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Service Information Bulletin

SUBJECT	DATE
SPN 4335/FMI 7 - EPA10	February 2014

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	DD Platform	SPN 4335/FMI 7 - EPA10	The diagnostics have been updated. Graphics have also been added.



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2 SPN 4335/FMI 7 - EPA10

This diagnostic is typically DEF Metering Unit Air Pressure - Low.

Table 1.

SPN 4335/FMI 7	
Description	Diesel Exhaust Fluid (DEF) Metering Unit Air Pressure Low
Monitored Parameter	Diesel Exhaust Fluid (DEF) Metering Unit Air Pressure
Typical Enabling Conditions	Engine rpm greater than 500, Dosing Enabled
Monitor Sequence	None
Execution Frequency	Continuous when enabling conditions met
Typical Duration	6 seconds
Dash Lamps	MIL
Engine Reaction	Derate 25%
Verification	SCR Air Pressure Test (test duration is 60 seconds)

NOTE: If there is oil present in the air system, the cause of the oil intrusion needs to be corrected; Refer to section "Inspection of the Diesel Exhaust Fluid Compressed Air Flow System after Air Compressor Failure".



WARNING: ENGINE EXHAUST

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

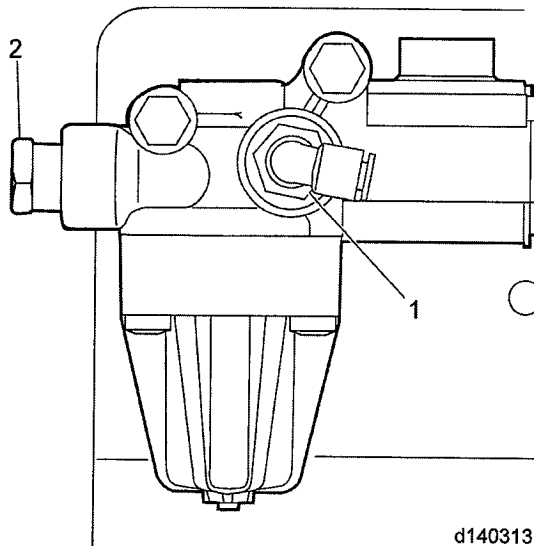


WARNING: PERSONAL INJURY

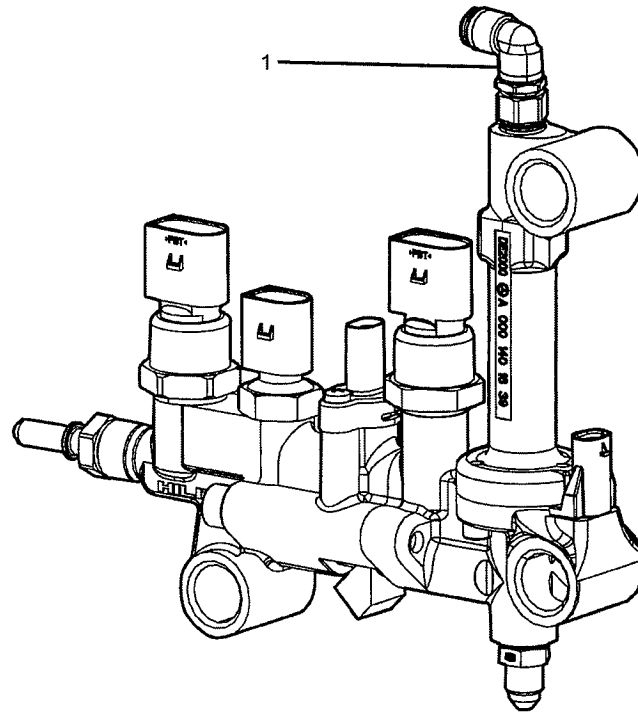
To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

1. Start engine and ensure vehicle air pressure is above 689 kPa (100 psi). Go to step 2.
2. Does the air pressure in the secondary air system reach and maintain 689 kPa (100 psi)?
 - a. Yes; Go to step 3.
 - b. No; diagnose and repair the cause of the low air pressure. Refer to air compressor diagnostic literature.
3. Connect DiagnosticLink™. Go to step 4.
4. Turn ignition ON (key ON, engine OFF). Go to step 5.
5. Visually inspect air supply lines from air tank to pressure limiting unit, DEF pump module and DEF metering unit for leaks, kinks or damage. Is there any damage found?
 - a. Yes; repair as necessary. Verify repair.
 - b. No; Go to step 6.
6. Compare DEF metering unit air pressure to barometric air pressure (Baro) and DEF pressure. Is the DEF metering unit air pressure within 28 kPa (4 psi) of barometric air pressure (Baro) and DEF pressure?
 - a. Yes; Go to step 10.
 - b. No; Go to step 7.
7. Remove the DEF metering unit air pressure sensor, Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit Air Pressure Sensor" and reconnect the electrical harness to the sensor. Go to step 8.
8. Compare DEF metering unit air pressure to barometric air pressure (Baro) and DEF pressure. Is the DEF metering unit air pressure within 28 kPa (4 psi) of barometric air pressure (Baro) and DEF pressure?

- a. Yes; reinstall the DEF metering unit air pressure sensor. Refer to section "Installation of the Diesel Exhaust Fluid Metering Unit Air Pressure Sensor". Go to step 9.
 - b. No; replace the DEF metering unit air pressure sensor. Refer to section "Installation of the Diesel Exhaust Fluid Metering Unit Air Pressure Sensor". Verify repair.
9. Turn ignition OFF. Go to step 10.
10. Remove and inspect fitting (1) and (2) from the pressure limiting unit. Is there any oil, rust or other contamination present?
 - a. Yes; diagnose and repair the cause of the contamination. Refer to section "Inspection of the Diesel Exhaust Fluid Compressed Air Flow System after Air Compressor Failure" and Technical Service Letter 12TS16REV <http://ddcsn-ddc.freightliner.com/cps/rde/xbcr/ddcsn/12TS16REV.pdf> (<http://ddcsn-ddc.freightliner.com/cps/rde/xbcr/ddcsn/12TS16REV.pdf>). Verify repair.
 - b. No; Go to step 11.



11. Disconnect the quick-connect air supply line (1) to the DEF metering unit. Go to step 12.

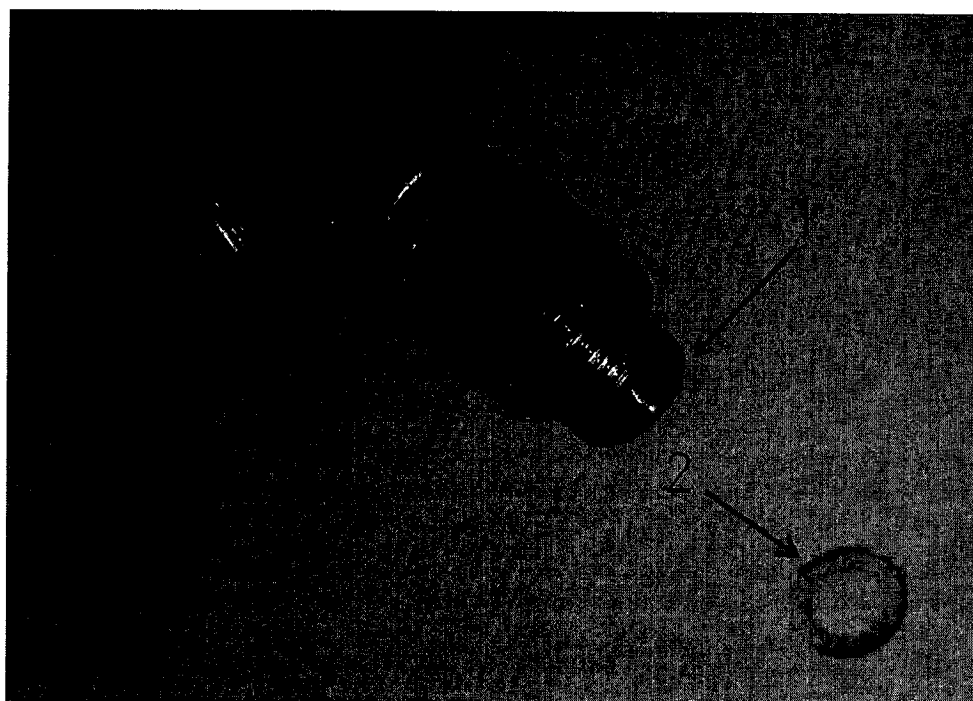
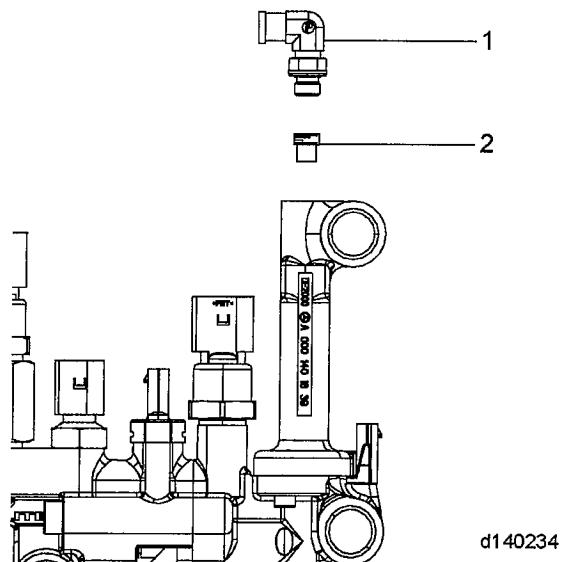


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12. Connect a suitable air gauge 0 to 1,379 kPa (0 to 200 psi) to the end of the DEF metering unit air supply line. Go to step 13.
13. Turn the ignition ON (key ON, engine OFF). Go to step 14.

NOTE: The vehicle air pressure should be above 689 kPa (100 psi) before performing the SCR Air Pressure Test.

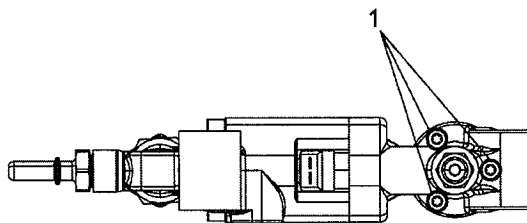
14. While monitoring the air pressure gauge, perform Selective Catalytic Reduction (SCR) Air Pressure Test; Refer to section "Selective Catalyst Reduction Air Pressure System Check". Is the air pressure between 537 to 586 kPa (78 to 85 psi)?
 - a. Yes; Go to step 15.
 - b. No; replace the Pressure Limiting Unit (PLU). Refer to OEM diagnostics. Verify repair.
15. Remove the metering unit. Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit" . Go to step 16.
16. Remove the DEF metering unit air supply line fitting and the DEF metering unit compressed air supply screen (2). Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit Compressed Air Supply Screen". Go to step 17.



NOTE: Oil contamination can be easily identified by dabbing the air channel inlet elbow (1) on a clean paper towel. If an oil ring (2) is noticed, the air inlet screen will be contaminated as well. If inlet screen is contaminated, continue diagnostics and repair the contamination source before installation of new inlet screen.

17. Inspect the DEF metering unit compressed air supply screen for debris. Is there oil or rust on the air inlet screen?
 - a. Yes; diagnose and repair the cause of the contamination. Replace the air inlet screen. Refer to section "Inspection of the Diesel Exhaust Fluid Compressed Air Flow System after Air Compressor Failure" and TS letter 12TS-16REV <http://ddcsn-ddc.freightliner.com/cps/rde/xbcr/ddcsn/12TS16REV.pdf> (<http://ddcsn-ddc.freightliner.com/cps/rde/xbcr/ddcsn/12TS16REV.pdf>). Verify repair.
 - b. No; Go to step 18.

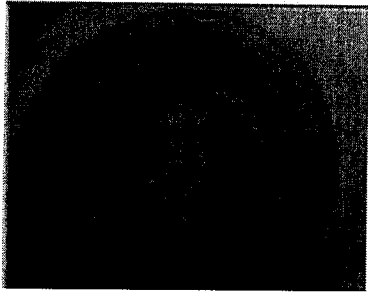
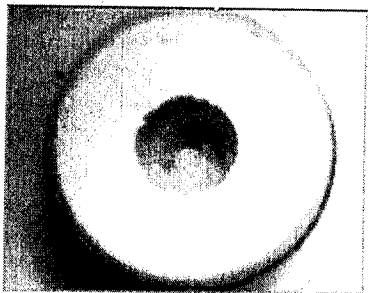
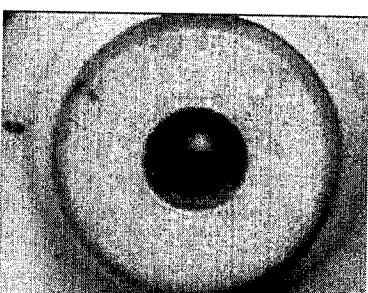
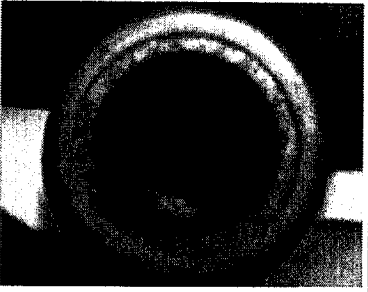
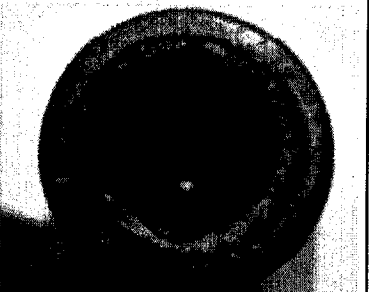
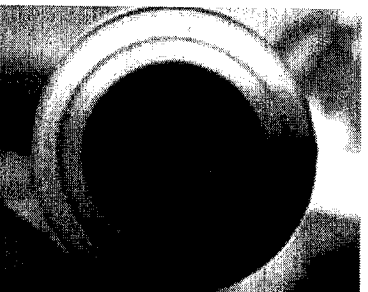
18. Remove the DEF metering unit air pressure sensor; Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit Air Pressure Sensor". Go to step 19.
19. Remove the three screws (1) from the bottom of the metering unit; remove the diffuser heater. Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit Diffuser Heater". Go to step 20.

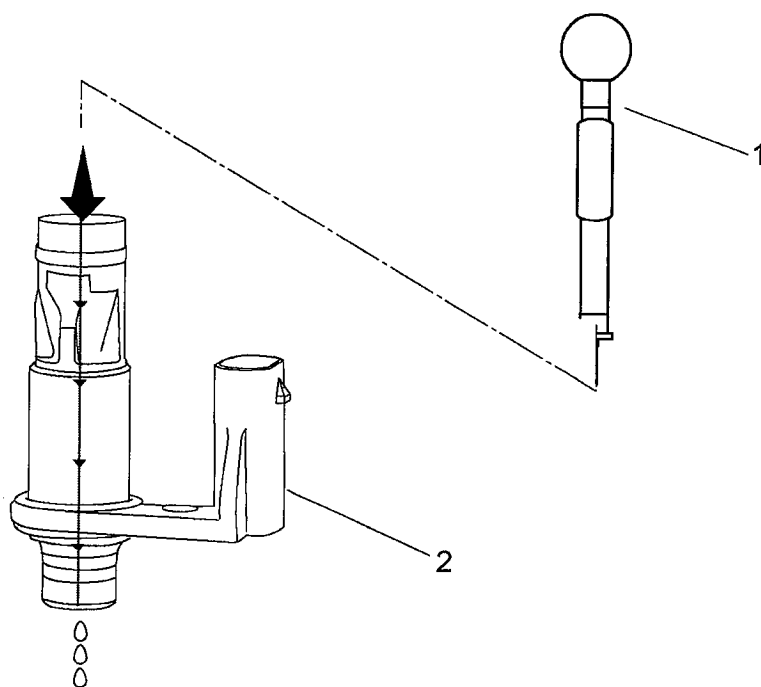


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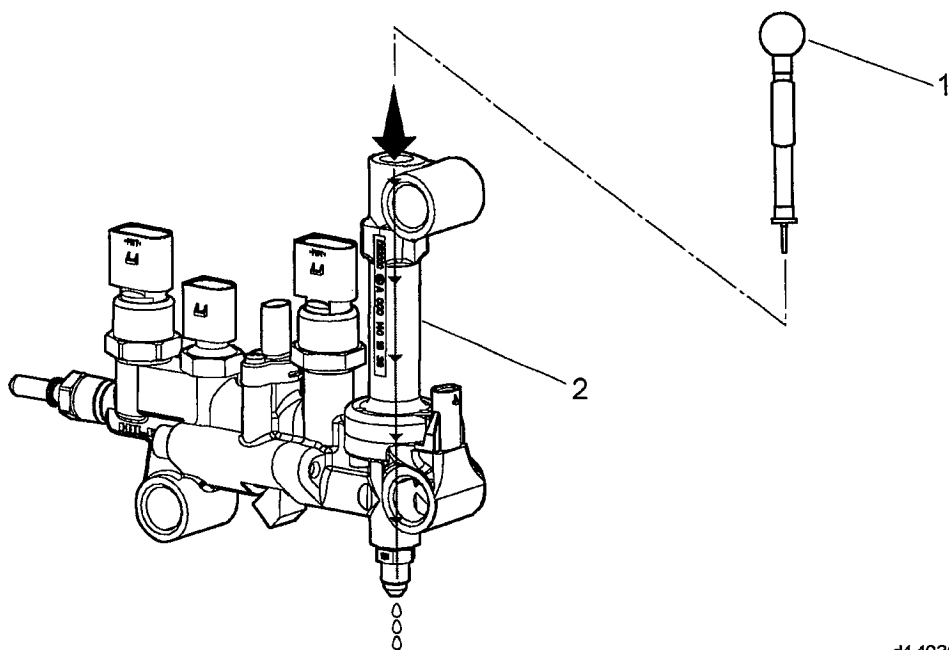
20. Inspect the diffuser heater. See the following figure for an example of plugged and clear diffusers. Is the Diffuser plugged or restricted by DEF crystals?
 - a. Yes; flush the diffuser heater (1) using warm running water for several minutes to dissolve the DEF crystals. Go to step 21.
 - b. No; flush the DEF metering unit air passage with warm running water for several minutes to dissolve the DEF crystals. Go to step 21.

Table 2.

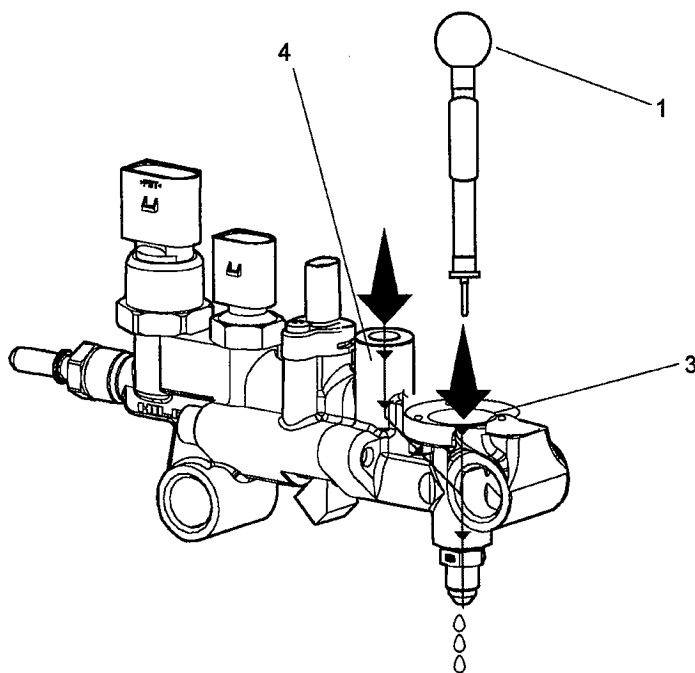
		
d140442	d140443	d140444
Diffuser Outlet – Plugged	Diffuser Outlet – Restricted	Diffuser Outlet – 100% Clear
		
d140445	d140446	d140447
Diffuser Inlet – Plugged	Diffuser Inlet – Partial Restriction	Diffuser Inlet – 100% Clear



d140369



d140368



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WARNING: EYE INJURY

To avoid injury from flying debris when using compressed air, wear adequate eye protection (face shield or safety goggles) and do not exceed 276 kPa (40 psi) air pressure.

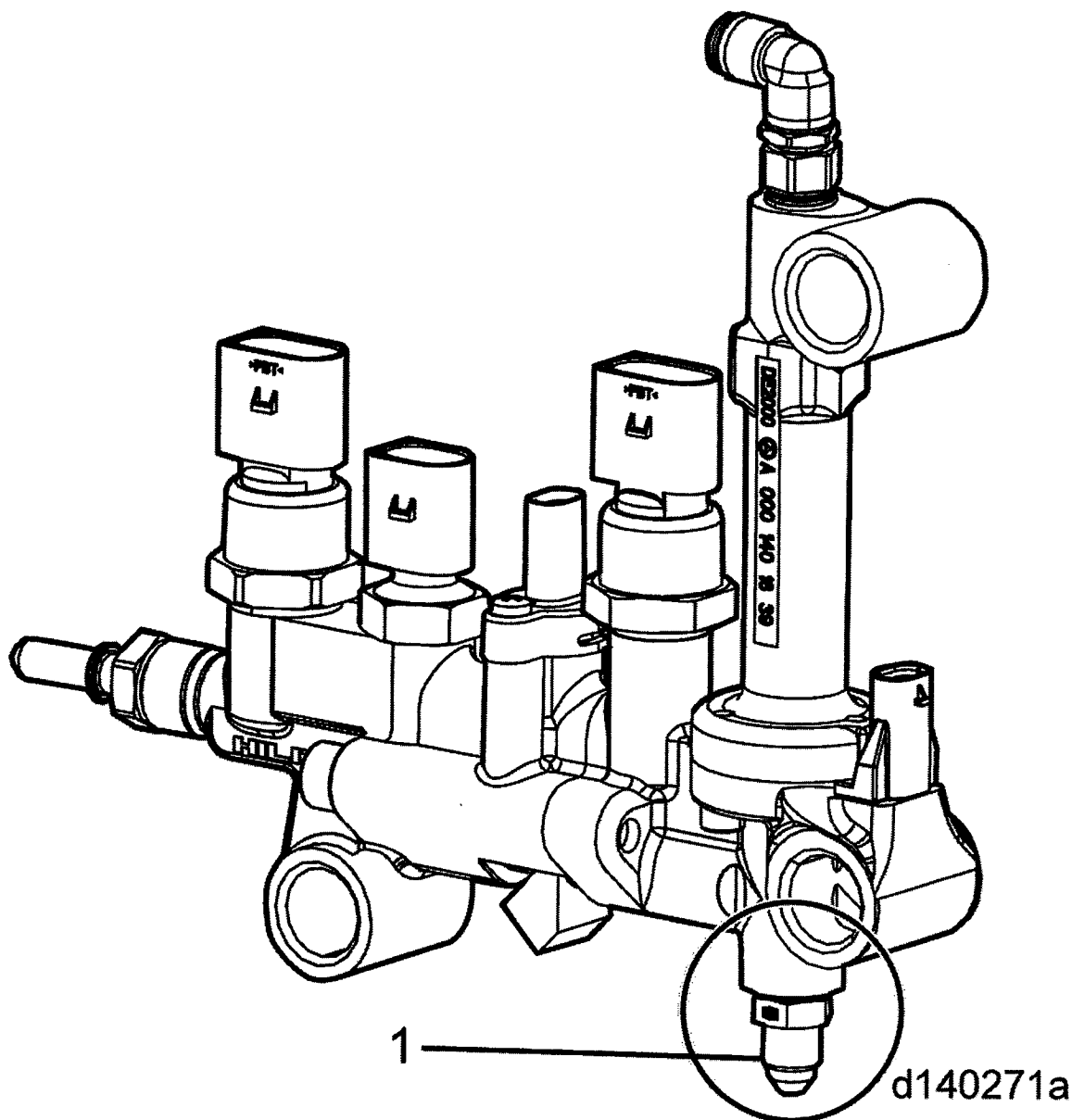
21. After the blockage is cleared, blow out any remaining water in the sensor connection and install all removed components.

Refer to section "Installation of the Diesel Exhaust Fluid Metering Unit Diffuser Heater".

Refer to section "Installation of the Diesel Exhaust Fluid Metering Unit".

Refer to section "Installation of the Diesel Exhaust Fluid Metering Unit Air Pressure Sensor". Go to step 22.

22. Perform the SCR air pressure test. Does the SCR air pressure test pass?
 - a. Yes; release the vehicle.
 - b. No; Go to step 23.
23. Remove the DEF metering unit outlet pressure line from the DEF metering unit. Go to step 24.
24. Use a 1/4 inch metal flare cap to block off the outlet port of the DEF metering unit. Go to step 25.



25. Perform the SCR air pressure test. Does the air pressure reach 537 kPa (78 psi)?
 - a. Yes; replace the DEF nozzle in the ATS. Verify repair.
 - b. No; re-clean the DEF metering unit using warm water. Verify repair. Go to step 26.
26. Is fault code SPN 4335 FMI 7 still present?
 - a. Yes; replace the DEF air pressure sensor. Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit Air Pressure Sensor". Verify repair.
 - b. No; release the vehicle.

