



SERVICE MANUAL INFORMATION

**SB-17-024 FUEL INJECTORS TEST WORKSHOP
MANUAL ADDITION**

**GROUP: SERVICE MANUAL UPDATE
BULLETIN NO: SB-17-024
DATE: 8-22-2017**

SUBJECT VEHICLES: All Hino Trucks.

The following is to inform you of the above caption. This service data should be attached to the relevant pages of the workshop manuals for maintenance and to use for servicing.

OVERVIEW:

Troubleshooting Inspection procedure of the “new Injector test in the DPR malfunctions” were addition.

NOTE: For any warranty claims with injector replacement to be paid after October 1st 2017, this injector test will need to be performed.

BEFORE YOU BEGIN:

- Read and understand all instructions and procedures before you begin the work.
- Read and follow all **WARNINGS** and **NOTICES** set forth in this publication. These alerts help to avoid damage to components, serious personal injury, or both.
- Park the vehicle on a flat, level and solid surface.
- Place the gear shift lever in "Neutral" or "Park".
- Apply the parking brake firmly and confirm parking brake activation.
- Turn off the engine and remove the key from the ignition switch.
- Always wear safety glasses or goggles to protect your eyes.
- Place wheel chocks in front of and behind all the wheels to prevent the vehicle from moving.



WARNING: To prevent a fire, avoid smoking and open flames near the vehicle while performing this procedure.

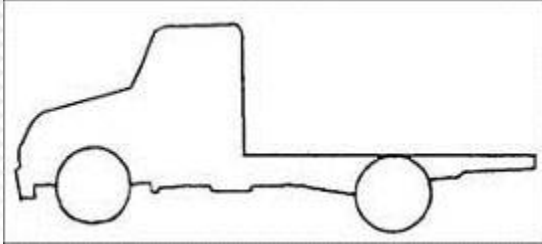
FUEL INJECTOR TEST KIT :

PART NUMBER	QUANTITY
HDT-650591	1



VEHICLE PREPARATION

1. Park the vehicle on a flat, level and solid surface.



2. Confirm the engine is stopped, the ignition switch is in the off (LOCK) position, and the key is removed.



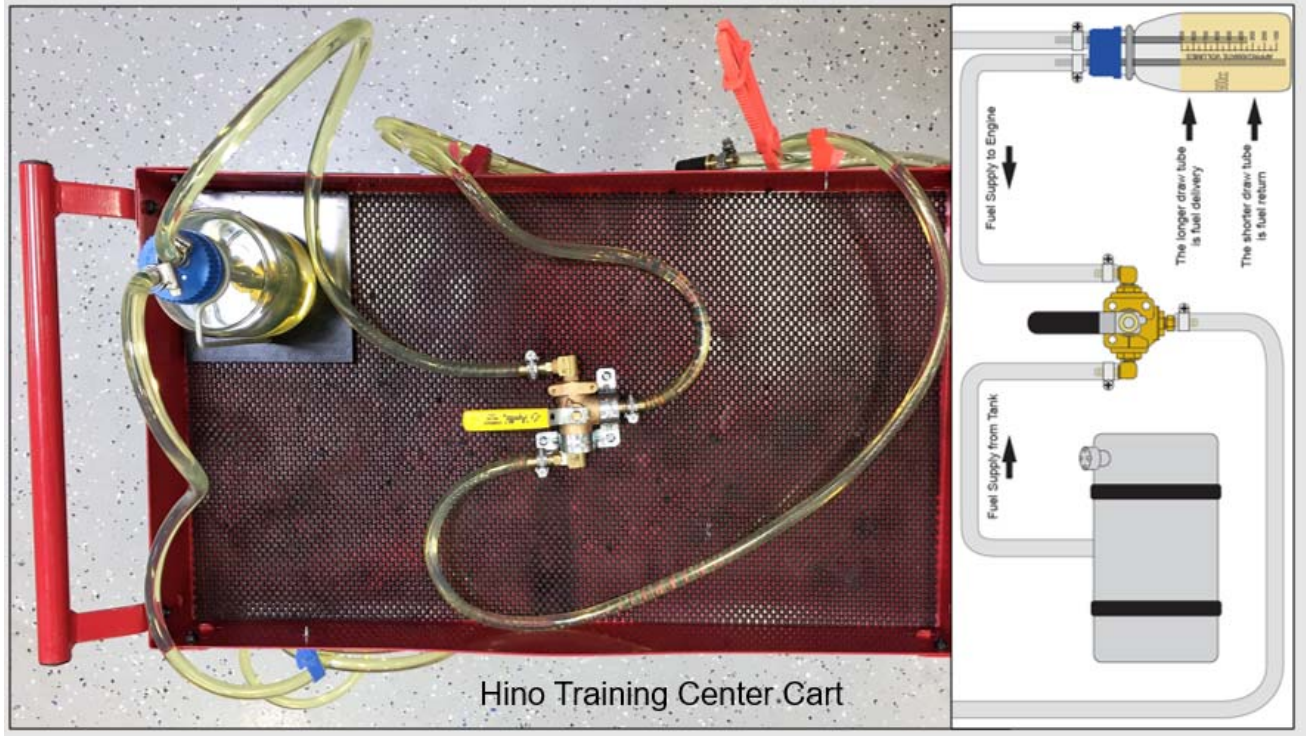
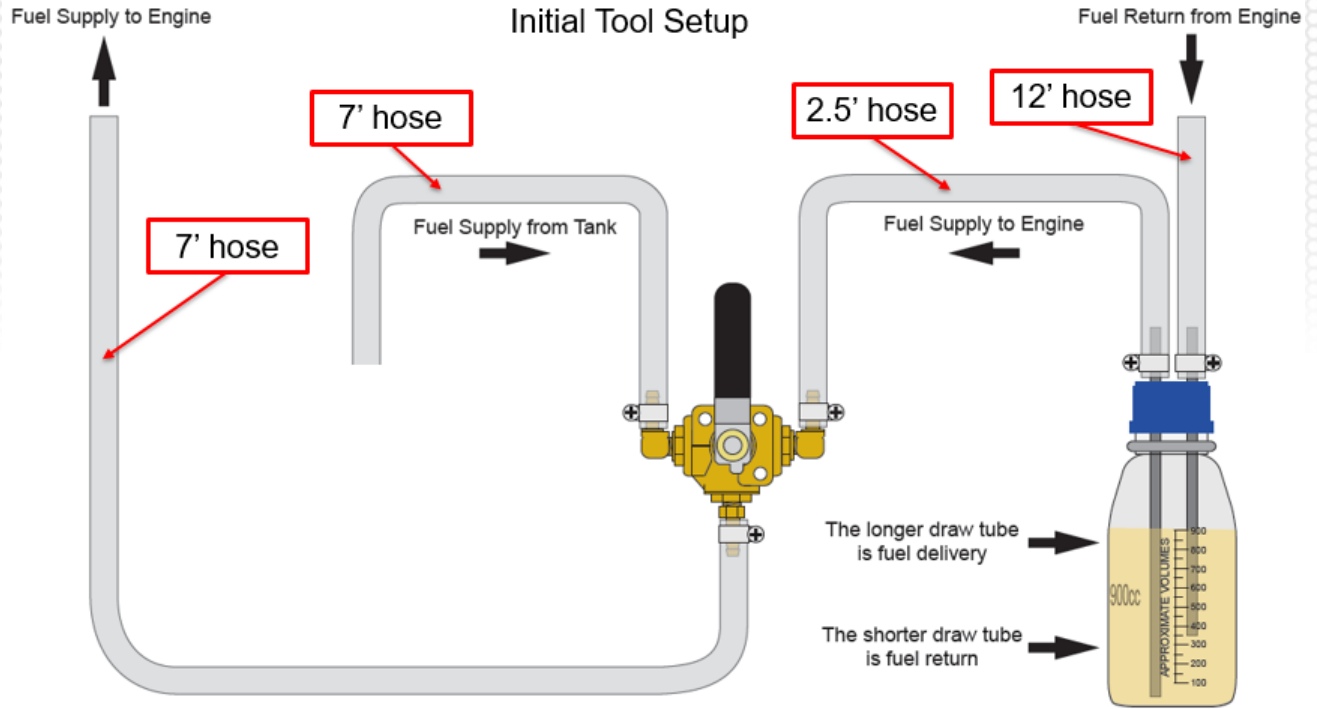
3. Apply the parking brake.

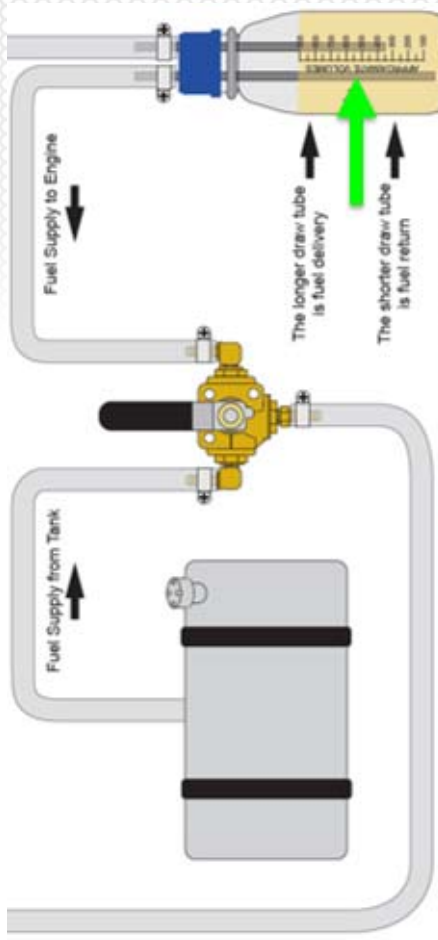


4. Chock all of the wheels.

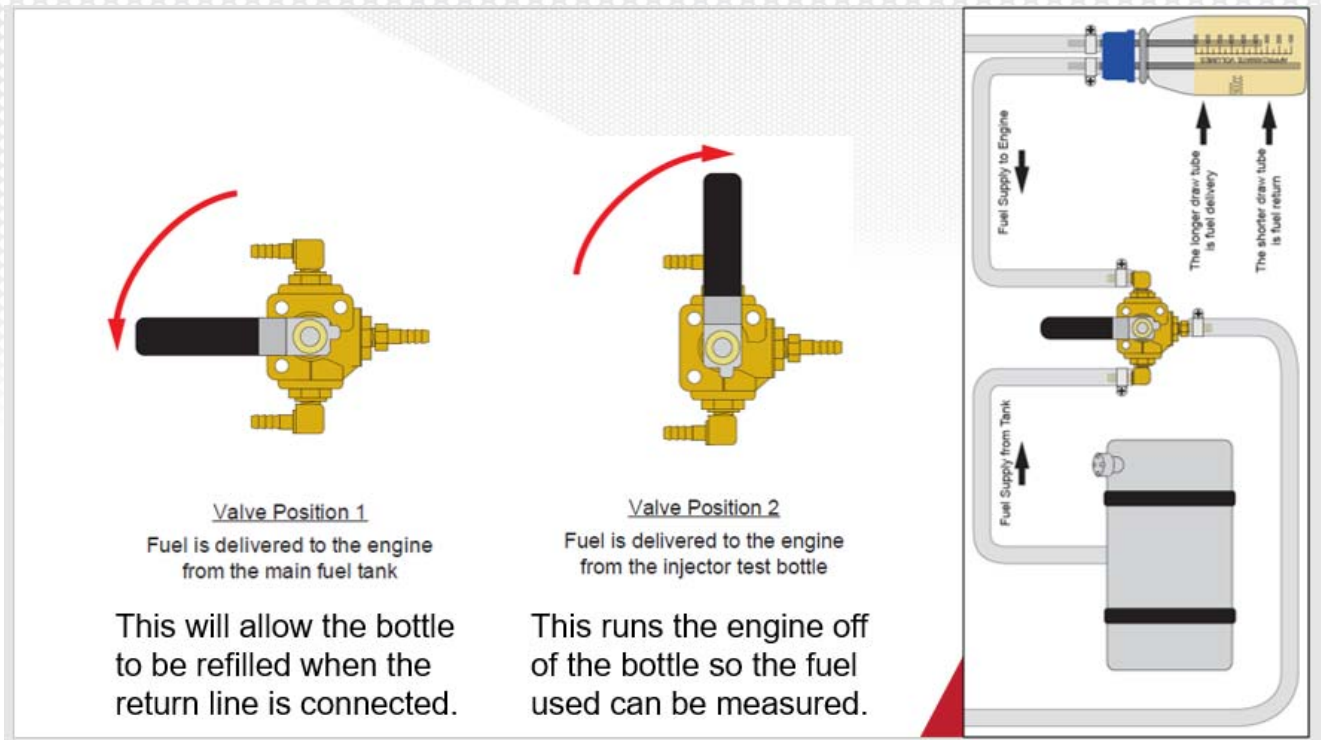


FUEL INJECTOR TEST KIT SETUP:





COE adapter



CONNECTING TOOLS PROCEDURE:

Important: The engine must be at 158°F (70°C) – Truck in P or N with the parking brake on, all symptoms repaired and all accessories must be off (exhaust brake, PTO, air condition, audio system, wipers; do not operate steering wheel or actuate the air brake while test is taking place).

Important: Hose connections must be clamped, using clamps provided in the kit.

Important: Customers main fuel tank should have no less than ¼ tank of fuel or air may not purge.

Important: Once the air is purged with using steps 4 thru 8 below, if the fuel system is opened for any reason (with exception of connecting the return hose), purge cycle will need to be performed again following steps 4 thru 8.

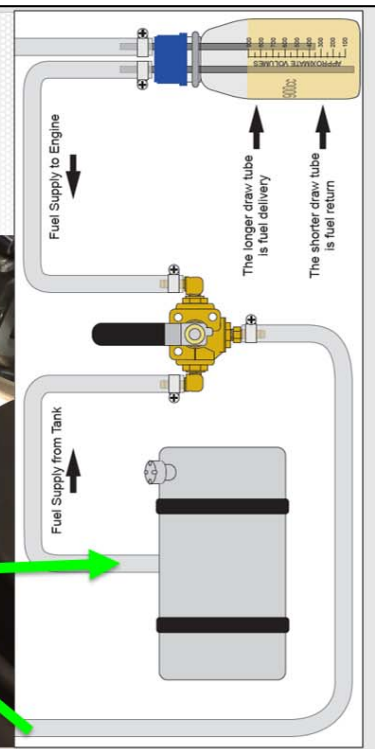


NOTICE: If the fuel hoses cannot be connected according to Plan A, use Plan B as an alternative. Refer to the table at the end of the procedure "Location of the connecting fuel lines".

Conventional Fuel Hose Connections

1. Remove the fuel hose from the trucks fuel filter inlet (driver's side engine compartment). Connect the single 7' foot fuel hose from the straight barbed fitting (top of valve assembly), to the fuel filter inlet on the truck (no adaptor needed).
2. Connect the other 7' foot fuel hose that is connected to the 90° barb fitting from the valve, to the fuel hose removed from the fuel filter inlet (use 3/8"-3/8" barbed adaptor to complete the connection).

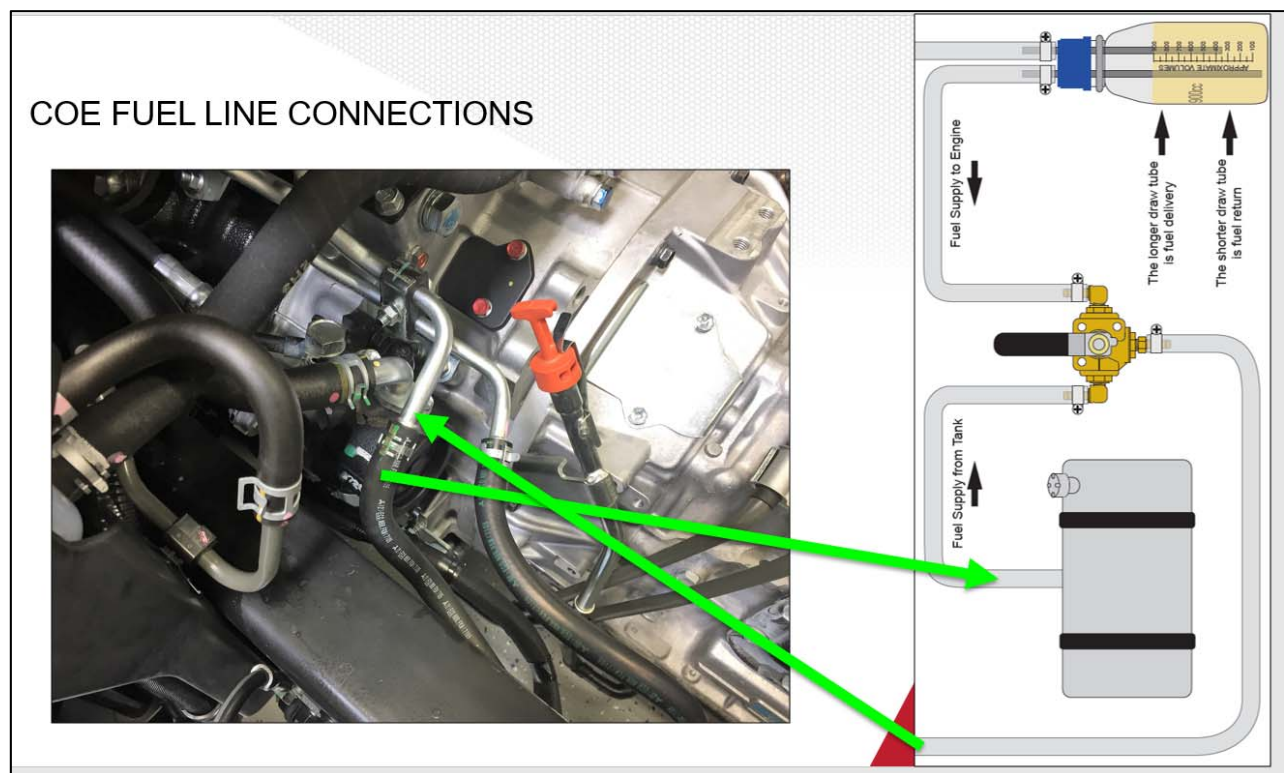
CONVENTIONAL FUEL LINE CONNECTIONS



3. Connect the 2.5' foot fuel hose (barbed fitting with valve) to the fuel feed from the injector test bottle.

CEO Fuel Hose Connections

1. Remove the fuel hose from the trucks fuel filter inlet; separate the fuel line on the drivers side directly behind the cab near the transmission bell housing. Connect the single 7' foot fuel hose from the straight barbed fitting (use short 1/2" fuel hose with 3/8" barb to complete connection).
2. Connect the other 7' foot fuel hose that is connected to 90° barb fitting from the valve to the rubber fuel hose removed from the fuel inlet behind the cab (use 3/8"-1/2" barbed adaptor to complete connection).



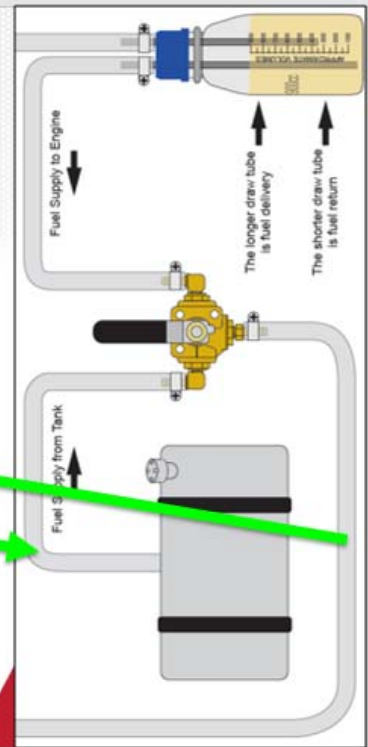
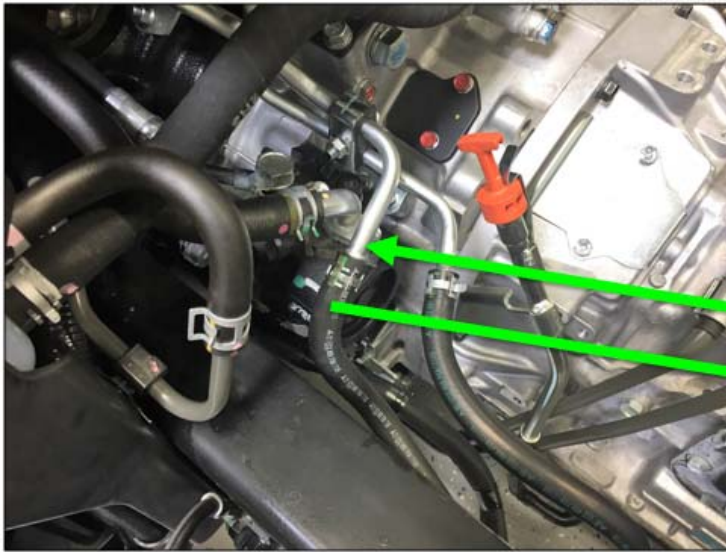
3. Connect the 2.5' foot fuel hose (barbed fitting with valve), connect this to the fuel feed from the injector test bottle.

Conventional/COE

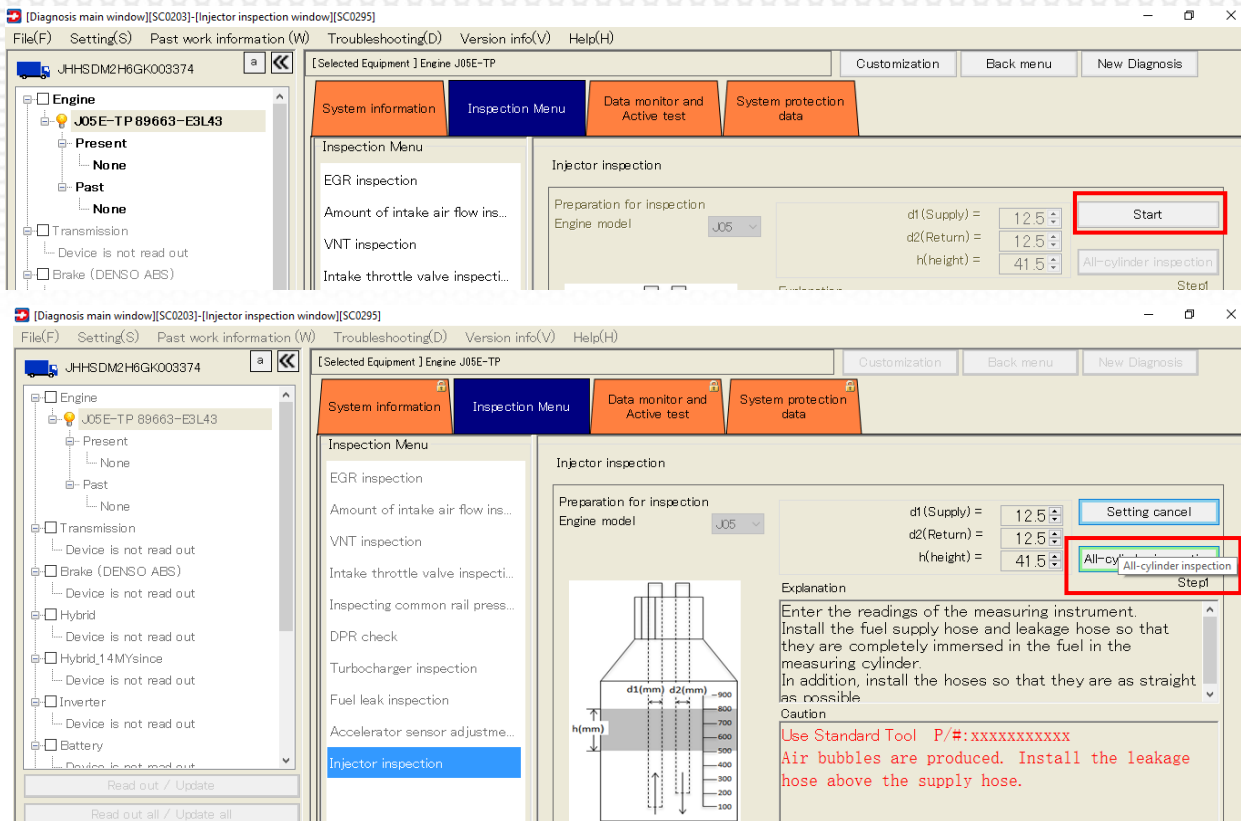
Important: 12' foot return fuel hose from injector test bottle is not connected at this time

4. Connect the fuel lines as shown. Fill the fuel injector test bottle with 600cc of diesel fuel. Have the fuel valve turned to supply from tank.

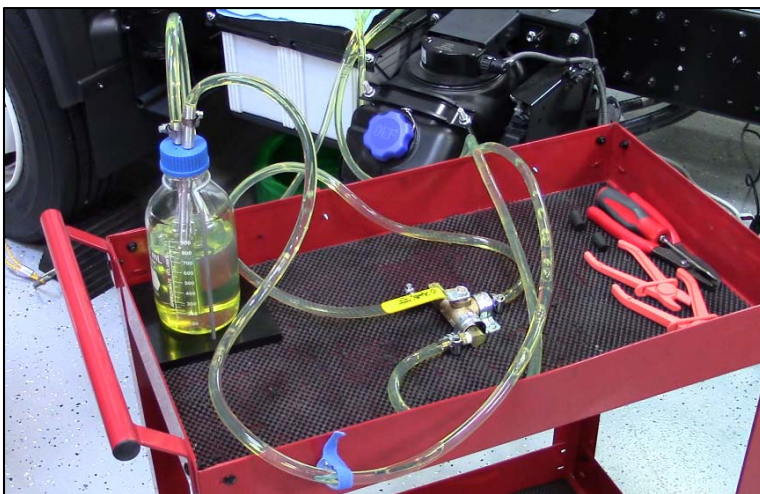
COE CONNECTING FUEL LINES



5. Open DXII Diagnosis > Engine ECU > Inspection Menu > Injector Inspection > Click Start > All-Cylinder Inspection



6. With the **fuel valve directed from the main tank open**, start the truck and allow it to idle. Monitor the clear fuel hose(s) to remove air (shaking clear fuel hose slightly may be necessary to remove air from fuel hose).



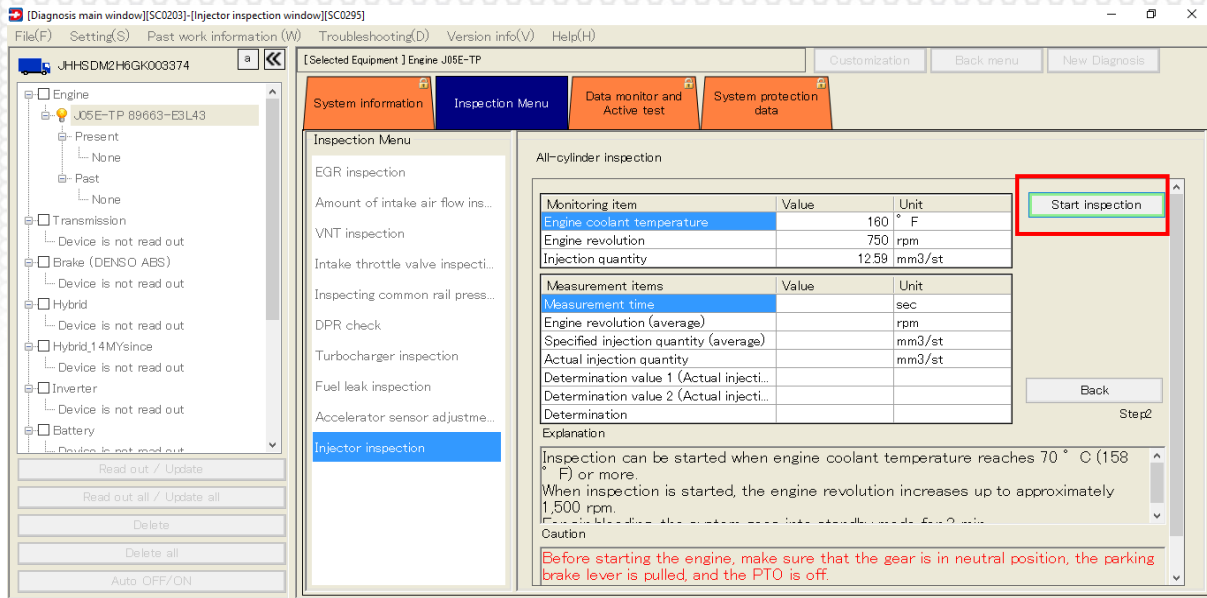
7. Once air is removed from the clear fuel hose from the main fuel tank, **rotate the lever valve to draw fuel from the injector test bottle.** Keep running from the injector test bottle until 2.5' foot clear fuel hose between injector test bottle and valve has purged air. Use approximately 200cc of fuel from injector test bottle.



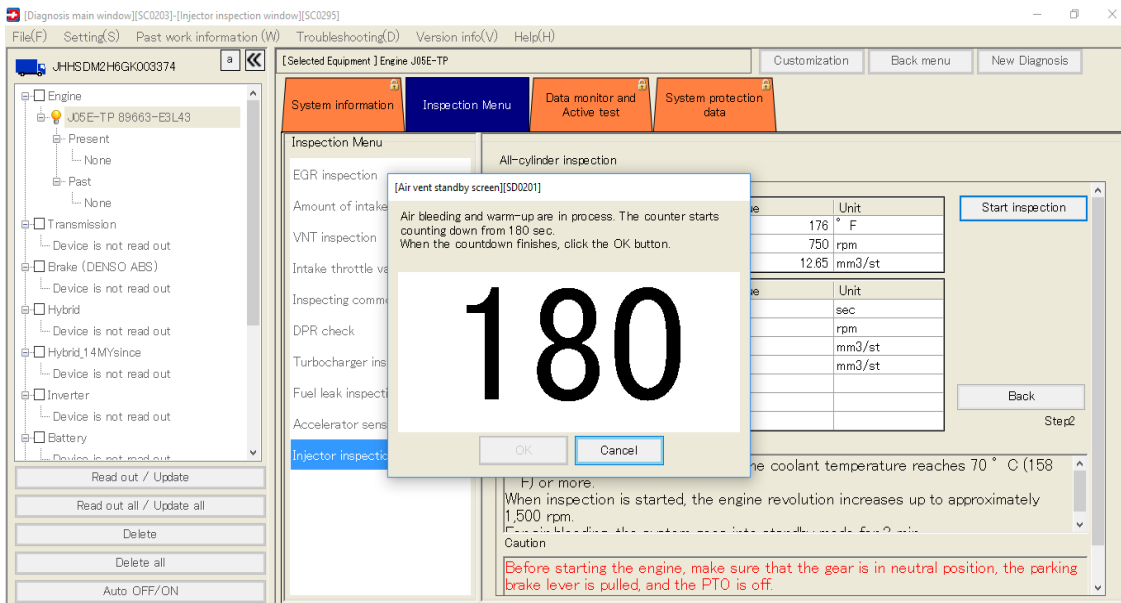
Once air is removed from this fuel hose, **rotate valve so fuel is now drawing from main fuel tank.**



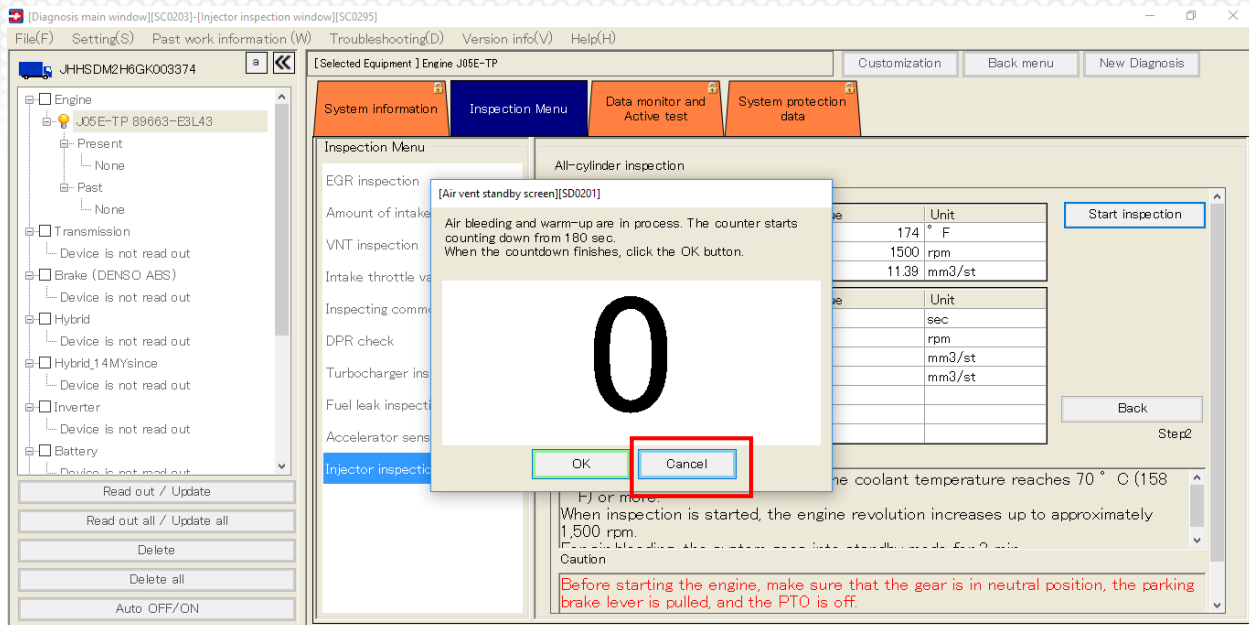
8. Click Start Inspection.



9. Run the truck from the main fuel tank, use 180 second purge cycle in DXII (beginning of the injector test procedure), allowing all of the air to be purged from the fuel system, while fuel is returning to the trucks main fuel tank.

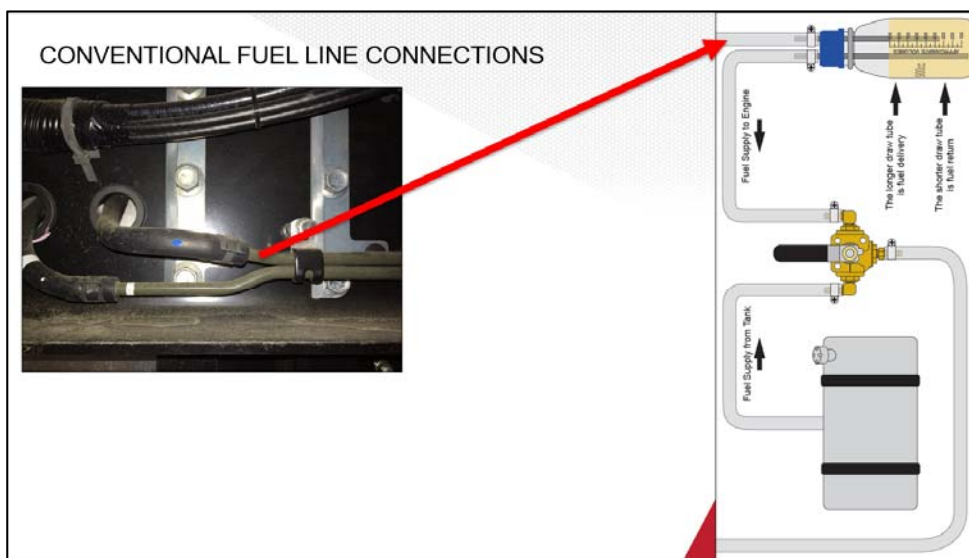


10. After the purge cycles completes (180 seconds), click **Cancel**. Turn the truck off, pause for a moment and then attempt to start the truck. If the truck restarts easily, turn ignition off again and connect clear return fuel hose. If truck does not easily restart (due to air in the lines) run another 180 second purge cycle by clicking on Start inspection before connecting return hose.

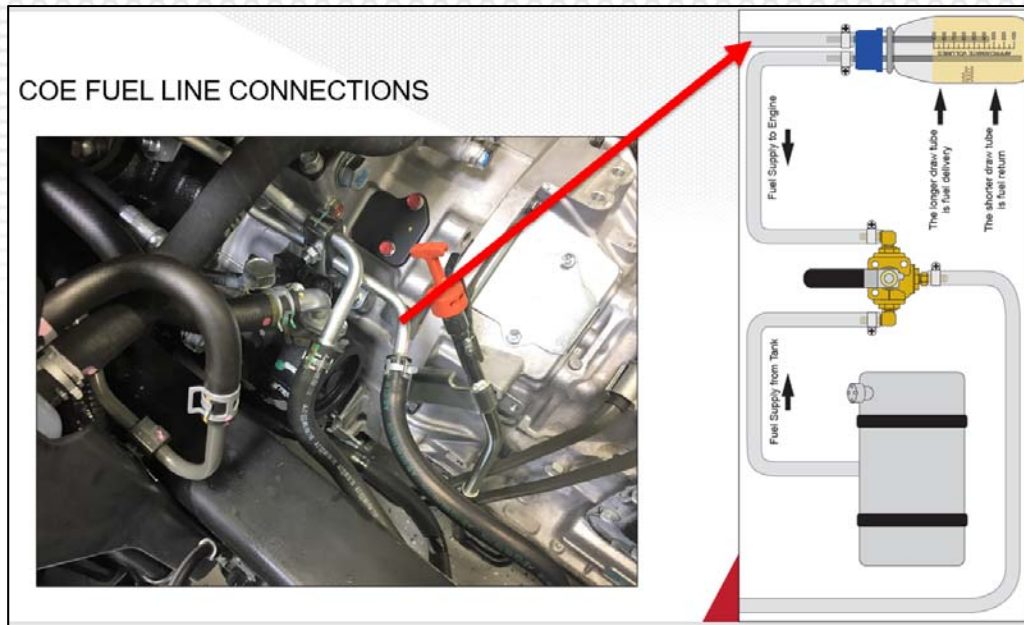


Important: Do not choose a different location for the return hose connection.

Conventional - make the connection on the frame rail under the cab on driver's side, slide the hose on the metal fuel return pipe.



COE: make the connection on the driver's side frame rail, directly behind the cab and connect the hose to the metal fuel return pipe.



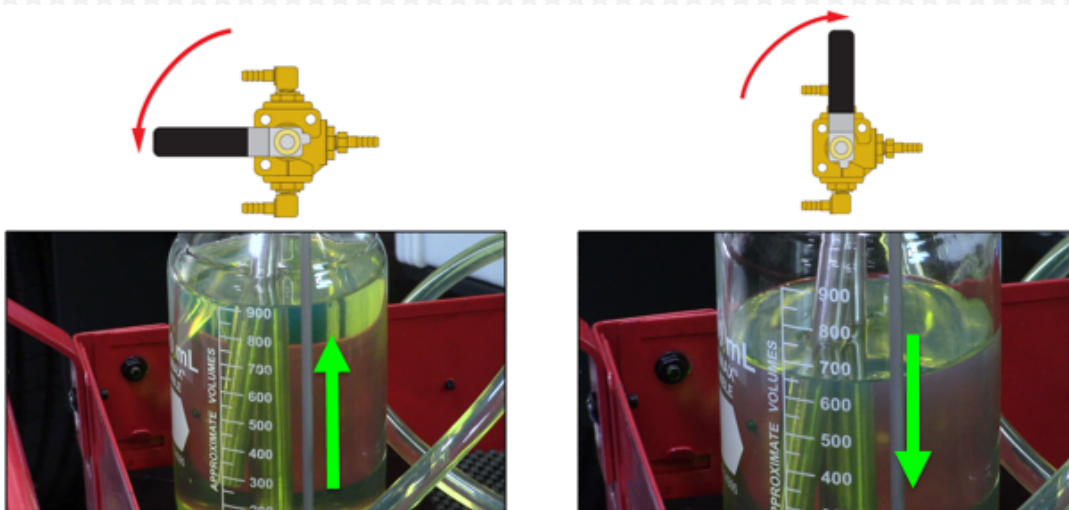
11. Once connections are secure, start the truck and while truck is running at idle, **valve still select for drawing fuel from main fuel tank**, allow return fuel and air to enter injector test bottle.



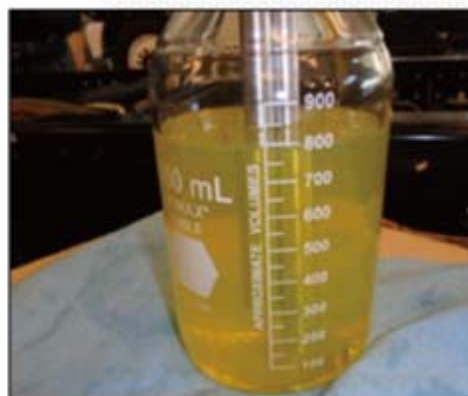
Once air is purged from the return fuel line, fill the injector test bottle just past 900cc (regulate fuel level with valve). Once full, **turn the valve to draw from the injector test bottle**; prepare for the injector test procedure.




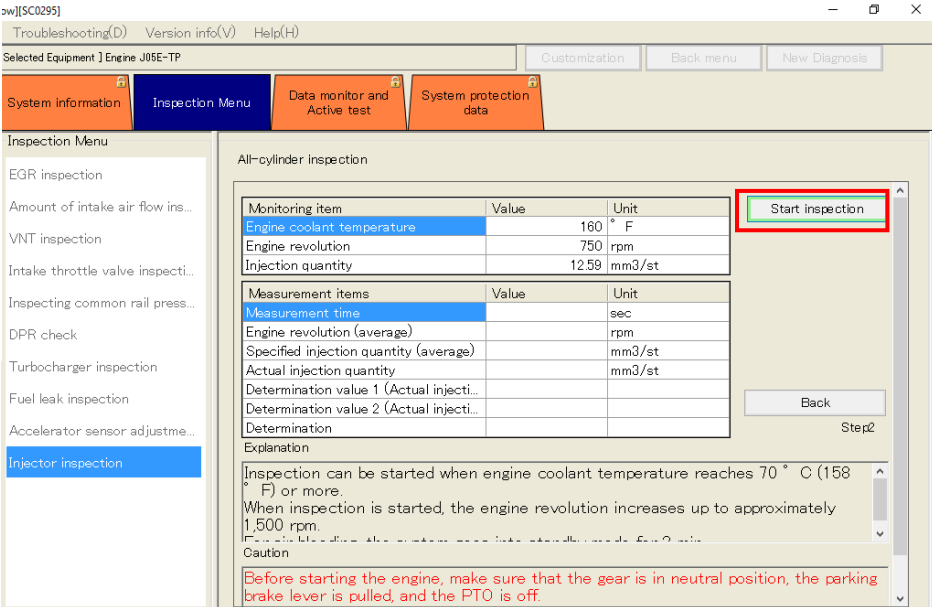
12. While the truck is still running, start 180 second purge cycle again in DXII **Start Inspection**, then perform injector test as outlined. Use the valve to regulate fuel in the injector test bottle; when the main fuel tank is being used as a fuel source, return raises fuel level in the injector test bottle (**use caution never to overfill the injector test bottle**), measurement and purge cycle should begin with no less than 800cc of diesel fuel in the injector test bottle.



13. If you can see the metal tubes in the bottle through the fuel then a sufficient amount of air has been removed. If you cannot see the metal tubes through the fuel then more air needs to be removed by running additional purge cycles.



14. Once injector test bottle is at proper level, turn valve to run truck from injector test bottle. Click **Start inspection**.

The screenshot shows the diagnostic software interface for 'Engine J05E-TP'. The 'Inspector Menu' on the left has 'Injector inspection' selected. The main window displays the 'All-cylinder inspection' screen with the following data:

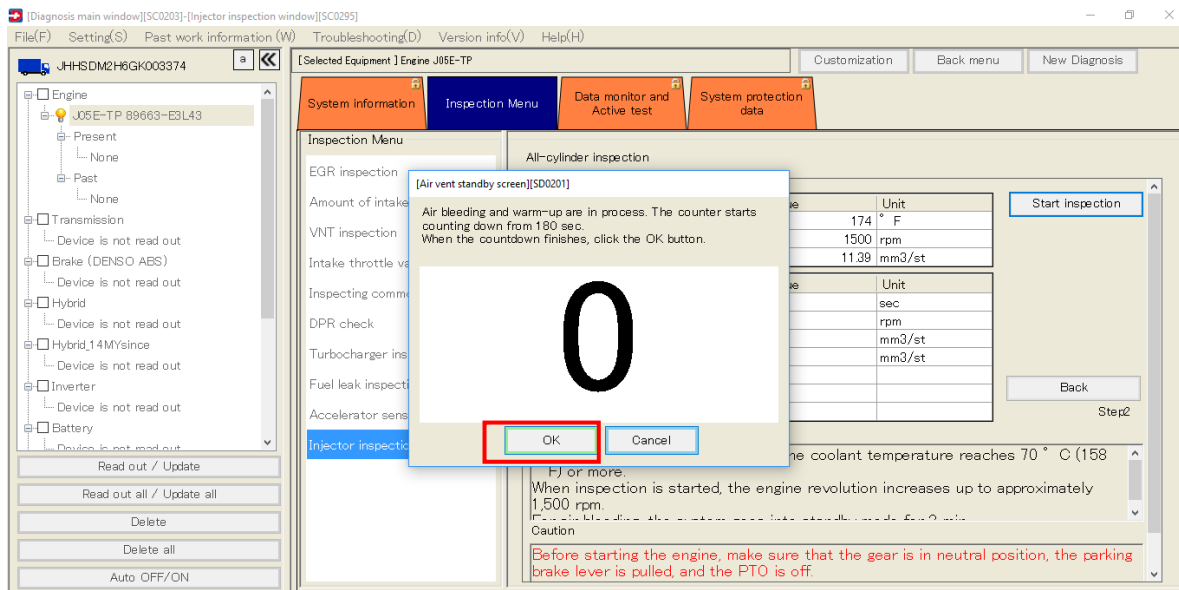
Monitoring item	Value	Unit
Engine coolant temperature	180	° F
Engine revolution	750	rpm
Injection quantity	12.59	mm3/st

Below this table is another table for 'Measurement items':

Measurement items	Value	Unit
Measurement time		sec
Engine revolution (average)		rpm
Specified injection quantity (average)		mm3/st
Actual injection quantity		mm3/st
Determination value 1 (Actual injecti...		
Determination value 2 (Actual injecti...		
Determination		

The 'Start inspection' button is highlighted with a red box. Below the tables, there is an 'Explanation' section and a 'Caution' section with red text: 'Before starting the engine, make sure that the gear is in neutral position, the parking brake lever is pulled, and the PTO is off.'

15. Allow 180 second purge cycle to complete then click **OK**.

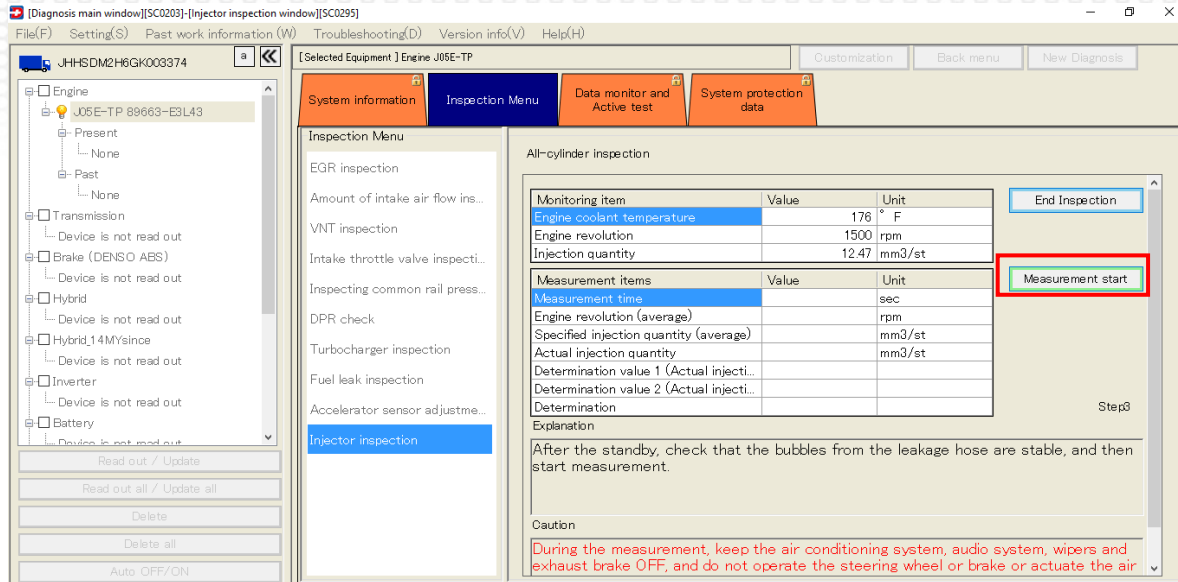


The screenshot shows the diagnostic software interface with a dialog box titled '[Air vent standby screen][SD0201]'. The dialog box contains the following text: 'Air bleeding and warm-up are in process. The counter starts counting down from 180 sec. When the countdown finishes, click the OK button.' A large '0' is displayed in the center of the dialog box. The 'OK' button is highlighted with a red box. The background shows the 'All-cylinder inspection' screen with updated data:

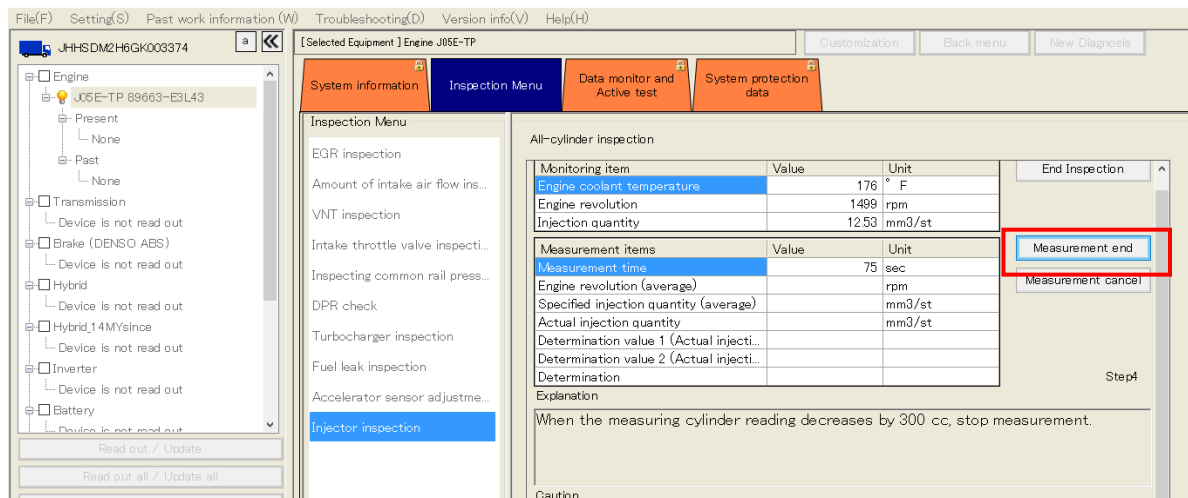
Monitoring item	Value	Unit
Engine coolant temperature	174	° F
Engine revolution	1500	rpm
Injection quantity	11.39	mm3/st

The 'Start inspection' button is now disabled. The 'Caution' section at the bottom of the background screen remains visible.

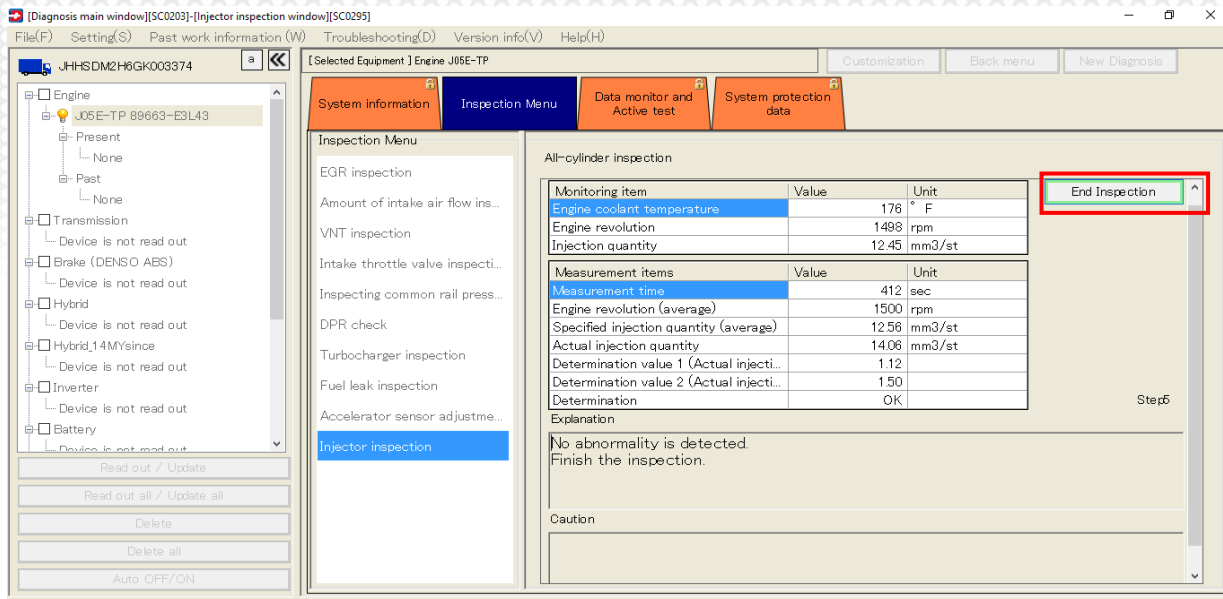
16. Monitor the injector test bottle until it reaches a line graduation that can be used as a start point. Once this is reached, click **Measurement Start**. Document the start of the measurement, subtract 300cc from the selected number and this will be the point where measurements ends.



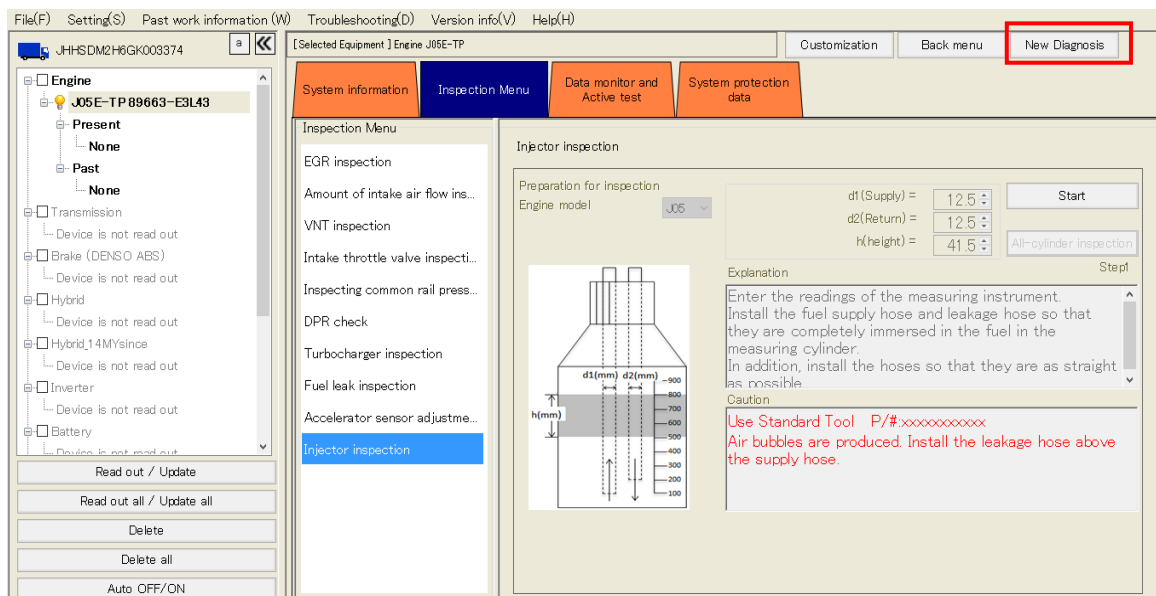
17. Once the fuel injector test bottle decreases by 300cc, click **Measurement End**. For example if you started at 900cc click Measurement end at 600cc.



18. Once Judgment is provided and there are no abnormalities detected, click **End Inspection**.



19. Once the DX session is complete, be sure to click **New Diagnosis** in the upper right to end the DX session and upload the report with test results for your records.



INDIVIDUAL INJECTORS TESTING

1. Refill the bottle using valve just above the 900cc mark on the bottle. Click Inspecting #1 cylinder when the fuel is at 900cc.

System information | Inspection Menu | Data monitor and Active test | System protection data

Inspection Menu

- DPR check
- Amount of intake air flow ins...
- EGR inspection
- VNT inspection
- Fuel leak inspection
- Turbocharger inspection
- Intake throttle valve inspecti...
- Inspecting common rail press...
- Accelerator sensor adjustme...
- Injector inspection**

All-cylinder inspection

Monitoring item	Value	Unit
Engine coolant temperature		° F
Engine revolution		rpm
Injection quantity		mm3/st

Measurement items	Value	Unit
Measurement time		sec
Engine revolution (average)		rpm
Specified injection quantity (average)		mm3/st
Actual injection quantity		mm3/st
Determination value		

End Inspection

Inspecting #1 cylinder

Step6

Explanation

An abnormality is detected.
Inspect individual cylinders.

Caution

2. When the fuel level in the bottle has gone down 300cc, click on Measurement end.

System information | Inspection Menu | Data monitor and Active test | System protection data

Inspection Menu

- DPR check
- Amount of intake air flow ins...
- EGR inspection
- VNT inspection
- Fuel leak inspection
- Turbocharger inspection
- Intake throttle valve inspecti...
- Inspecting common rail press...
- Accelerator sensor adjustme...
- Injector inspection**

Inspecting #1 cylinder

Monitoring item	Value	Unit
Engine coolant temperature	145	° F
Engine revolution	1489	rpm
Injection quantity	13.59	mm3/st

Measurement items	Value	Unit
Measurement time	5	sec
Engine revolution (average)		rpm
Specified injection quantity (average)		mm3/st
Actual injection quantity		mm3/st
Determination value		

End Inspection

Measurement end

Measurement cancel

Step7

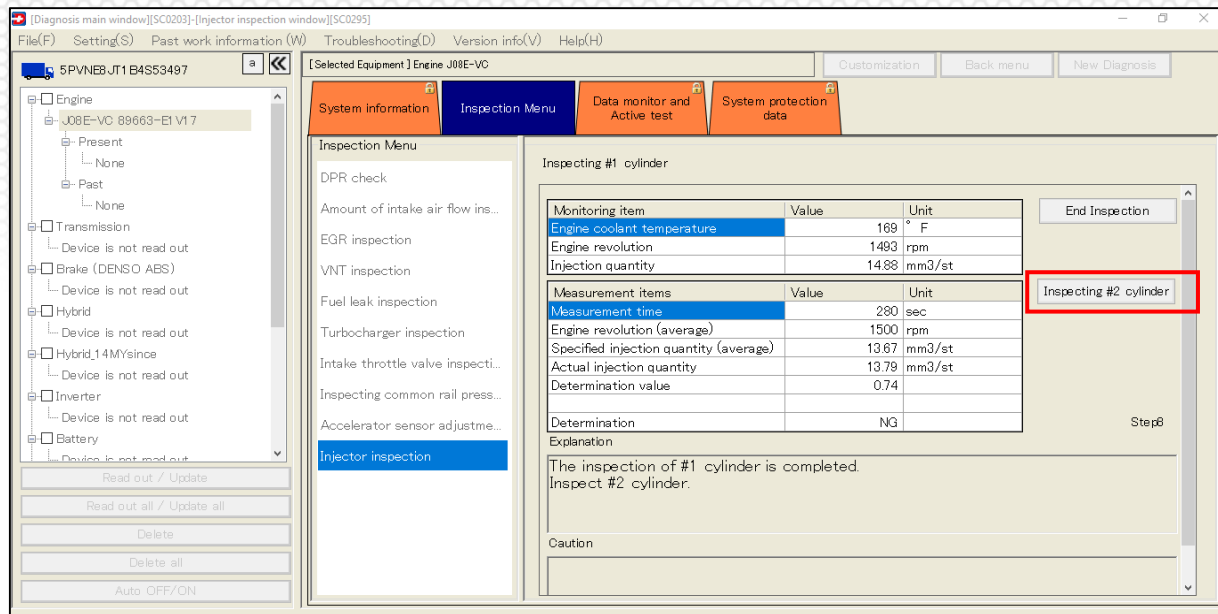
Explanation

When the measuring cylinder reading decreases by 300 cc, stop measurement.

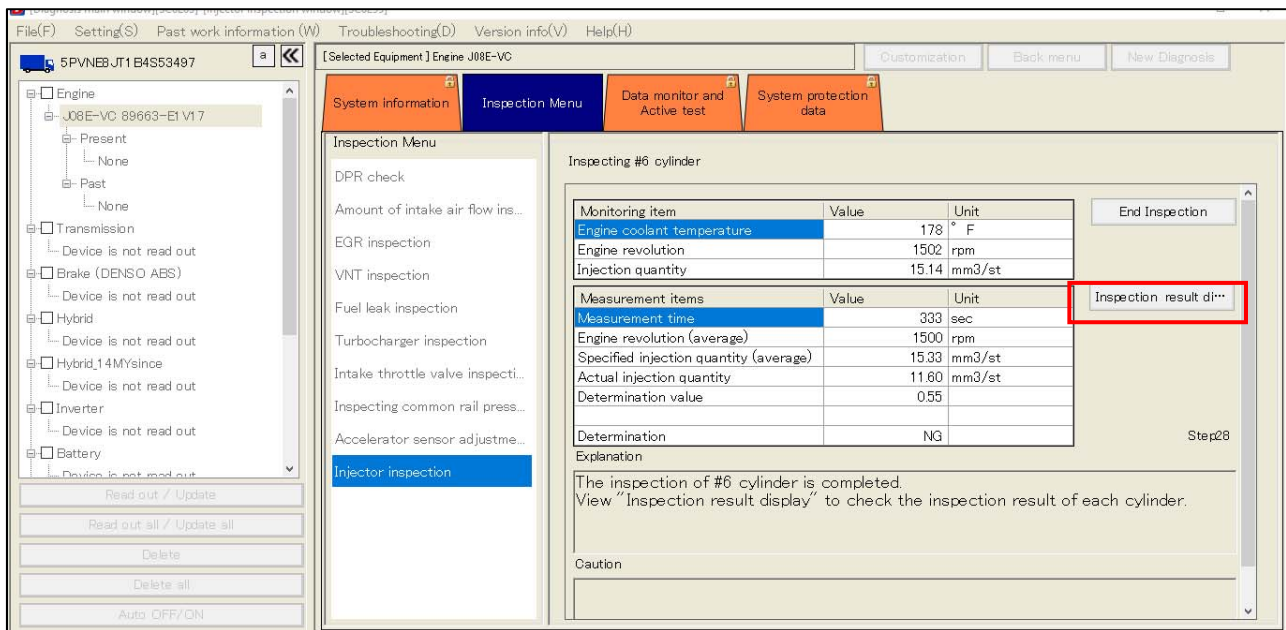
Caution

During the measurement, keep the air conditioning system, audio system, wipers and exhaust brake OFF, and do not operate the steering wheel or brake or actuate the air

3. Refill the bottle using valve just above the 900cc mark on the bottle. Click Inspecting #2 cylinder when the fuel is at 900cc. At this point you would continue testing for each of the remaining fuel injectors.



4. After checking the last injector, click on inspection result display.



5. Record and replace any injectors that have failed the test which are denoted with NG. ONLY replace the injector(s) that are NG. If only one injector failed the test, ONLY replace the one failed injector.

The screenshot displays a diagnostic software interface for a Hino truck. The main window is titled "[Selected Equipment] Engine J08E-VC". On the left, a tree view shows the vehicle's components, with "Engine" selected. The "Inspection Menu" is active, and "Injector inspection" is highlighted. The "Inspection result display" shows a table of results for six cylinders. The determination results are: #1 cylinder (0.74, NG), #2 cylinder (0.74, NG), #3 cylinder (0.66, NG), #4 cylinder (0.70, NG), #5 cylinder (0.66, NG), and #6 cylinder (0.55, NG). Below the table, the "Explanation" section states: "Replace the injector of the cylinder determined to be NG." The "Caution" section states: "Check the data monitor of the injector determined to be NG." The interface also includes buttons for "End Inspection", "Read out / Update", "Delete", and "Auto OFF/ON".

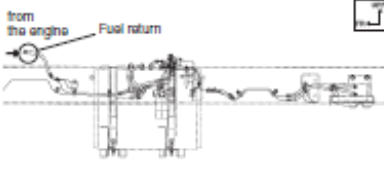
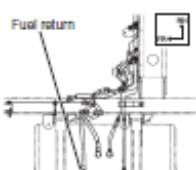
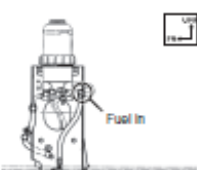
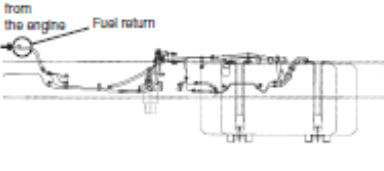
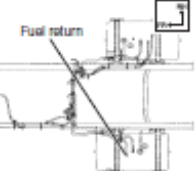
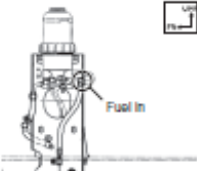
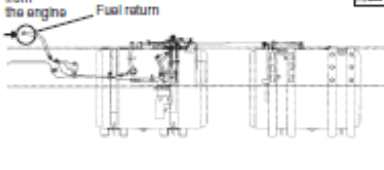
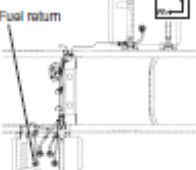
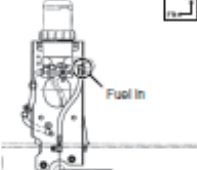
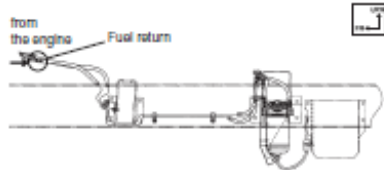
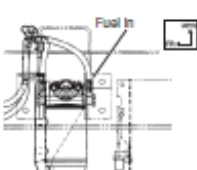
items	Determination value	Determination result
#1 cylinder	0.74	NG
#2 cylinder	0.74	NG
#3 cylinder	0.66	NG
#4 cylinder	0.70	NG
#5 cylinder	0.66	NG
#6 cylinder	0.55	NG

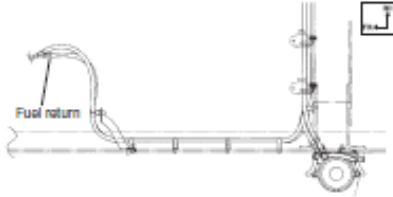
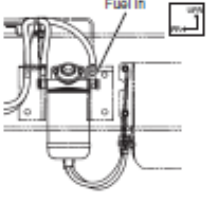
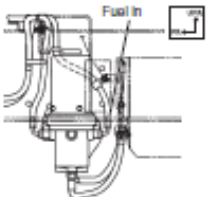
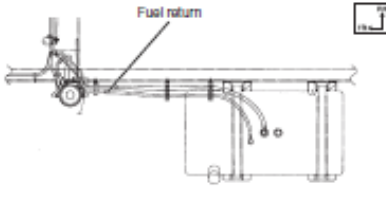
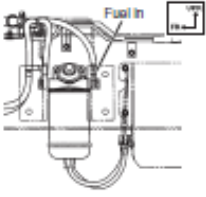
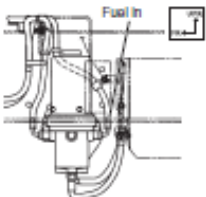
NOTICE

- Be sure to reconnect each hose to avoid fuel leaks.
- After completing the test, confirm that fuel does not leak from any of the hoses.
- Confirm the determination result for judgment.
- Determination value of the each cylinder inspection will only be used by the specialized agency.



Model	Engine	Downstream process	Location where returned fuel is collected		Location where incoming fuel is collected		
			Fuel tank mounting position	Plan A	Plan B (Backup)	Fuel filter Location and manufacturer	Plan A
NE8J*, NF8J*, NH8J*, NJ8J*, NV8J*	J08E-VB, J08E-VC, J08E-WU	Without burner (15 MY to)	Right	—	—	—	—
			Left	<p>Layout viewed from the inside of frame</p>		Left side of engine 	
		Left (Double tank)	<p>Layout viewed from the inside of frame</p>		Left side of engine 		
		With burner (11 to 14 MY)	Right	<p>Layout viewed from the inside of frame</p>	—	Next to engine 	

Model	Engine	Downstream process	Location where returned fuel is collected		Location where incoming fuel is collected		
			Fuel tank mounting position	Plan A	Plan B (Backup)	Fuel filter Location and manufacturers	Plan A
NE8J*, NF8J*, NH8J*, NJ8J*, NV8J*	J08E-VB, J08E-VC, J08E-WU	With burner (11 to 14 MY)	Left	 <p>Layout viewed from the inside of frame</p>		Left side of engine	
			Left (Double tank A type)	 <p>Layout viewed from the inside of frame</p>		Left side of engine	
			Left (Double tank B type)	 <p>Layout viewed from the inside of frame</p>		Left side of engine	
NA6J, NC6J, NB6J	J05D-TF	DPR	Right	 <p>Layout viewed from the inside of frame</p>	—	Racor made	

Model	Engine	Downstream processes	Location where returned fuel is collected		Location where incoming fuel is collected	
			Fuel tank mounting position	Plan A	Fuel filter Location and manufacturers	Plan A
ND8J, NJ8J, NE8J, NF8J, NV8J	J08E-TV, J08E-TW	DPR	Right		Racor made	
					DAVC O made	
			Left (Double tank)		Racor made	
					DAVC O made	



Model	Engine	Downstream processes	Location where returned fuel and incoming fuel are collected	
			Fuel tank mounting position	Plan A
XJC7*, XFC7*	J05E-TP, J05E-UG	DPR	Left	
			Rear overhang side of the vehicle	
			Rear overhang side of the vehicle	