

Group:	17-Intake & Exhaust
Bulletin No.:	14-002
Issue Date:	3/28/2014

# SERVICE INFORMATION BULLETIN

## **CORRECTION OF WORKSHOP MANUAL FOR HINO 155, 195,155h, 195h (REVISION OF TROUBLESHOOTING PROCEDURE FOR THE DTC P0045 & P259E)**

The following is to inform you of the revision of the troubleshooting procedure for the DTC P0045 & P259E. Please attach service data to the relevant pages of the workshop manuals for maintenance and servicing.

### **RELEVANT MODEL**

Hino 155, 195, 155h, 195h

### **CONTENTS**

Inspection procedure of the DTC/P0045 for 13MY model and DTC/P259E for 14 MY model were revised. (Add and change the inspection procedure for checking the turbocharger actuator wiping function failure due to foreign substances entering around the link rod.)

### **RELEVANT MANUAL**

MODEL	MANUAL No.	CHAPTER	PAGE No.
USA 2013MY	S7-LXJE01D	ENGINE (J05E)/ TROUBLESHOOTING	2-47, 2-49
USA 2014MY	S7-LXJE03C		2-1518, 2-1520

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ENGINE (J05E)TROUBLESHOOTING

2-47

<b>DTC:P0045</b>	DC motor terminal open circuit or DC motor coil open circuit	Inspection Procedure
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No	Parts	Check contents	Judge	Check (Pass/Fail)	If OK	If fail
1	Reading DTC 1 [HINO-DX]	<ol style="list-style-type: none"> <li>1. Connect the diagnostic system (HINO-DX) to the vehicle.</li> <li>2. Set the starter key to the "ON" position.</li> <li>3. In the screen of the diagnostic system, select [Engine] and in [Defect information], check for DTC (U010C) other than P0045.</li> </ol>	—		Perform the relevant DTC-specific diagnosis. Repair and proceed to the step 2.	Proceed to the step 3.
2	Reading DTC 2 [HINO-DX]	<ol style="list-style-type: none"> <li>1. Set the starter key to the "ON" position.</li> <li>2. In the [Defect information] screen of the diagnostic system, check for P0045.</li> </ol>	—		Proceed to the step 3.	End of inspection
<b>ADD</b> 3	Check the turbocharger external appearance.	<ol style="list-style-type: none"> <li>1. Remove EGR cooler for checking the turbocharger.</li> <li>2. Check the turbocharger external appearance and make sure no foreign substances are trapped around the link.</li> </ol>	Foreign substances are trapped around the link.		Remove foreign substances, and proceed to the step 4.	Proceed to the step 4.
4	Inspecting the connector connection [HINO-DX]	<ol style="list-style-type: none"> <li>1. Set the starter key to the "LOCK" position.</li> <li>2. Disconnect the VNT controller connector and securely connect it again.</li> <li>3. Set the starter key to the "ON" position.</li> <li>4. In the [Defect information] screen of the diagnostic system, check for P0045.</li> </ol>	Starter key: ON		Proceed to the step 5.	End of inspection (wrong connection of the connector)
5	Inspecting the VNT controller operation [HINO-DX]	<ol style="list-style-type: none"> <li>1. Set the starter key to the "ON" position.</li> <li>2. Using the diagnostic system, delete past malfunctions.</li> <li>3. Set the starter key to the "OFF" position.</li> <li>4. Set the starter key to the "ON" position again.</li> <li>5. In the [Defect information] screen of the diagnostic system, check for P0045.</li> </ol> <p><b>HINT</b> By setting the starter key to OFF and ON, the wiping operation of the actuator (DC motor) is checked.</p>	Starter key: OFF → ON		Replace the VNT controller.	End of inspection

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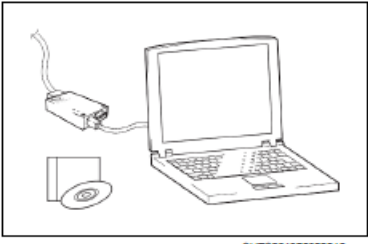
2-48 ENGINE(J05E)/TROUBLESHOOTING

**DTC:P0045**

EN01H021270300045

DTC	P0045	Nozzle position sensor failure DC motor open circuit DC motor short circuit Nozzle stuck Nozzle operating range failure Initialization failure
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**1 Reading DTC 1 [HINO-DX]**



SHT5021270300045

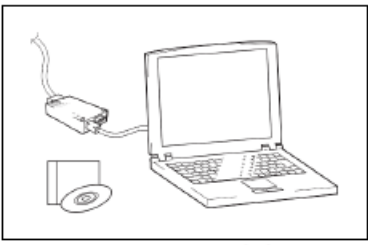
1. Connect the diagnostic system (HINO-DX) to the vehicle.
2. Set the starter key to the "ON" position.
3. In the screen of the diagnostic system, select [Engine] and in [Defect information], check for DTC (P00AF, U1123) other than P0045.

**NO** → Proceed to the step 3.

**YES**

Perform the relevant DTC-specific diagnosis.  
Repair and proceed to the step 2.

**2 Reading DTC 2 [HINO-DX]**



SHT5021270300046

1. Set the starter key to the "ON" position.
2. In the [Defect information] screen of the diagnostic system, check for P0045.

**NO** → End of inspection

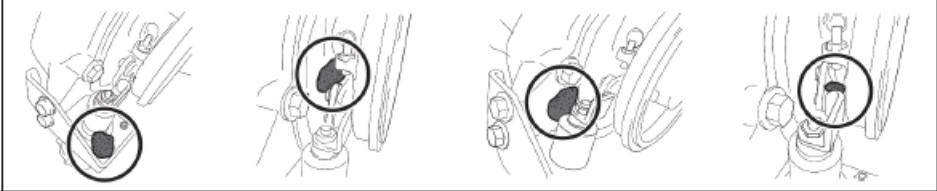
**YES**

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ENGINE (J05E)TROUBLESHOOTING

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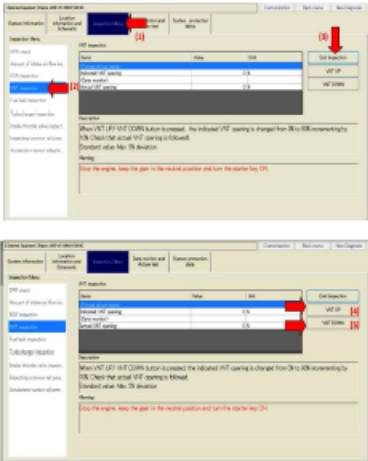
ADD

<b>3</b>	<b>Check the turbocharger external appearance</b>
<ol style="list-style-type: none"> <li>1. Remove EGR cooler for checking the turbocharger.</li> <li>2. Check the turbocharger external appearance and make sure no foreign substances are trapped around the link. <b>Standard: Foreign substances are trapped around the link.</b></li> </ol>	
 <p style="text-align: right; font-size: small;">SHTS021270300047</p>	
<p><b>NO</b> → Proceed to the step 4.</p>	
<p><b>YES</b></p>	
<p>Remove foreign substance, and proceed to the step 6.</p>	

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2-50 ENGINE (J05E)TROUBLESHOOTING

## 4 Inspect the response delay of the VNT controller



1. Select [Check functions] from the menu, then inspect the response delay at the Target VNT position and Actual VNT position.

**CAUTION**

- Perform the inspection while the engine is stopped to avoid damages.

<Inspection procedure>

- (1) Select [Check functions].
- (2) Select [VNT check].
- (3) Click [Check start].
- (4) Select [VNT opening UP]:

- Inspect the response delay at each step of the Target VNT position and Actual VNT position from 0 to 90 %.

- (5) Select [VNT opening DOWN]:

- Inspect the response delay at each step of the Target VNT position and Actual VNT position from 90 to 0 %.

**HINT**

- The VNT opening position changes of around 10 % per step between 0 – 90 %.

**Standard values**

From the Target VNT position to the Actual VNT position, the response delay should be within 3 seconds.

YES

NO Proceed to the step 7.

## 5 Inspecting the connector connection [HINO-DX]

1. Set the starter key to the "LOCK" position.
2. Disconnect the VNT controller connector and securely connect it again.
3. Set the starter key to the "ON" position.
4. In the [Defect information] screen of the diagnostic system, check for P0045.

YES

NO End of inspection (wrong connection of the connector)

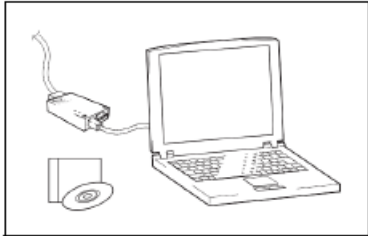
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ENGINE (J05E)/TROUBLESHOOTING

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**6 Inspecting the VNT controller operation [HINO-DX]**



SHT9021270300049

1. Set the starter key to the "ON" position.
2. Using the diagnostic system, delete past malfunctions.
3. Set the starter key to the "OFF" position.
4. Set the starter key to the "ON" position again.
5. In the [Defect information] screen of the diagnostic system, check for P0045.

**HINT**  
By setting the starter key to OFF and ON, the wiping operation of the actuator (DC motor) is checked.

Measuring condition
Starter key: OFF → ON

**NO** → End of inspection

**YES**

Replace the turbocharger.

**7 Inspecting the connector connection [HINO-DX]**

1. Set the starter key to the "LOCK" position.
2. Disconnect the VNT controller connector and securely connect it again.
3. Set the starter key to the "ON" position.
4. In the [Defect information] screen of the diagnostic system, check for P0045.

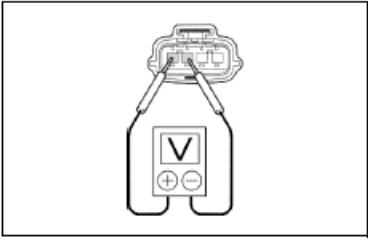
**NO** → End of inspection  
(wrong connection of the connector)

**YES**

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**8 Measuring voltage between sensor terminals**



SHT6021270300050

1. Set the starter switch "LOCK" position.
  2. Disconnect the connectors of VNT controller.
  3. Set the starter switch "ON" position.
  4. Measure the voltage between VNTV and VNTG terminal of VNT controller connector (engine sub harness side).
- Standard value: 10 V or more**

**NO** → Faulty in harness

**YES**

Faulty in turbocharger

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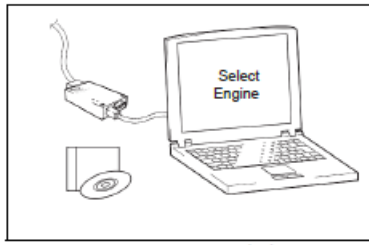
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ENGINE (J05E) TROUBLESHOOTING

2-1517

**INSPECTION PROCEDURE: P259E**

**1** Check the DTC detected 1 (Engine ECU)



1. Connect the vehicle to HINO-DX.
2. Set the starter key to the "ON" position.
3. Check if any DTC other than P259E (for example, U010C) has been detected.

**HINT**  
Due to CAN communication failures, P259E may have been detected.

Has a DTC other than P259E been detected?

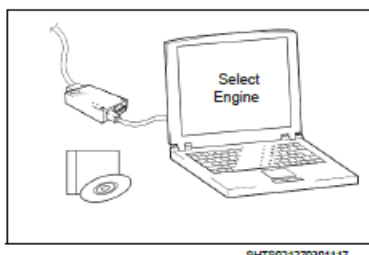
YES

NO

Go to the diagnostic procedure of a related DTC.  
After repair, go to step 2.

Go to step 3.

**2** Check the DTC detected 2 (Engine ECU)



1. Set the starter key to the "ON" position.
2. Select [Engine] and check if P259E has been detected in [Fault Information].

Has DTC P259E been detected?

YES

NO

Go to step 3.

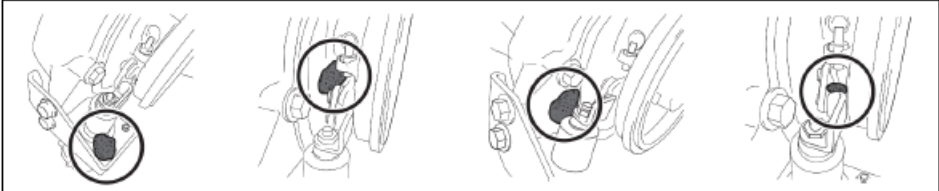
Procedure completed.  
Perform "After-inspection work" of INFORMATION section.

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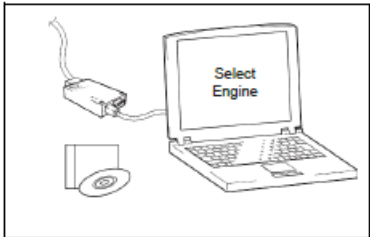
2-1518

ENGINE (J05E)/TROUBLESHOOTING

CHANGE

<b>3</b>	<b>Check the turbocharger external appearance</b>								
<ol style="list-style-type: none"> <li>1. Remove EGR cooler for checking the turbocharger.</li> <li>2. Check the turbocharger external appearance and make sure no foreign substances are trapped around the link.</li> </ol>									
									
<small>SHT8021270301118</small>									
<table border="1" style="width: 100%;"> <tr> <td colspan="2" style="text-align: center;">Was any failure found?</td> </tr> <tr> <td style="text-align: center; width: 50%;"> <table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">YES</td> </tr> </table> </td> <td style="text-align: center; width: 50%;"> <table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">NO</td> </tr> </table> </td> </tr> <tr> <td style="text-align: center;">Remove foreign substance, and go to step 4.</td> <td style="text-align: center;">Go to step 4.</td> </tr> </table>		Was any failure found?		<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">YES</td> </tr> </table>	YES	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">NO</td> </tr> </table>	NO	Remove foreign substance, and go to step 4.	Go to step 4.
Was any failure found?									
<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">YES</td> </tr> </table>	YES	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">NO</td> </tr> </table>	NO						
YES									
NO									
Remove foreign substance, and go to step 4.	Go to step 4.								

<b>4</b>	<b>Check the operation of the VNT controller [HINO-DX]</b>
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SHT8021270301119

1. Set the starter key to the "ON" position.
2. Erase the trouble history using HINO-DX.
3. Set the starter key to the "LOCK" position.
4. Set the starter key to the "ON" position again.
5. Select [Engine] and check if P259E has been detected in [Fault Information].

**HINT**  
Turn the key LOCK and ON verifies the wiping operation of the VNT actuator (DC motor).

<b>Measurement conditions</b>
Starter key: LOCK → ON

Has DTC P259E been detected?			
<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">YES</td> </tr> </table>	YES	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">NO</td> </tr> </table>	NO
YES			
NO			
<table border="1" style="width: 100%;"> <tr> <td>Replace the turbocharger. Perform "After-inspection work" of INFORMATION section.</td> </tr> </table>	Replace the turbocharger. Perform "After-inspection work" of INFORMATION section.	<table border="1" style="width: 100%;"> <tr> <td>Go to step 5.</td> </tr> </table>	Go to step 5.
Replace the turbocharger. Perform "After-inspection work" of INFORMATION section.			
Go to step 5.			

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ENGINE (J05E)/TROUBLESHOOTING

2-1519

**5 Check the response delay of the VNT controller 2**



1. Select [Check functions] from the menu, then inspect the response delay at the Target VNT position and Actual VNT position.

**CAUTION**  
Perform the inspection while the engine is stopped to avoid damages.

**<Inspection procedure>**

- (1) Select [Check functions].
- (2) Select [VNT check].
- (3) Select [Start].
- (4) Select [VNT opening UP]:

• Inspect the response delay at each step of the Target VNT position and Actual VNT position from 0 to 90%.

• Inspect the response delay at each step of the Target VNT position and Actual VNT position from 90 to 0%.

**HINT**  
The VNT opening position changes of around 10% per step between 0 - 90%.

<b>Standard values</b>
From the Target VNT position to the Actual VNT position, the response delay should be within 3 seconds.

**Do the measurements meet the standard value?**

YES

NO

Procedure completed.  
Perform "After-inspection work" of INFORMATION section.

Replace the turbocharger.  
Perform "After-inspection work" of INFORMATION section.

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2-1520

ENGINE (J05E)/TROUBLESHOOTING

**CHECKLIST: P259E**

DTC: P259E		Nozzle operating range failure -NARROW (VNT actuator wiping error (too narrow range))		Inspection procedure		
Step	Action	Description	Judgement	Check (Yes/No)	Yes	No
1	Check the DTC detected 1 (Engine ECU)	Check if any DTC other than P259E (for example U010C) has been detected in [Engine].	DTC other than P259E (for example U010C) has been detected: Go to YES.  No DTC has been detected: Go to NO.		Go to diagnosis procedure of a related DTC. Go to step 2 after repair.	Go to step 3.
2	Check the DTC detected 2 (Engine ECU)	Check if P259E has been detected in [Engine].	DTC P259E has been detected: Go to YES.  No DTC has been detected: Go to NO.		Go to step 3.	Procedure completed. Perform "After-inspection work" of INFORMATION section.
3	Check the turbocharger external appearance	1. Remove EGR cooler for checking the turbocharger. 2. Check the turbocharger external appearance and make sure no foreign substances are trapped around the link.	Failure found: Go to YES.  No failure found: Go to NO.		Remove foreign substance, and go to step 4.	Go to step 4.
4	Check the operation of the VNT controller [HINO-DX]	1. Erase the malfunction history, set the starter key to LOCK. 2. Set again the starter key to ON, and check if P259E has been detected in [Engine].  <Measurement conditions> Starter key: LOCK →ON	DTC P259E has been detected: Go to YES.  No DTC has been detected: Go to NO.		Replace the turbocharger. Perform "After-inspection work" of INFORMATION section.	Go to step 5.

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ENGINE (J05E)/TROUBLESHOOTING

2-1521

DTC: P259E		Nozzle operating range failure -NARROW (VNT actuator wiping error (too narrow range))		Inspection procedure		
Step	Action	Description	Judgement	Check (Yes/No)	Yes	No
5	Check the response delay of the VNT controller 2	<p>Select [Check functions] from the menu, then inspect the response delay at the Target VNT position and Actual VNT position.</p> <p>&lt;Inspection procedure&gt;</p> <p>(1) Select [Check functions].</p> <p>(2) Select [VNT check].</p> <p>(3) Select [Start].</p> <p>(4) Select [VNT opening UP]:</p> <ul style="list-style-type: none"> <li>Inspect the response delay at each step of the Target VNT position and Actual VNT position from 0 to 90%.</li> </ul> <p>(5) Select [VNT opening DOWN]:</p> <ul style="list-style-type: none"> <li>Inspect the response delay at each step of the Target VNT position and Actual VNT position from 90 to 0%.</li> </ul> <p>&lt;Standard values&gt;</p> <p>From the Target VNT position to the Actual VNT position, the response delay should be within 3 seconds.</p>	<p>The measurements meet the standard value: Go to YES.</p> <p>The measurements do not meet the standard value: Go to NO.</p>		<p>Procedure completed. Perform "After-inspection work" of INFORMATION section.</p>	<p>Replace the turbocharger. Perform "After-inspection work" of INFORMATION section.</p>