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## Service Information Bulletin

SUBJECT	DATE
SPN 1188 (MCM) (GHG17)	January 2019

### Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0200	GHG17 DD8	SPN 1188/FMI 7 - GHG17	Corrected steps that were out of order.
		SPN 1188/FMI 10 - GHG17	
		SPN 1188/FMI 11 - GHG17	
		SPN 1188/FMI 14 - GHG17	
		SPN 1188/FMI 31 - GHG17	



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## 2 SPN 1188/FMI 7 - GHG17

Turbocharger Wastegate Actuator, Fail-safe Mode, Motor Off

**Table 1.**

SPN 1188/FMI 7	
Description	This Fault Sets When the Motor Control Module Detects that the Turbocharger Wastegate Position is Incorrect
Monitored Parameter	Turbocharger Wastegate Position
Typical Enabling Conditions	Engine Running, Turbocharger Wastegate Command
Monitor Sequence	Always When Typical Enabling Conditions Are Met
Execution Frequency	None
Typical Duration	Five Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Engine Running, Perform Several Neutral Run-Ups



### 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.

Check as follows:

1. Turn the ignition OFF.
2. Remove the air filter assembly.
3. Visually inspect the turbocharger wastegate actuator assembly. Are there any components that can interfere with the travel of the turbocharger wastegate actuator pull rod?
  - a. Yes; remove and install the components correctly.
  - b. No; Go to step 6.
4. Turn the ignition ON (key ON, engine OFF).
5. Disconnect the turbocharger actuator electrical connector.
6. Monitor the turbocharger wastegate actuator while the ignition is turned on. Does the turbocharger actuator move when the ignition is turned to the on position?
  - a. Yes; Go to step 7.
  - b. No; replace the turbocharger wastegate actuator. Verify repair.
7. Remove the turbocharger.

For the single stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"

For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"

8. Disconnect and inspect the turbocharger wastegate actuator pull rod from the turbocharger. Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger actuator pull rod and reinstall the turbocharger assembly. Verify repair.
  - b. No; Go to step 9.
9. Move the turbocharger actuator pull rod back and forth by hand. Does the wastegate in the turbocharger move?
  - a. Yes; replace the turbocharger wastegate actuator. Verify repair.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"
  - b. No; replace the turbocharger. Verify repair.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"

### 3 SPN 1188/FMI 10 - GHG17

Turbocharger Wastegate Actuator, Position Deviation Error 2

**Table 2.**

SPN 1188/FMI 10	
Description	This Fault Sets When the Motor Control Module Detects that the Turbocharger Wastegate Position is Incorrect
Monitored Parameter	Turbocharger Wastegate Position
Typical Enabling Conditions	Engine Running, Turbocharger Wastegate Command
Monitor Sequence	Always When Typical Enabling Conditions Are Met
Execution Frequency	None
Typical Duration	Five Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Engine Running, Perform Several Neutral Run-Ups



**WARNING: PERSONAL INJURY**

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- 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.

Check as follows:

1. Turn the ignition OFF.
2. Remove the air filter assembly.
3. Visually inspect the turbocharger wastegate actuator assembly. Are there any components that can interfere with the travel of the turbocharger wastegate actuator pull rod?
  - a. Yes; remove and install the components correctly.
  - b. No; Go to step 4.
4. Turn the ignition ON (key ON, engine OFF).
5. Disconnect the turbocharger actuator electrical connector.
6. Monitor the turbocharger actuator assembly while reconnecting the electrical connector. Does the turbocharger actuator move when the electrical connector is reconnected?
  - a. Yes; Go to step 7.
  - b. No; replace the turbocharger wastegate actuator. Verify repair.

7. Remove the turbocharger.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"
8. Disconnect and inspect the Turbocharger wastegate actuator pull rod from the turbocharger. Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger actuator pull rod and reinstall the turbocharger assembly. Verify repair.
  - b. No; Go to step 9.
9. Move the turbocharger actuator pull rod back and forth by hand. Does the wastegate in the turbocharger move?
  - a. Yes; replace the turbocharger wastegate actuator. Verify repair.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"
  - b. No; replace the turbocharger. Verify repair.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"

## 4 SPN 1188/FMI 11 - GHG17

Turbocharger Wastegate Actuator, Learn Span too Small Range 2

**Table 3.**

SPN 1188/FMI 11	
Description	This Fault Sets When the Motor Control Module Detects that the Turbocharger Wastegate Position is Incorrect
Monitored Parameter	Turbocharger Wastegate Position
Typical Enabling Conditions	Engine Running, Turbocharger Wastegate Command
Monitor Sequence	Always When Typical Enabling Conditions Are Met
Execution Frequency	None
Typical Duration	Five Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Engine Running, Perform Several Neutral Run-Ups



### WARNING: PERSONAL INJURY

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- 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.

Check as follows:

1. Turn the ignition OFF.
2. Remove the air filter assembly.
3. Visually inspect the turbocharger wastegate actuator assembly. Are there any components that can interfere with the travel of the turbocharger wastegate actuator pull rod?
  - a. Yes; remove and install the components correctly.
  - b. No; Go to step 4.
4. Turn the ignition ON (key ON, engine OFF).
5. Disconnect the turbocharger actuator electrical connector.
6. Monitor the turbocharger actuator assembly while reconnecting the electrical connector. Does the turbocharger actuator move when the electrical connector is reconnected?
  - a. Yes; Go to step 7.
  - b. No; replace the turbocharger. Verify repair.

7. Remove the turbocharger.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"
8. Disconnect and inspect the turbocharger wastegate actuator pull rod from the turbocharger. Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger actuator pull rod and reinstall the turbocharger assembly. Verify repair.
  - b. No; Go to step 9.
9. Move the turbocharger actuator pull rod back and forth by hand. Does the wastegate in the turbocharger move?
  - a. Yes; replace the turbocharger wastegate actuator. Verify repair.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"
  - b. No; replace the turbocharger. Verify repair.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"

## 5 SPN 1188/FMI 14 - GHG17

Turbocharger Wastegate Actuator, Actuator Power Limited

**Table 4.**

SPN 1188/FMI 14	
Description	This Fault Sets When the Motor Control Module Detects that the Turbocharger Wastegate Position is Incorrect
Monitored Parameter	Turbocharger Wastegate Position
Typical Enabling Conditions	Engine Running, Turbocharger Wastegate Command
Monitor Sequence	Always When Typical Enabling Conditions Are Met
Execution Frequency	None
Typical Duration	Five Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Engine Running, Perform Several Neutral Run-Ups



### 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.

Check as follows:

1. Turn the ignition OFF.
2. Remove the air filter assembly.
3. Visually inspect the turbocharger wastegate actuator assembly. Are there any components that can interfere with the travel of the turbocharger wastegate actuator pull rod?
  - a. Yes; remove and install the components correctly.
  - b. No; Go to step 4.
4. Turn the ignition ON (key ON, engine OFF).
5. Disconnect the turbocharger actuator electrical connector.
6. Monitor the turbocharger actuator assembly while reconnecting the electrical connector. Does the turbocharger actuator move when the electrical connector is reconnected?
  - a. Yes; Go to step 7.
  - b. No; replace the turbocharger wastegate actuator. Verify repair.



7. Remove the turbocharger.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"
8. Disconnect and inspect the Turbocharger wastegate actuator pull rod from the turbocharger. Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger actuator pull rod and reinstall the turbocharger assembly. Verify repair.
  - b. No; Go to step 9.
9. Move the turbocharger actuator pull rod back and forth by hand. Does the wastegate in the turbocharger move?
  - a. Yes; replace the turbocharger wastegate actuator. Verify repair.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"
  - b. No; replace the turbocharger. Verify repair.  
For the single stage turbocharger, Refer to section "Installation of the Turbocharger Assembly"  
For the dual stage turbocharger, Refer to section "Installation of the Turbocharger Assembly"

## 6 SPN 1188/FMI 31 - GHG17

Turbocharger Wastegate Actuator, Position Deviation Error

**Table 5.**

SPN 1188/FMI 31	
Description	This Fault Sets When the Motor Control Module Detects that the Turbocharger Wastegate Position is Incorrect
Monitored Parameter	Turbocharger Wastegate Position
Typical Enabling Conditions	Engine Running, Turbocharger Wastegate Command
Monitor Sequence	Always When Typical Enabling Conditions Are Met
Execution Frequency	None
Typical Duration	Five Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Engine Running, Perform Several Neutral Run-Ups



### 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.

Check as follows:

1. Turn the ignition OFF.
2. Remove the air filter assembly.
3. Visually inspect the turbocharger wastegate actuator assembly. Are there any components that can interfere with the travel of the turbocharger wastegate actuator pull rod?
  - a. Yes; remove and install the components correctly.
  - b. No; Go to step 4.
4. Turn the ignition ON (key ON, Engine OFF).
5. Disconnect the turbocharger actuator electrical connector.
6. Monitor the turbocharger actuator assembly while reconnecting the electrical connector. Does the turbocharger actuator move when the electrical connector is reconnected?
  - a. Yes; Go to step 7.
  - b. No; replace the turbocharger wastegate actuator. Verify repair.
7. Remove the turbocharger.

For the single stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"

For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Assembly"

8. Disconnect and inspect the turbocharger wastegate actuator pull rod from the turbocharger. Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger actuator pull rod and reinstall the turbocharger assembly. Verify repair.
  - b. No; Go to step 9.
9. Move the turbocharger actuator pull rod back and forth by hand. Does the wastegate in the turbocharger move?
  - a. Yes; replace the turbocharger wastegate actuator. Verify repair.  
For the single stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"  
For the dual stage turbocharger, Refer to section "Removal of the Turbocharger Wastegate Actuator"
  - b. No; replace the turbocharger. Verify repair.  
For the single stage turbocharger, Refer to section "Installation of the Turbocharger Assembly"  
For the dual stage turbocharger, Refer to section "Installation of the Turbocharger Assembly"