

e-Stroke GEN 3 Tractor / Trailer System Trouble Shooting Guide

e-Stroke Fault Indication

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Item #	Fault Type	CCM Active Fault Indication	Brake Application Condition	Parking Brake Condition	Vehicle Speed: +5 MPH or Stopped	Connected to: SAE J1708 / J1939	Solution Key # on Page 2
1	Power Source	Warning Light Bulb check does not occur, No active communications on J1708 or J 1939	No brake actuation	All conditions	All conditions	NA	1,2,3,4,5,22
2	Power Source	CCM warning light is dim or stays lit, and fault codes are inconsistent.	No brake actuation	All conditions	All conditions	NA	4,23
3	Power Source	CCM fault condition changes without changing brake condition, seems to be erratic.	No brake actuation	All conditions	All conditions	NA	3,4,23
4	Dragging Brake	CCM fault indicates dragging brake. (one or more wheels)	No brake actuation	Not applied	all conditions	no	15,8,11,16,12,19,20
5	Dragging Brake	CCM fault indicates dragging brake. (one or more wheels)	No brake actuation	Not applied	above +5 MPH	yes	15,8,11,16,12,19,20
6	Dragging Brake	CCM fault indicates dragging brake .	No brake actuation	applied	stopped	yes	30
7	Dragging Brake	CCM fault (all wheels with tandem parking brakes only) indicating dragging brake.	No brake actuation	Released	all conditions	no	15
8	Dragging Brake	CCM fault (all wheels with tandem parking brakes only) indicating dragging brake.	No brake actuation	Released	above +5 MPH	yes	15
9	Non Functioning	CCM indicated a non functioning brake on one or more wheels.	Brake applied with a Light brake pressure	Released	all conditions	yes	6
10	Non Functioning	CCM fault indicating non-functioning brake.	Service brake application over 15 psi	Released	all conditions	all conditions	14,7
11	Over Stroke	CCM indicating over-stroke condition.	No brake actuation	Released	all conditions	all conditions	17
12	Over stroke	CCM indicating over-stroke condition.	Actuate service brake to 95-100 psi	Released	all conditions	all conditions	13,19,21
13	failed wheel sensor/cable	CCM fault indicating a faulty sensor / cable condition.	All conditions	All conditions	all conditions	all conditions	6,9,10,17,18,24
14 *	Failed wheel sensor/cable	CCM indicates a Dragging brake fault, One or more wheels	No brake pedal application	Released	above +5 MPH	yes	25
		CCM indicates No fault	With brake pedal application		all conditions	all conditions	
15 *	Faulty sensor wheel cable	CCM indicates a Dragging brake fault, One or more wheels	No brake pedal application	Released	above +5 MPH	yes	27
		Over stroke fault, One or more wheels	With brake pedal application	Released	all conditions	all conditions	
16 *	Faulty pressure transducer	CCM fault code indicates a non functioning brake on all wheels	No brake pedal application	Released	all conditions	all conditions	7,14
		CCM fault code indicates no faults.	With brake pedal application				
17	Lining wear sensor short	CCM fault code Indicates a lining wear warning (lining is OK)	With brake pedal application	Released	all conditions	all conditions	28
18	Lining wear sensor short	CCM fault code Indicates a lining wear warning (lining is OK)	With no brake pedal application	Released	all conditions	all conditions	28
19	Lining wear sensor open circuit	CCM fault code Indicates a lining wear failure (lining is OK)	With brake pedal application	Released	all conditions	all conditions	29
20	Lining wear sensor open circuit	CCM fault code Indicates a lining wear failure (lining is OK)	With no brake pedal application	Released	all conditions	all conditions	29
21	J1708/J1939 communications	CCM fault code Indicates a communications problem	All conditions	All conditions	all conditions	yes	30
22	not talking to Trailer CCM	No Communications between Tractor CCM and Gen 1 Trailer CCM, e-stroke system.	all conditions	all conditions	all conditions	all conditions	31
23	Tractor E-Link not talking to Trailer CCM	No Communications with Tractor E-LINK and Trailer Gen 1 e-stroke system	all conditions	all conditions	all conditions	all conditions	32

*= Both lines must be true.

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Key #	<i>Recommended Test to Perform or Action to Take</i>	Page 2 of 2
1	Make sure ignition switch is turned on.	
2	Test for open circuit at fuse located at the power source connection in the CCM Power Supply Cable. Replace fuse as needed.	
3	Check CCM Power Cable for electrical shorts, cut wires, or damaged connectors. Replace damaged cable with approved MGM CCM Power Cable.	
4	Test vehicle system voltage. Voltage must be between 10-30 volts DC.	
5	Make certain all connectors are properly plugged in so the connector body tabs are locked	
6	Inspect brake actuator sensor to ensure it is completely inserted into the stone shield all the way to the sensor stop tabs.	
7	Service brake Air Pressure Transducer may be faulty.	
8	Brake actuator push-rod must be perpendicular to the bottom of the non-pressure housing within $\pm 3^\circ$. If greater than 3° , check to be sure actuator mounting bolts are in correct bracket holes (or if centered in bracket holes). Install actuator into correct position.	
9	Inspect brake actuator sensor and connector for physical damage. Replace sensor as needed.	
10	Measure continuity of brake actuator sensor with digital meter: RED (positive) to BLACK (negative) wires. Resistance should be 12 K to 16 K ohms. This test may not be conclusive. Replace sensor if damaged.	
11	Inspect brake actuator for improperly cut push-rod (too short). When yoke pin removed, push-rod should not retract.	
12	Make sure there is no pressure in the service brake system. Check for faulty system air valve or for air leaking past push-rod air seal in at least one of the vehicle's parking brakes.	
13	Measure stroke of the actuator to validate over-stroke condition.	
14	Inspect brake actuator for movement when service brake is applied. If no movement detected, check for ruptured diaphragm, system air leak, or faulty ABS valve.	
15	Make sure parking brake system air pressure is at least 95 psi.	
16	Check for rusted or worn foundation brake components.	
17	Unplug brake actuator sensor assembly at wheel and plug in new sensor. If LED stops flashing ORANGE, install new sensor.	
18	Unplug brake actuator sensor harness and connect new sensor harness. If LED stops flashing ORANGE, install new sensor harness.	
19	Check brakes for damage to sleeve on push-rod. Damaged or loose sleeve will inadvertently affect unit calibration. Replace with new brake if either is detected.	
20	With parking brakes released and no air pressure applied to service brakes, inspect plastic sleeve on push-rod. If push-rod angle is greater than $\pm 3^\circ$, the plastic sleeve may hang up on the plastic stone shield inside the unit. This can prevent the push rod from returning to zero.	
21	Automatic slack adjuster may need to be adjusted or replaced. Be sure service brake is not applied and parking brake is released and push-rod is fully retracted to zero stroke.	
22	Faulty Dashboard Warning light - LED is completely burned out.	
23	Faulty CCM - Power supply.	
24	Faulty connection to wheel sensor, red wire open circuit connection. (broken wire near sensor connector) Replace or repair.	
25	Faulty connection to wheel sensor, black wire open circuit connection. (broken wire near sensor connector) Replace or repair.	
26	Faulty connection to wheel sensor, green wire open circuit connection. (broken wire near sensor connector) Replace or repair.	
27	Fault due to partial short or corrosion path in wire connections to wheel sensor, green wire to black wire circuit path.	
28	Check for a groaned lining wear sensor at the lining, or lining wear cable is damaged causing a ground.	
29	Check for a open circuit in the lining wear sensor or lining wear cable, or disconnected lining wear connector some where.	
30	Check for CCM failed J1708 or J 1939 communications connection.	
31	CCM Power is not connected to Tractor is not connected to Trailer Blue power wire. Heavy corrosion at tractor trailer connection, clean terminals or replace connectors. Reference SAE J 560 8.4 table 4.	
32	Power to cigarette lighter not the same power source as the power to trailer. Power to Trailer CCM is not connected to Blue power wire on trailer or mis-wired on tractor. Heavy corrosion at tractor trailer connection, clean terminals or replace connectors. Reference SAE J 560 8.4 table 4.	