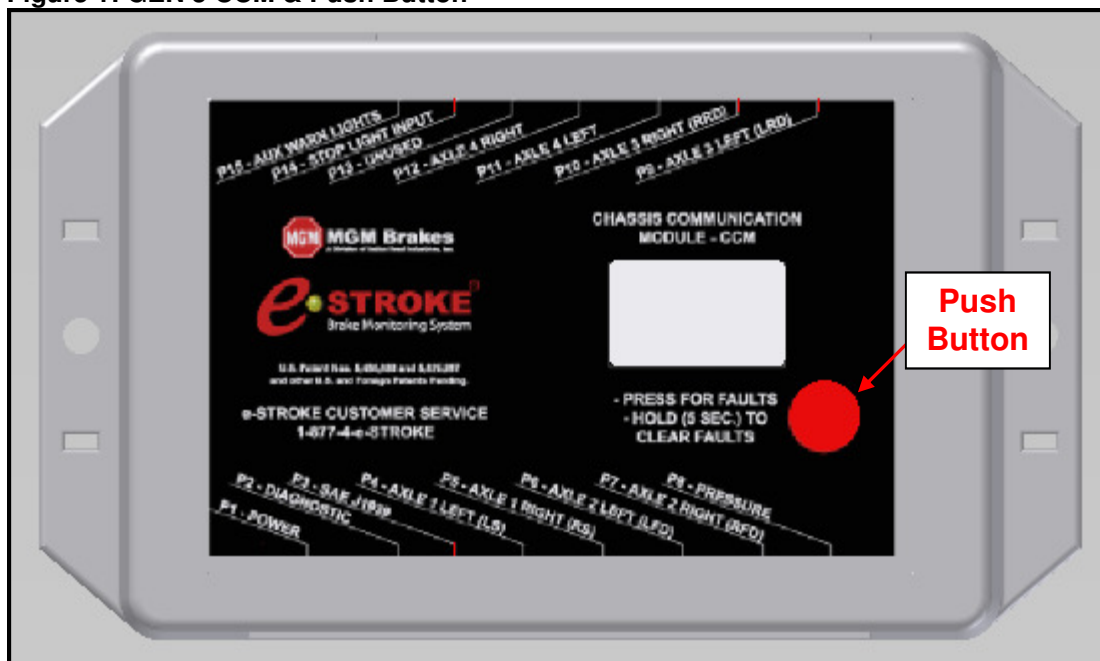
- **Warning Light 1:** Tractor / Truck / Bus Brake Monitor Warning
- **Warning Light 2:** Tractor / Truck / Bus Lining Warning
- **Warning Light 3:** Trailer Brake Monitor Warning
- **Warning Light 4:** Trailer Lining Warning

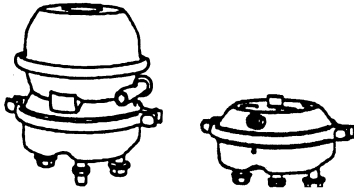
The e-Stroke e-S³ / GEN 3 System is designed to continuously monitor the vehicles braking system while in operation. When a fault is occurring it is considered to be active and will turn ON the appropriate warning light. For example, if a tractor has an active dragging brake the Tractor / Truck / Bus Brake Monitor Warning Light will turn ON but the other lights will remain off. When the fault is no longer active or has been repaired the warning light will turn OFF.

The e-Stroke GEN 3 System is capable of displaying both active and in-active (stored) fault information using a series of simple blink codes and the system warning lights. See Figure 4 at the end of this document for the Blink Code definitions.

The CCM push button (See Figure 1 Below) initiates the blink code sequence which is displayed through all of the system warning light(s) at once. All of the warning lights blink the same fault code simultaneously. See the Figure 3 Flow Chart below for a visual representation of the Blink Code fault retrieving process.

Figure 1: GEN 3 CCM & Push Button





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The e-Stroke GEN 3 System will display blink codes for only active faults only when an active fault is occurring. The warning lamp will be ON when the system is operating and an active fault is occurring. The active fault will need to be repaired and the warning light will need to be OFF before in-active stored faults can be retrieved with this blink code method. If the blink code sequence is initiated when the warning light is OFF then stored fault codes will be displayed.

The Blink Code Display Sequence is as follows:

1. To retrieve the active or in-active stored fault codes, press the red push button (Figure 1) on the front of the e-Stroke GEN 3 CCM for 1 second and release. This will start the blink code sequence.
2. Watch the warning light(s) and count the blink codes. See Figure 4 at the end of this document for the Blink Code definitions.
3. The Blink Codes will be displayed in a loop until the ignition power is shut off or the fault codes are cleared.
4. To clear the fault codes press and hold the red push button on the front of the CCM for a minimum of 5 seconds and release. The warning light will blink 10 times acknowledging that the stored fault codes have been cleared.

The Blink Code Sequence will use the following timing:

| Figure 2: 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 |

Notes:

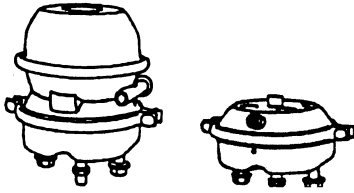
1. It is a good idea to have a pencil and paper ready to write down the blink codes as they are displayed.
2. Pressing the CCM push button for 5 seconds will only clear stored fault codes and will not repair an issue with the foundation braking system which is causing the fault.
3. With an active e-stroke fault (warning light ON) the e-Stroke system will broadcast the applicable SAE J1708 and / or J1939 code.

Example Blink Code Definition:

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

Brake System Fault: SAE J708 / J1939 Communications
 Blink Code: 7 - 2

Brake System Fault: None
 Blink Code: 1 - 1



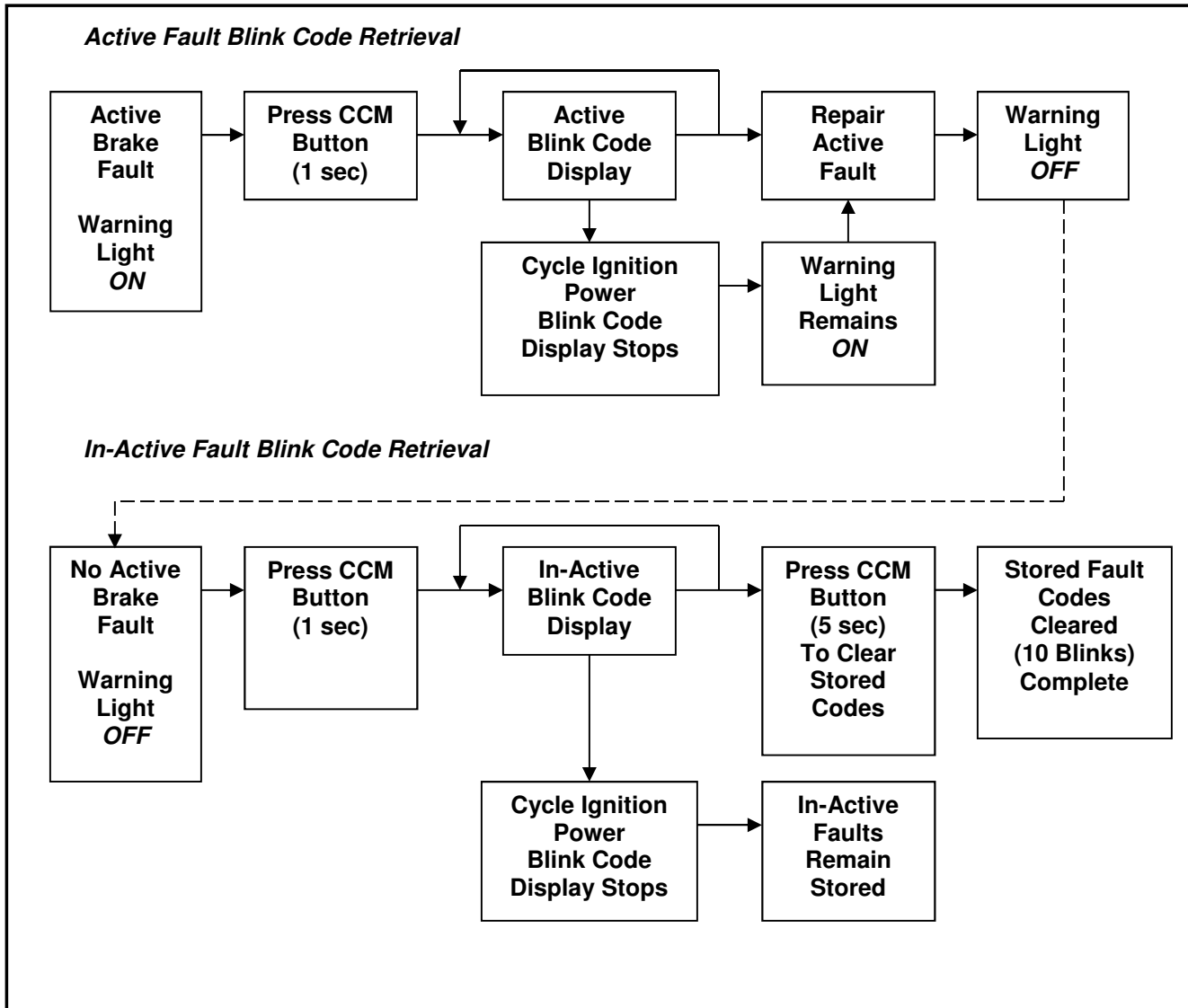
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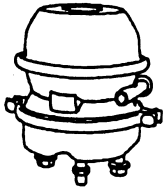
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Figure 3: Flow Chart for e-Stroke GEN 3 Blink Code Sequences



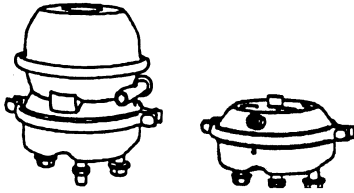


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Figure 4: e-Stroke Warning Light Blink Code Definitions

| e-Stroke Warning Light Blink Codes | | | |
|---|--------------------------------------|--------------|--------------------------------------|
| <i>Applies to CCMs with P/N 8291XXX Prefix.</i> | | | |
| 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 | | |
| e-Stroke 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 |
| 8 | Low Disc Caliper Lining Clearance | 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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Figure 5: e-Stroke e-S³ Blink Code Reference Card

The following table can be cut out and folded in half to create an e-S³ Blink Code Reference Card.

| e-s³™ Warning Light Blink Code Operation | | | |
|---|--------------------------------------|----------------------------|--------------------------------------|
| <i>Applies to CCMs with P/N 8291xxx Prefix.</i> | | <i>Reference EB 08-011</i> | |
| 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 | | |
|  | | | |
| e-s³™ 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 |
| 8 | Low Disc Caliper Lining Clearance | 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 | | |
|  | | | |

**Cut Out
and
Fold Here**

