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## Service Information Bulletin

SUBJECT	DATE
SPN 520295 (MCM) (GHG17) - Smart Remote Actuator 1 (Wastegate) faults	January 2017

### Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0193	GHG17 Medium Duty	SPN 520295/FMI 11- GHG17	These are new diagnostics for the MDEG engine.
		SPN 520295/FMI 12- GHG17	
		SPN 520295/FMI 14- GHG17	
		SPN 520295 FMI 31- 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 520295/FMI 11 - GHG17

Smart Remote Actuator 1 (Wastegate), Learn Span too Small Range 2, Max Learn Attempts Completed

**Table 1.**

SPN 520295/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

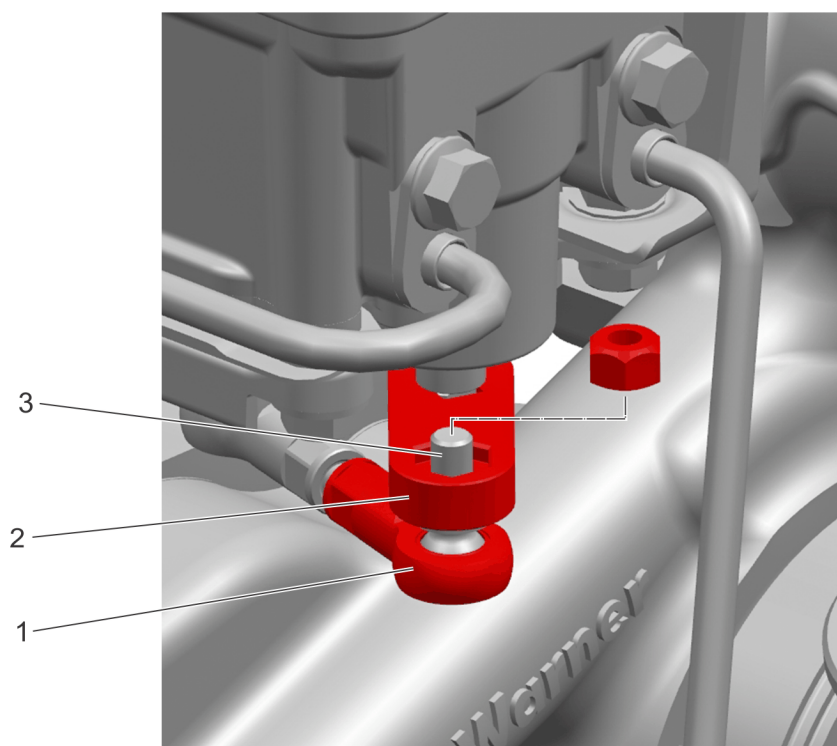
Check as follows:



### **WARNING: ENGINE EXHAUST**

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

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. Monitor the turbocharger wastegate actuator while the ignition is turned ON. Does the turbocharger actuator move when the ignition is turned ON (key ON, engine OFF)?
  - a. Yes; replace the turbocharger wastegate actuator. Refer to section "Removal of the Turbocharger Wastegate Actuator". Verify repair.
  - b. No; Go to step 5.
5. Turn the ignition OFF.



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6. Disconnect and inspect the turbocharger wastegate actuator pull rod from the turbocharger. Refer to section "Removal of the Turbocharger Wastegate Actuator". Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair
  - b. No; Go to step 7.
7. Rotate the stud by hand. Do the studs move?
  - a. Yes; Go to step 8.
  - b. No; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.
8. 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. Refer to section "Removal of the Turbocharger Wastegate Actuator". Verify repair.
  - b. No; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.

### 3 SPN 520295/FMI 12 - GHG17

Smart Remote Actuator 1 (Wastegate), Learn Span too Small Range 2, Max Learn Attempts Not

**Table 2.**

SPN 520295/FMI 12	
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

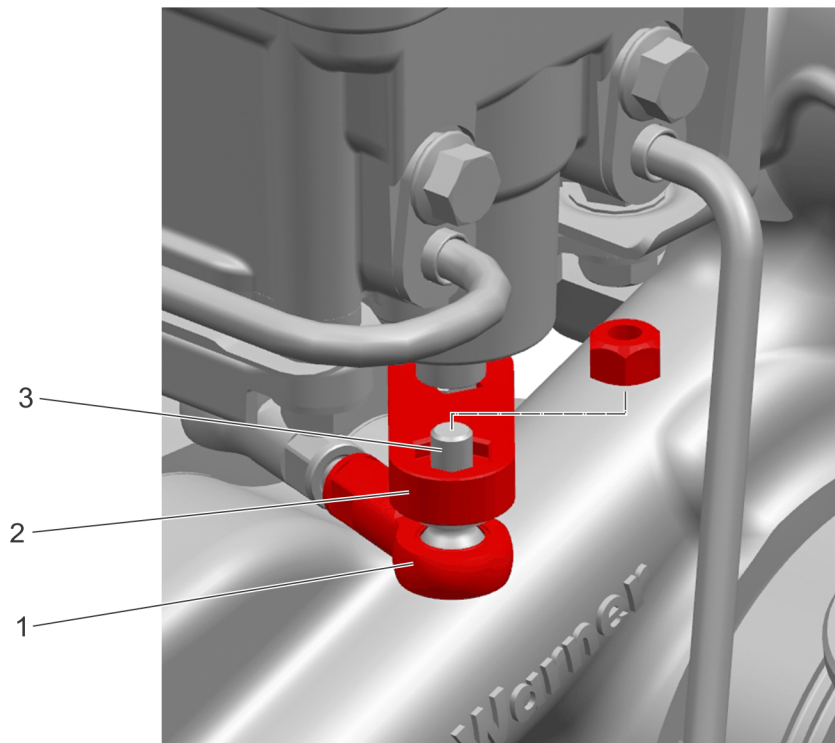
Check as follows:



**WARNING: ENGINE EXHAUST**

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

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. Monitor the turbocharger wastegate actuator while the ignition is turned ON. Does the turbocharger actuator move when the ignition is turned ON (key ON, engine OFF)?
  - a. Yes; replace the turbocharger wastegate actuator. Refer to section "Removal of the Turbocharger Wastegate Actuator". Verify repair.
  - b. No; Go to step 5.
5. Turn the ignition OFF.



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6. Disconnect and inspect the turbocharger wastegate actuator pull rod from the turbocharger. Refer to section "Removal of the Turbocharger Wastegate Actuator". Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.
  - b. No; Go to step 7.
7. Rotate the stud by hand. Do the studs move?
  - a. Yes; Go to step 8.
  - b. No; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.
8. 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. Refer to section "Removal of the Turbocharger Wastegate Actuator". Verify repair.
  - b. No; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.

## 4 SPN 520295/FMI 14 - GHG17

Smart Remote Actuator 1 (Wastegate), Learn Span too Small Range 3

**Table 3.**

SPN 520295/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

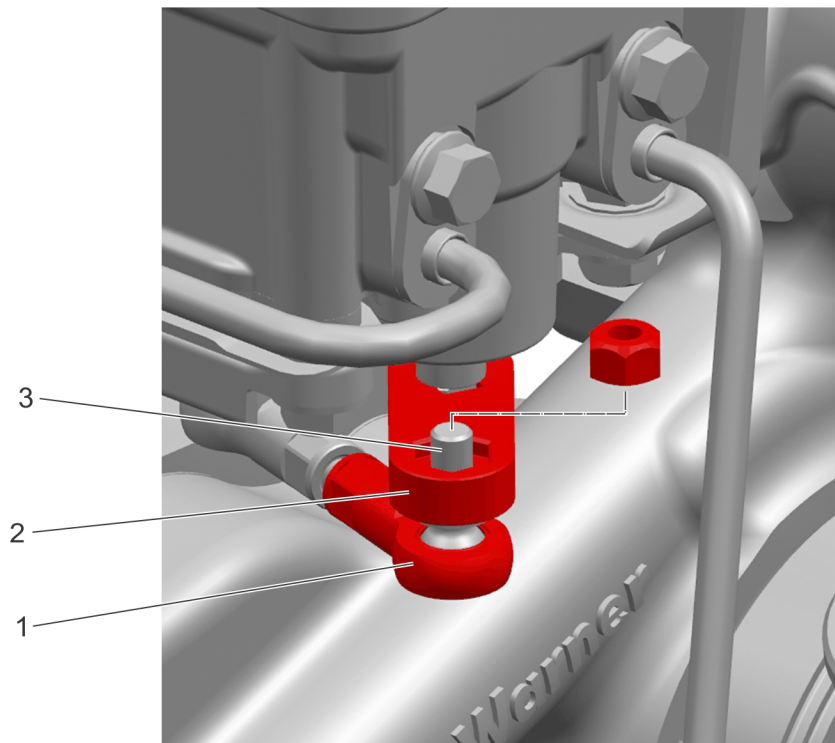
Check as follows:



### **WARNING: ENGINE EXHAUST**

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

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. Monitor the turbocharger wastegate actuator while the ignition is turned ON. Does the turbocharger actuator move when the ignition is turned ON (key ON, engine OFF)?
  - a. Yes; replace the turbocharger wastegate actuator. Refer to section "Removal of the Turbocharger Wastegate Actuator". Verify repair.
  - b. No; Go to step 5.
5. Turn the ignition OFF.



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6. Disconnect and inspect the turbocharger wastegate actuator pull rod from the turbocharger. Refer to section "Removal of the Turbocharger Wastegate Actuator". Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.
  - b. No; Go to step 7.
7. Rotate the stud by hand. Do the studs move?
  - a. Yes; Go to step 8.
  - b. No; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.
8. 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. Refer to section "Removal of the Turbocharger Wastegate Actuator". Verify repair.
  - b. No; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.

## 5 SPN 520295/FMI 31 - GHG17

Smart Remote Actuator 1 (Wastegate), Learn Cycle Incomplete

**Table 4.**

SPN 520295/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

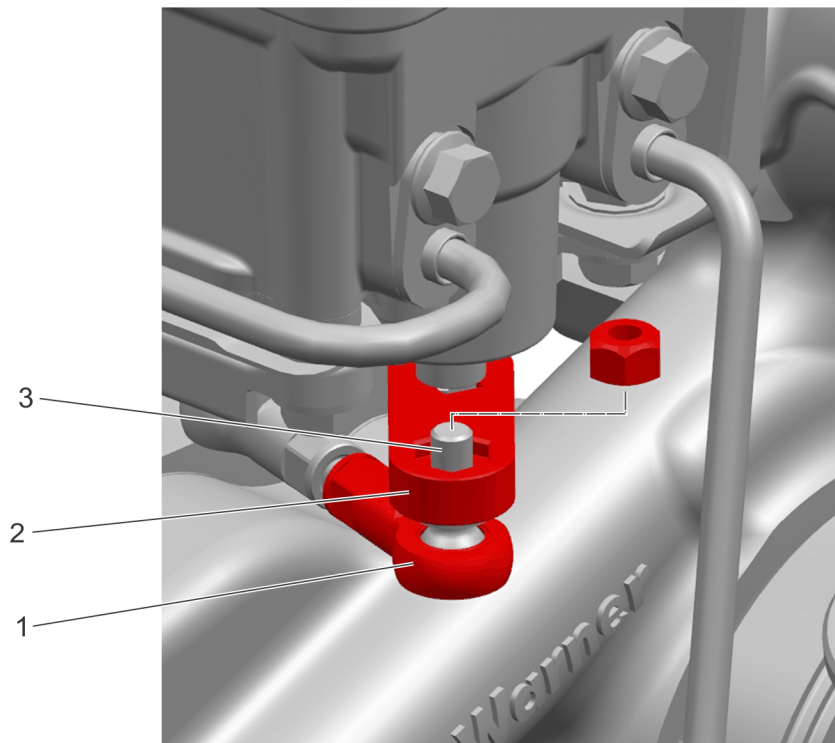
Check as follows:



**WARNING: ENGINE EXHAUST**

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

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. Monitor the turbocharger wastegate actuator while the ignition is turned ON. Does the turbocharger actuator move when the ignition is turned ON (key ON, engine OFF)?
  - a. Yes; replace the turbocharger wastegate actuator. Refer to section "Removal of the Turbocharger Wastegate Actuator". Verify repair.
  - b. No; Go to step 5.
5. Turn the ignition OFF.



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6. Disconnect and inspect the turbocharger wastegate actuator pull rod from the turbocharger. Refer to section "Removal of the Turbocharger Wastegate Actuator". Are the bearings in the pull rod missing?
  - a. Yes; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.
  - b. No; Go to step 7.
7. Rotate the stud by hand. Do the studs move?
  - a. Yes; Go to step 8.
  - b. No; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.
8. 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. Refer to section "Removal of the Turbocharger Wastegate Actuator". Verify repair.
  - b. No; replace the turbocharger. Refer to section "Removal of the Turbocharger Assembly". Verify repair.