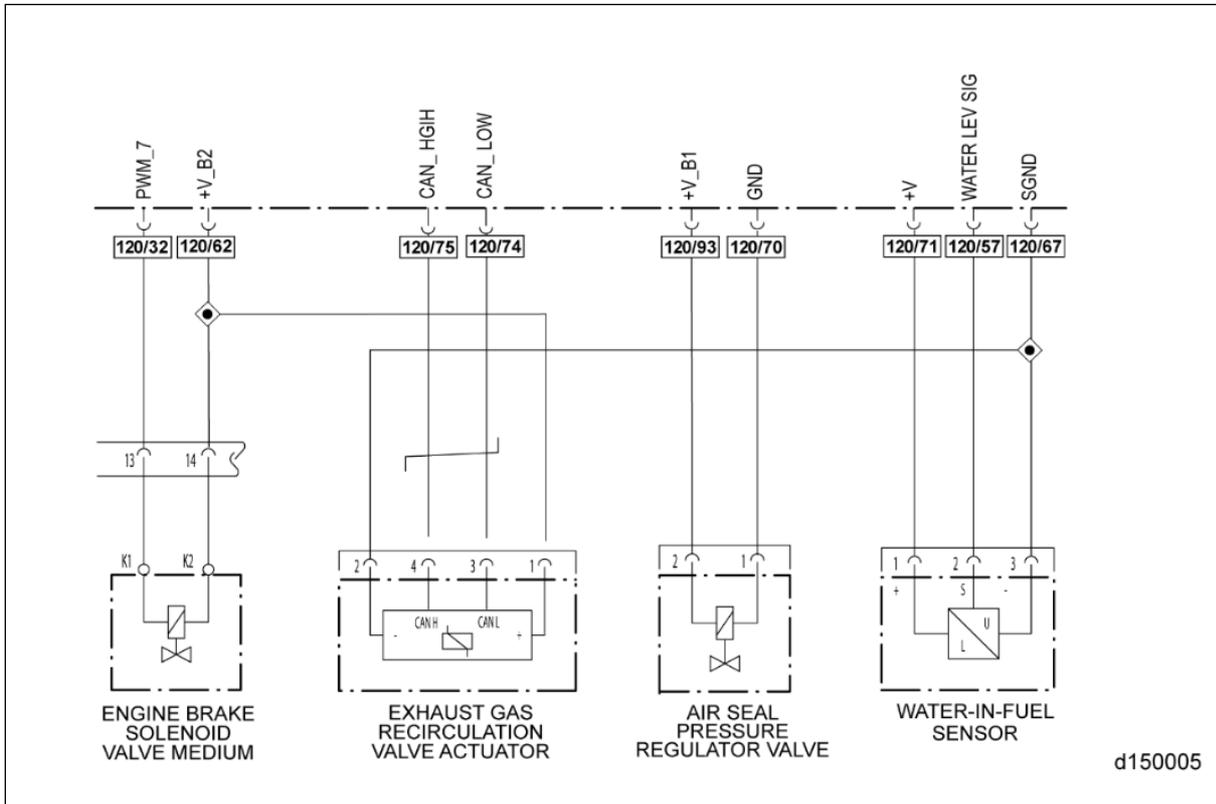


## 307.9 SPN 2791/FMI 14 - EPA07 - EPA10

Exhaust Gas Recirculation Valve Actuator Failsafe Mode, Motor ON



1. Check for additional voltage fault codes SPN 168 FMI (any).
  - 1.a If fault codes are present, troubleshoot and repair them first.
  - 1.b If no additional voltage fault codes are present, [Go to step 2](#).
2. Check for additional fault code SPN 2791 FMI 9.
  - 2.a If SPN 2791 FMI 9 is present, [Go to step 15](#).
  - 2.b If SPN 2791 FMI 9 is not present, [Go to step 3](#).
3. Check for additional fault code SPN 1073 FMI 4.
  - 3.a If SPN 1073 FMI 4 is present, [Go to step 23](#).
  - 3.b If SPN 1073 FMI 4 is not present, [Go to step 4](#).
4. Turn ignition OFF and disconnect the Exhaust Gas Recirculation (EGR) actuator connector.
5. Measure the resistance between pins 3 and 4 of the EGR actuator connector (engine harness side).
  - 5.a If the resistance is between 55 and 65 ohms, [Go to step 12](#).
  - 5.b If the resistance is not between 55 and 65 ohms, [Go to step 6](#).
6. Disconnect the MCM 120-pin connector.
7. Measure the resistance between pins 3 and 4 of the EGR actuator connector (engine harness side).
  - 7.a If the resistance is less than 10K ohms, repair short between pins 3 and 4 of the EGR actuator harness connector and MCM pins 74/75.
  - 7.b If the resistance is greater than 10K ohms, [Go to step 8](#).
8. Measure the resistance between pin 3 of the EGR actuator connector harness and pin 74 of the MCM 120-pin connector.

- 8.a If the resistance is greater than 3 ohms, repair wire between pin 3 of the EGR actuator connector harness and pin 74 of the MCM 120-pin connector.
- 8.b If the resistance is less than 3 ohms, [Go to step 9.](#)
- 9. Measure the resistance between pin 4 of the EGR actuator connector harness and pin 75 of the MCM 120-pin connector.
  - 9.a If the resistance is greater than 3 ohms, repair wire between pin 4 of the EGR actuator connector harness and pin 75 of the MCM 120-pin connector.
  - 9.b If the resistance is less than 3 ohms, [Go to step 10.](#)
- 10. Install test MCM; turn the ignition ON and monitor SRA3 status using DiagnosticLink Standard.
  - 10.a If SRA3 status is "0" or "OK", reprogram the original MCM with the latest settings on the server. [Go to step 11.](#)
  - 10.b If SRA3 status is not "0" or "OK", replace the EGR valve actuator.
    - For the DD13: [Refer to section "Removal of the DD13 Exhaust Gas Recirculation Valve Actuator"](#)
    - For the DD15 and DD16: [Refer to section "Removal of the DD15 and DD16 Delphi © Exhaust Gas Recirculation Valve Actuator"](#)
- 11. Clear codes, cycle ignition, and turn the ignition ON and monitor SRA3 status using DiagnosticLink Standard.
  - 11.a If SRA3 status is "0" or "OK", clear the codes and release the vehicle.
  - 11.b If SRA3 status is not "0" or "OK", replace the MCM. [Refer to section "Removal of the Motor Control Module"](#)
- 12. Turn the ignition ON.
- 13. Measure voltage between pins 1 and 2 of the EGR actuator connector (engine harness side).
  - 13.a If voltage is greater than 11 volts, replace the EGR valve actuator. [Go to step 28.](#)
    - For the DD13: [Refer to section "Removal of the DD13 Exhaust Gas Recirculation Valve Actuator"](#) .
    - For the DD15 and DD16: [Refer to section "Removal of the DD15 and DD16 Delphi © Exhaust Gas Recirculation Valve Actuator"](#) .
  - 13.b If the voltage is less than 11 volts, [Go to step 14.](#)
- 14. Measure the voltage between pin 1 of the EGR actuator connector (harness side) and ground.
  - 14.a If voltage is less than 11 volts, repair the wiring between pin 1 of the EGR harness connector and pin 62 of the MCM 120-pin connector.
  - 14.b If voltage is greater than 11 volts, repair the wiring between the EGR harness connector pin 2 and pin 67 of the MCM 120-pin connector.
- 15. Is fault code SPN 2791 FMI 9 active or inactive?
  - 15.a If active, [Go to step 16.](#)
  - 15.b If inactive, [Go to step 17.](#)
- 16. Using DiagnosticLink Standard, monitor the SRA3 status code.

SRA3 Status		Action to Take
EPA07	EPA10	
5	Fault Condition Detected - Motor	Replace EGR valve actuator. <a href="#">Go to step 28.</a>
23	Reference Sensor Fault - Motor	<a href="#">Go to step 17.</a>

- 17. Turn the ignition OFF (key OFF, engine OFF).
- 18. Disconnect EGR valve actuator pull rod and inspect ball sockets for free movement. For DD13, ensure part number is A4711401646 or newer; for DD15/16, ensure part number is A4721400646 or newer.
  - 18.a If sockets do not rotate/move freely or the rod is not the most recent part number, replace the EGR valve actuator pull rod.
    - For the DD13: [Refer to section "Installation of the DD13 Exhaust Gas Recirculation Valve Actuator Pull Rod"](#) .

For the DD15 and DD16: Refer to section "Installation of the DD15 and DD16 Exhaust Gas Recirculation Valve Actuator Pull Rod" .

18.b If sockets move freely and the part number is recent, Go to step 19.

Note : Some resistance is normal; however, the actuator should not bind in any particular spots.

19. With the EGR valve actuator pull rod disconnected, physically sweep the EGR actuator from stop to stop to check for full travel.

19.a If actuator binds at any point in its travel, replace the EGR actuator.

For the DD13: Refer to section "Removal of the DD13 Exhaust Gas Recirculation Valve Actuator" .

For the DD15 and DD16: Refer to section "Removal of the DD15 and DD16 Delphi © Exhaust Gas Recirculation Valve Actuator" .

19.b If EGR actuator does not bind, Go to step 20.

20. With the EGR valve actuator pull rod disconnected, turn the ignition ON and monitor SRA3 status using DiagnosticLink Standard.

SRA3 Status Value		Action to Take
EPA07	EPA10	
9 or 10	"Learn: Span too large, using initial value" or "Learn: Stops invalid using initial value"	Do not replace the actuator. Cycle ignition 2 more times and continue to monitor SRA3 status; if SRA3 status continues to be the same. Go to step 21.
Any other value	Any other value	Replace the EGR valve actuator. Go to step 28.

21. Turn the ignition OFF.

22. With the EGR valve actuator pull rod disconnected, physically move EGR valve butterfly from stop to stop to check for full travel (some drag is normal).

22.a If EGR butterfly does not move fully from stop to stop, replace the EGR valve. Go to step 28.

For the DD13: Refer to section "Removal of the Exhaust Manifold" .

For the DD15 and DD16: Refer to section "Removal of the DD15 and DD16 Exhaust Gas Recirculation Valve" .

22.b If EGR butterfly moves stop to stop, reconnect the EGR valve actuator pull rod to the EGR valve and EGR actuator. Go to step 28.

23. Turn the ignition OFF.

24. Disconnect the EGR actuator connector and the MCM 120-pin connector.

25. Measure the resistance between MCM pin 62 and pin 1 of the EGR actuator connector (engine harness side).

25.a If resistance is greater than 3 ohms, repair wire between MCM pin 62 and pin 1 of the EGR actuator connector.

25.b If resistance is less than 3 ohms, Go to step 26.

26. Disconnect the rear injector harness connector.

27. Measure resistance between MCM pin 62 and pin 14 of the rear injector harness connector.

27.a If resistance is greater than 3 ohms, repair wire between MCM pin 62 and pin 14 of the rear injector harness connector.

27.b If resistance is less than 3 ohms, replace the MCM. Refer to section "Removal of the Motor Control Module" . Go to step 28.

28. Clear codes, cycle ignition ON and monitor SRA3 status using DiagnosticLink Standard.

28.a If SRA3 status is "0" or "OK", clear the codes and release the vehicle.

28.b If SRA3 status is not "0" or "OK", contact the Customer Support Center at 800-445-1980.