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Service Information Bulletin

SUBJECT	DATE
SPN 1761 (ACM) (GHG17) SPN 3031 (ACM) (GHG17)	September 2016

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0191	GHG17 DD Platform	SPN 1761/FMI 3 - GHG17	These are new procedures.
		SPN 1761/FMI 4 - GHG17	
		SPN 3031/FMI 3 - GHG17	
		SPN 3031/FMI 4 - GHG17	

DiagnosticLink users: Please update the troubleshooting guides in DiagnosticLink with this newest version. To update the tool troubleshooting guide, open DiagnosticLink and from the Help – Troubleshooting Guides menu, select the appropriate troubleshooting manual, then click Update.

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2 SPN 1761/FMI 3 - GHG17

Diesel Exhaust Fluid Tank Level Sensor Circuit Failed High

Table 1.

SPN 1761/FMI 3	
Description	Diesel Exhaust Fluid (DEF) Tank Level Sensor Circuit Failed High
Monitored Parameter	DEF Tank Level Sensor
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Engine Idle (One Minute)

WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

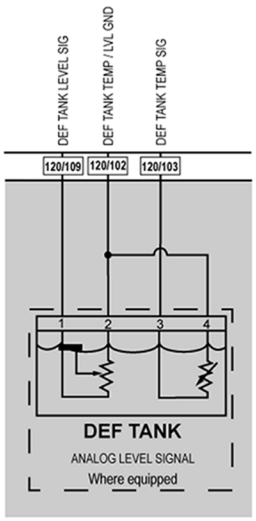
- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

WARNING: ENGINE EXHAUST

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.



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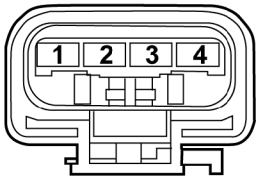

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NOTE: When there is no signal from the DEF level/temperature sensor, the vehicle will go into the low DEF level derate.

Check as follows:

1. Disconnect and inspect the DEF tank level/temperature sensor connector. Are there any bent, spread, or corroded pins?
    a. Yes; repair as necessary. Verify repair.
    b. No; Go to step 2.
2. Turn the ignition ON (key ON, engine OFF).
3. Measure the voltage between pin 2 of the DEF tank level/temperature sensor, harness side connector and ground. Is there any voltage present?
    a. Yes; repair the short to power between pin 2 of the DEF tank level/temperature connector and pin 102 of the 120-pin ACM connector. Verify repair.
    b. No; Go to step 4.
4. Measure the voltage between pin 1 of the DEF tank temperature/level sensor, harness side connector and ground. Is there 3.0 volts?
    a. Yes; Go to step 5.
    b. No; Go to step 10.
5. Turn the ignition OFF.
6. Measure resistance between pin 2 of the DEF tank level/temperature sensor connector and ground. Is the resistance less than five ohms?
    a. Yes; replace the DEF tank temperature/level sensor. Refer to section "Removal of the 13- and 23-Gallon Diesel Exhaust Fluid Tank Header Unit". Verify repair.
    b. No; Go to step 7.

7. Disconnect and inspect the 120-pin Aftertreatment Control Module (ACM), harness side, connector. Are there any bent, spread, or corroded pins?
    a. Yes; repair as necessary. Verify repair.
    b. No; Go to step 8.
8. Measure the resistance between pin 2 of the DEF tank level/temperature sensor, harness side connector and pin 102 of the 120-pin ACM connector. Is the resistance less than five ohms?
    a. Yes; Go to step 9.
    b. No; repair the wire between pin 2 of the DEF tank level/temperature sensor connector and pin 102 of the 120-pin ACM connector. Verify repair.
9. Install a test ACM. Is SPN 1761/FMI 3 still present?
    a. Yes; replace the DEF tank temperature/level sensor. Refer to section "Removal of the 13- and 23-Gallon Diesel Exhaust Fluid Tank Header Unit". Verify repair.
    b. No; replace the ACM. Verify repair.
10. Disconnect and inspect the 120-pin ACM connector. Are there any bent, spread, or corroded pins?
    a. Yes; repair as necessary. Verify repair.
    b. No; Go to step 11.
11. Measure the resistance between pin 1 of the DEF tank level/temperature sensor, harness side, connector and pin 109 of the 120-pin ACM harness side connector. Is the resistance less than five ohms?
    a. Yes; Go to step 12.
    b. No; repair the wire between pin 1 of the DEF tank level/temperature sensor connector and pin 109 of the 120-pin ACM connector.
12. Install a test ACM. Is SPN 1761/FMI 3 still present?
    a. Yes; replace the DEF tank temperature/level sensor. Refer to section "Removal of the 13- and 23-Gallon Diesel Exhaust Fluid Tank Header Unit". Verify repair.
    b. No; replace the ACM. Verify repair.

3 SPN 1761/FMI 4 - GHG17

Diesel Exhaust Fluid Tank Level Sensor Circuit Failed Low

Table 2.

SPN 1761/FMI 4	
Description	Diesel Exhaust Fluid (DEF) Tank Level Sensor Circuit Failed Low
Monitored Parameter	DEF Tank Level Sensor
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Engine Idle (One Minute)

WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

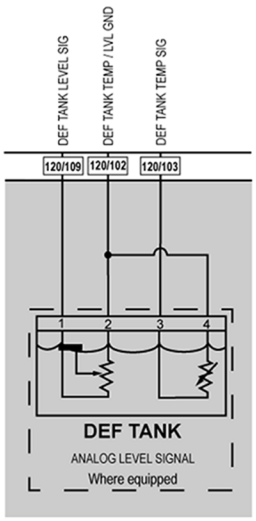
- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

WARNING: ENGINE EXHAUST

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.



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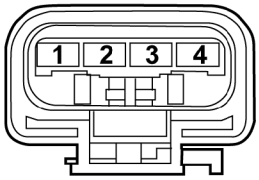

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NOTE: When there is no signal from the DEF level/temperature sensor, the vehicle will go into the low DEF level derate.

Check as follows:

1. Turn the ignition OFF.
2. Disconnect and inspect the Diesel Exhaust Fluid (DEF) tank temperature/level sensor connector. Is there any damage, corrosion, or water present?
    a. Yes; repair as necessary. Verify repair.
    b. No; Go to step 3.
3. Measure the resistance from pin 1 of the DEF tank temperature/level sensor harness side connector and ground. Is the resistance less than 10k ohms?
    a. Yes; Go to step 4.
    b. No; repair the wire between pin 1 of the DEF tank temperature/level sensor connector and pin 109 of the 120-pin ACM connector.
4. Install a test ACM. Is code SPN 1761/FMI 4 still present?
    a. Yes; replace the DEF tank temperature/level sensor. Refer to section "Removal of the 13- and 23-Gallon Diesel Exhaust Fluid Tank Header Unit". Verify repair.
    b. No; replace the ACM. Verify repair.

4 SPN 3031/FMI 3 - GHG17

Diesel Exhaust Fluid Tank Temperature Sensor Circuit Failed High

Table 3.

SPN 3031/FMI 3	
Description	Diesel Exhaust Fluid (DEF) Tank Temperature Sensor Circuit Failed High
Monitored Parameter	DEF Tank Level Sensor
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	25 Percent Derate. After Four Hours, Engine Will be Idled After Ignition Key Cycle
Verification	Engine Idle (One Minute)

WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

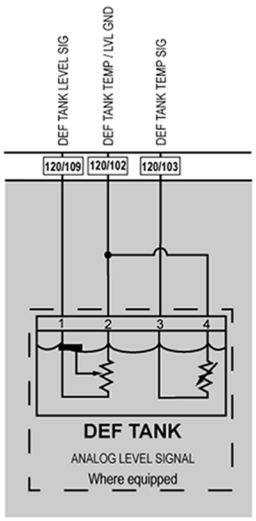
- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

WARNING: ENGINE EXHAUST

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.



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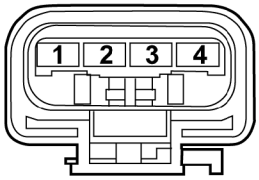

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NOTE: When there is no signal from the DEF tank level/temperature sensor, the vehicle will go into the low DEF level derate.

Check as follows:

1. Disconnect and inspect the DEF tank level/temperature sensor connectors. Are there any bent, spread or corroded pins?
    a. Yes; repair as necessary. Verify repair.
    b. No; Go to step 2.
2. Turn the ignition ON (key ON, engine OFF).
3. Measure the voltage between pin 4 of the DEF tank level/temperature sensor connector harness side and ground. Is there voltage present?
    a. Yes; repair the short to power between pin 4 of the DEF tank level/temperature connector and pin 102 of the 120-pin Motor Control Module (MCM) connector. Verify repair.
    b. No; Go to step 4.
4. Measure the voltage between pin 3 on the harness side of the DEF tank temperature/level sensor connector and ground. Is there 3.0 volts?
    a. Yes; Go to step 5.
    b. No; Go to step 10.
5. Turn the ignition OFF.
6. Measure resistance between pin 4 of the DEF tank level/temperature sensor connector, harness side, and ground. Is the resistance less than five ohms?
    a. Yes; replace the DEF tank temperature/level sensor. Refer to section "Removal of the 13- and 23-Gallon Diesel Exhaust Fluid Tank Header Unit". Verify repair.
    b. No; Go to step 7.

7. Disconnect and inspect the 120-pin Aftertreatment Control Module (ACM) harness side connector. Are there any spread or damaged pins?
    a. Yes; repair as necessary. Verify repair.
    b. No; Go to step 8.
8. Measure the resistance between pin 4 of the DEF tank level/temperature sensor connector and pin 102 of the 120-pin ACM connector. Is the resistance less than five ohms?
    a. Yes; Go to step 9.
    b. No; repair the wire between pin 4 of the DEF tank level/temperature sensor connector and pin 102 of the 120-pin ACM connector. Verify repair.
9. Install a test ACM. Is SPN 3031/FMI 3 still present?
    a. Yes; replace the DEF tank temperature/level sensor. Refer to section "Removal of the 13- and 23-Gallon Diesel Exhaust Fluid Tank Header Unit". Verify repair.
    b. No; replace the ACM. Verify repair.
10. Disconnect and inspect the 120-pin ACM connector. Are there any bent, spread, or corroded pins?
    a. Yes; repair as necessary. Verify repair.
    b. No; Go to step 11.
11. Measure the resistance between pin 3 of the DEF tank level/temperature sensor connector and pin 103 of the 120-pin ACM connector. Is the resistance less than five ohms?
    a. Yes; Go to step 12.
    b. No; repair the wire between pin 3 of the DEF tank level/temperature sensor connector and pin 103 of the 120-pin ACM connector.
12. Install a test ACM. Is SPN 3031/FMI 3 still present?
    a. Yes; replace the DEF tank temperature/level sensor. Refer to section "Removal of the 13- and 23-Gallon Diesel Exhaust Fluid Tank Header Unit". Verify repair.
    b. No; replace the ACM. Verify repair.

5 SPN 3031/FMI 4 - GHG17

Diesel Exhaust Fluid Tank Temperature Sensor Circuit Failed Low

Table 4.

SPN 3031/FMI 4	
Description	Diesel Exhaust Fluid (DEF) Tank Temperature Sensor Circuit Failed Low
Monitored Parameter	DEF Tank Level Sensor
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	25 Percent Derate. After Four Hours, Engine Will be Idled After Ignition Key Cycle
Verification	Engine Idle (One Minute)

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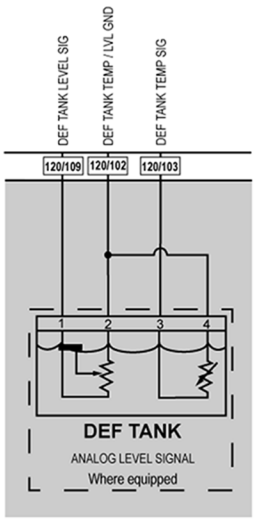

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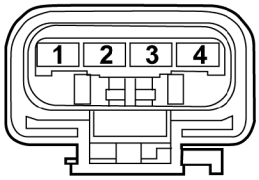

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NOTE: When there is no signal from the DEF level/temperature sensor, the vehicle will go into the low DEF level derate.

Check as follows:

1. Turn the ignition OFF.
2. Disconnect and inspect the DEF tank level/temperature sensor connectors, harness side. Is there any bent, spread or corroded pins?
    a. Yes; repair as necessary. Verify repair.
    b. No; Go to step 3.
3. Measure the resistance from pin 3 of the DEF tank temperature/level sensor connector and ground. Is the resistance greater than 10k ohms?
    a. Yes; Go to step 4.
    b. No; repair the wire between pin 3 of the DEF tank temperature/level sensor connector and pin 103 of the 120-pin Aftertreatment Control Module (ACM) connector. Verify repair.
4. Install a test ACM. Is code SPN 3031/FMI 4 still present?
    a. Yes; replace the DEF tank temperature/level sensor. Refer to section "Removal of the 13- and 23-Gallon Diesel Exhaust Fluid Tank Header Unit". Verify repair.
    b. No; replace the ACM. Refer to section "Removal of the 1-BOX™ Aftertreatment Control Module". Verify repair.

