Coolant Thermostat and Passenger Compartment Heater Hose Replacement

RECALL

Models Affected: 2008-2013 TX3, TX4, and All American Rear Engine Buses with Cummins ISC & ISL Engines

R 1 4 X F

-RECALL CAMPAIGN-

ISSUE

The original engine thermostat, under certain conditions at high engine RPM, may cause a high pressure pulsation in the coolant flow. This pulsation could, over time, weaken the inner lining of the heater supply hose in the passenger compartment resulting in the potential for the hose to fail and allow hot engine coolant to enter the passenger compartment.

CORRECTIVE ACTION

The engine thermostat will be changed to a new 'barrel-type" thermostat which does not have the tendency to create a pulsation at high engine RPM. In addition, all coolant supply hoses within the passenger compartment will be replaced and protective covers placed over the joint connections at each underseat heater.

PROCEDURE

WARNING: Always follow all Federal, State, Local, and Shop safety standards and use proper safety equipment, and thoroughly read and understand all instructions before performing these procedures.

WARNING: Do not remove the pressure cap from a hot engine. Wait until the coolant temperature is below 50°C [120°F] before removing the pressure cap. Heated coolant spray or steam can cause personal injury.

WARNING: Coolant is toxic. Keep away from children and pets. If not reused, dispose of in accordance with local environmental regulations.

Thermostat Replacement

1. Park the bus on a level surface, apply parking brake, switch engine off, remove ignition key and chock wheels.

2. Disconnect batteries. (negative[-] cable first, then positive[+])

3. Drain the coolant per *Cooling System Drain, Flush & Refill* section in your Blue Bird service manual.

4. Remove the radiator hose from the water outlet connection. (Fig. 1)

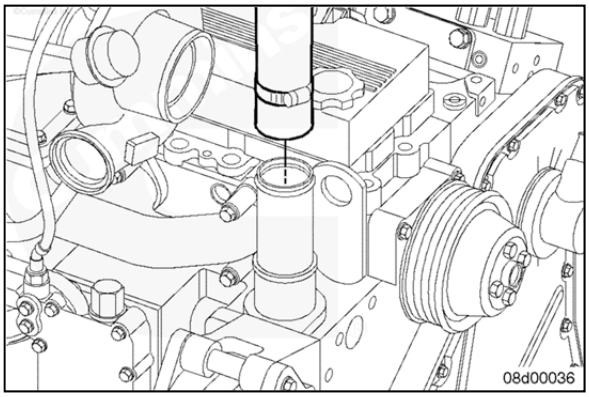


Fig. 1

Thermostat Replacement (continued)

5. Remove the water outlet connection capscrews and water outlet connection. (Fig. 2)

6. Remove the thermostat and discard. (Fig. 2)

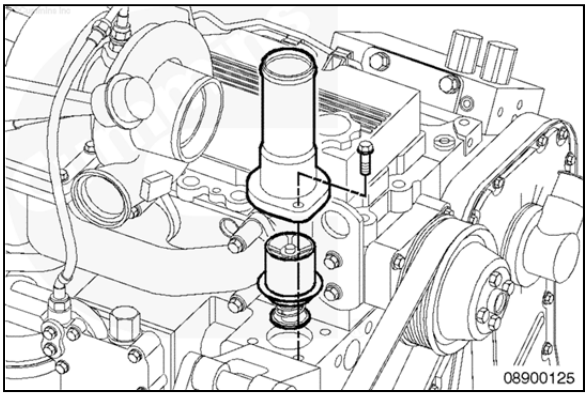


Fig. 2

7. Clean all of the mating surfaces. (Fig 3)

   NOTE: Do not let any debris fall into the thermostat cavity when cleaning the surfaces.

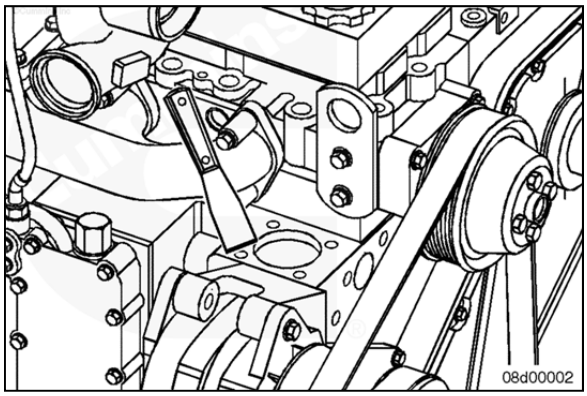


Fig. 3

8. Install the new thermostat (BB# 10032468) into the water outlet connection. Make sure the top and bottom o-rings are in place. If the o-rings are damaged, replace with new o-rings. (Fig. 4)

9. Install the water outlet connection and mounting capscrews. (Fig. 4)
   Torque Value: 24 nm [212 in-lb]

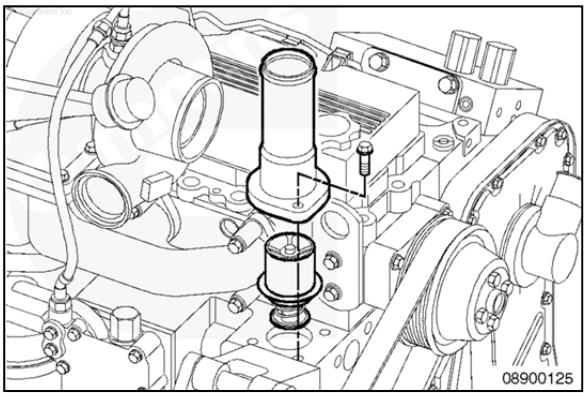


Fig. 4

Thermostat Replacement (continued)

10. Install radiator hose on the water outlet connection. (Fig. 5)
    Torque: 7.50 – 8.30 FT-LBS.

11. Thermostat replacement complete. Proceed to Heater Hose Replacement.

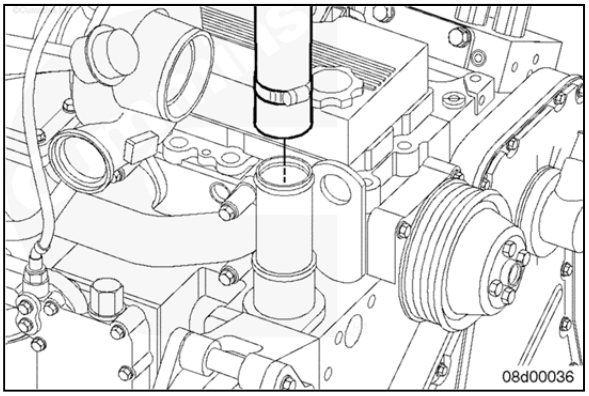


Fig. 5

Parts List		
Part #	Description	Qty
10032468	THERMOSTAT,ENGINE COOLANT SYSTEM,CUMMINS	1

Heater Hose Replacement

1. Check if heater supply/return hoses were connected to engine correctly per Fig 1 hose routing. ***If hoses are not connected correctly at engine supply/return manual shutoff valves, replace only the section of hose inside bus from bulkhead connector to first heater. Disconnect/reconnect "supply/return" hoses in engine compartment per Fig 1 supply/return hose routing.***

2. Disconnect supply heaters coolant hose at engine cutoff valve (see Fig 1).

3. With 10 p.s.i. of shop air pressure, blow air through supply hose to remove coolant from heater system (see Fig 1 for location of supply hose in engine compartment).

4. Inside bus, remove heater hose covers to gain access to heaters supply hose.

5. Remove original heaters **supply** hose inside passenger compartment only and replace with new hose part no. 10023231 (see Fig 1). Torque all heater hose clamps to 34 inch lbs.

6. Reinstall passenger compartment heater hose covers. If gap is present at hose wheelhousings ***transition*** covers, install bulb seal part no. 10020905 on end and foam tape part no. 00830059 on flange of transition cover to close out gaps per Fig 2.

7. At each underseat heater, remove seat cushion and install heater pipe cover part no. 10033962. Back drill .056 hole on each side and attach cover with two #10 screws part no. 01589522 per Fig 3. Reinstall seat cushion

8. Reconnect batteries (positive {+} cable first, then negative {-}.

9. Fill engine cooling/heater system per *COOLANT FILL PROCEDURE* (see Fig 4).

   See Service Update SU1315 *CUMMINS COOLANT in CUMMINS ENGINES* for approved coolant.

10. Operate engine and check for coolant leaks.

Parts List		
Part #	Description	Qty (per bus)
10023231	HOSE,HEATER,EPDM STANDARD,1 I.D.	30 FT
10020905	SEAL,BULB,CLIP-ON,ELECTRICAL ACCESS DOOR	2 FT
00830059	TAPE,FOAM,1/2X3/4,CLSD CELL NEOPRENE ADH BK	2 FT
10033962	COVER,TRIM,PIPE,U/S HEATER	2
01589522	SCREW,10-16 X 3/4,AB,PH1,PAN HD,YEL ZN	4

Coolant Thermostat and Passenger Compartment Heater Hose Replacement

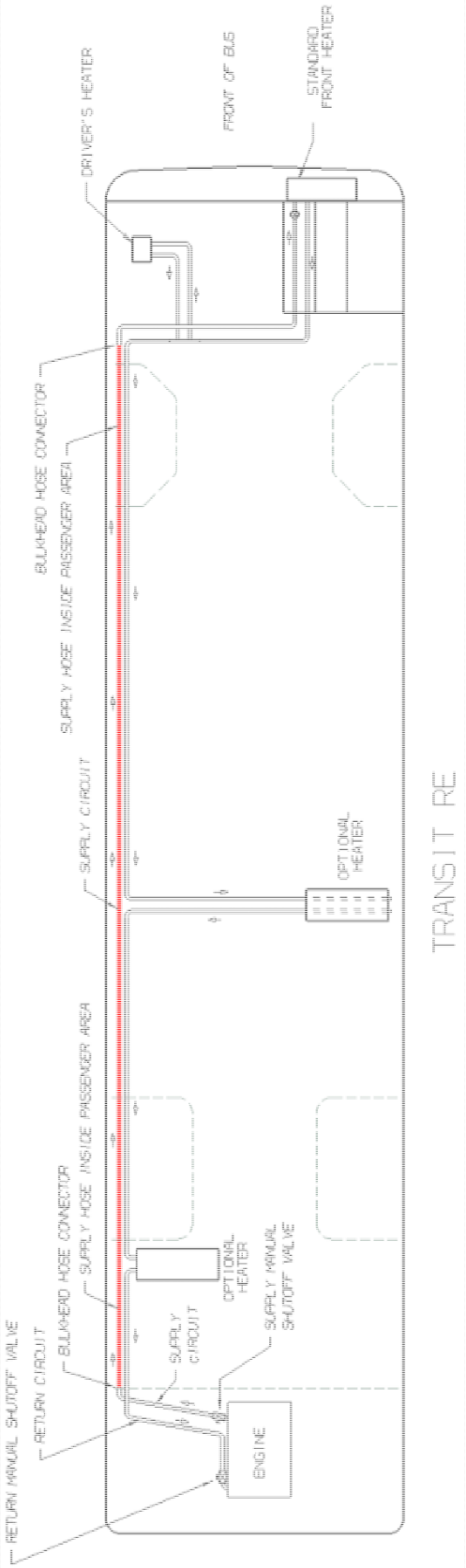


Fig. 1

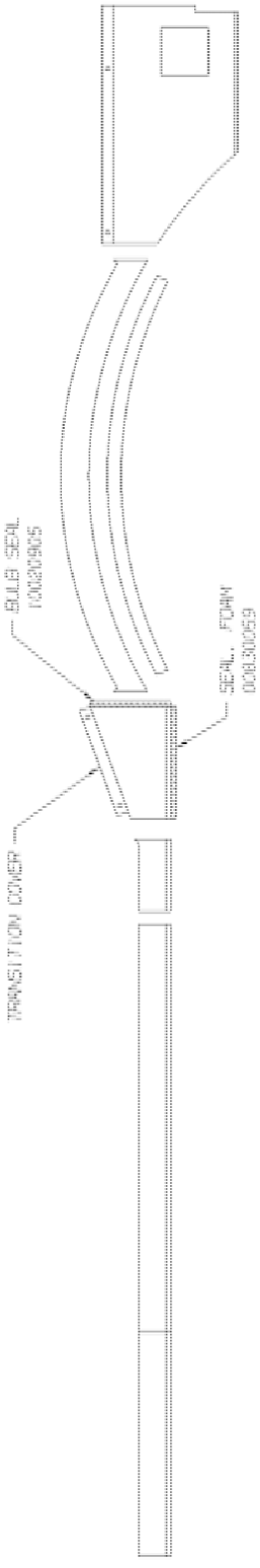


Fig. 2

R 1 4 X F

-RECALL CAMPAIGN-

Coolant Thermostat and Passenger Compartment Heater Hose Replacement

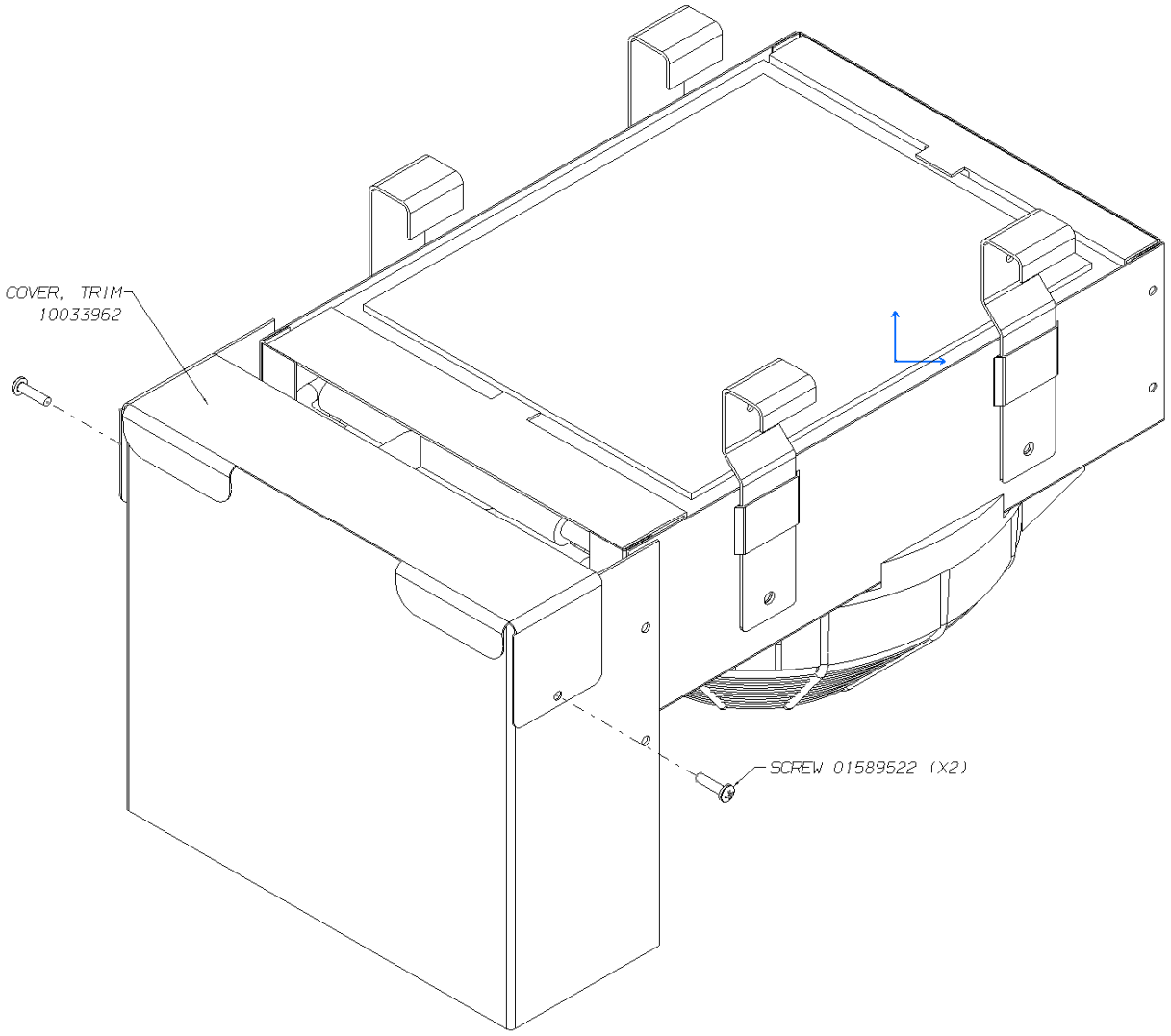
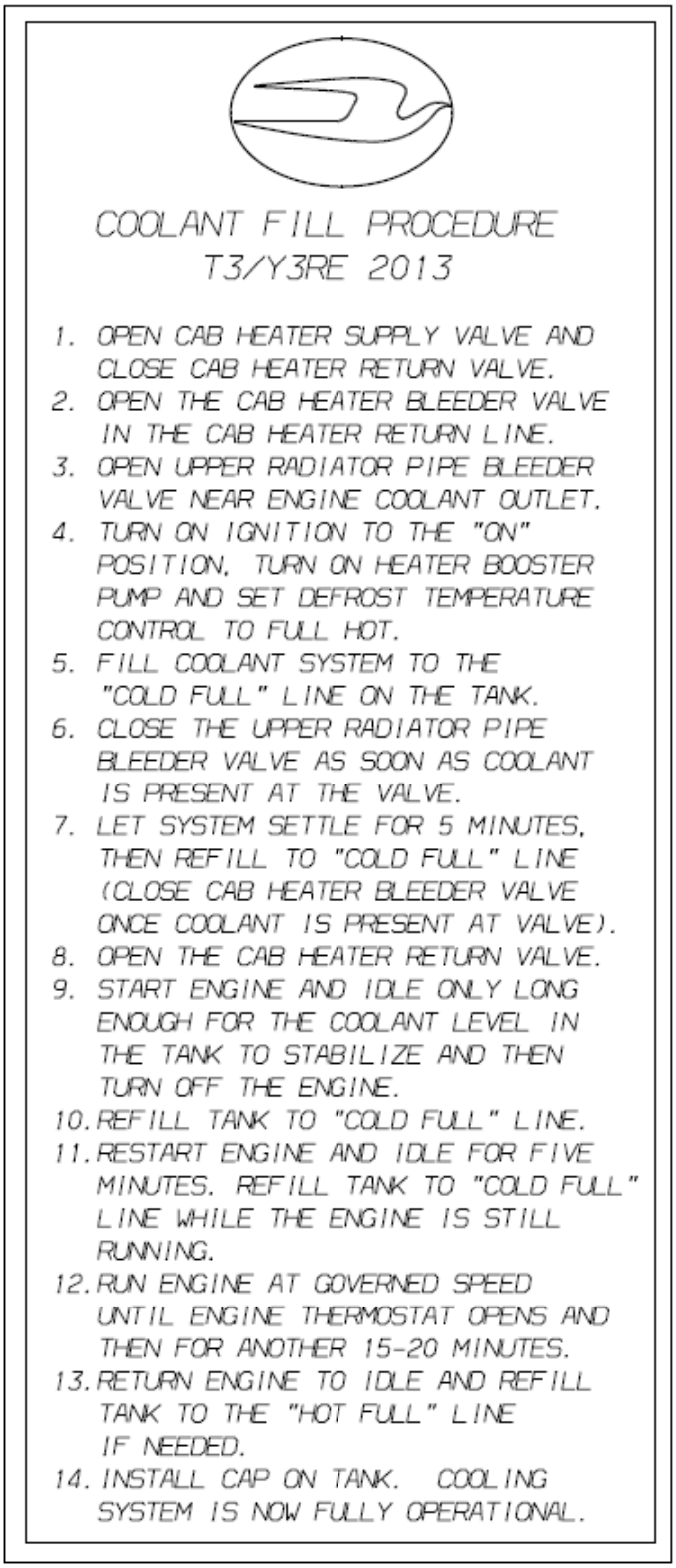


Fig. 3

Coolant Thermostat and Passenger Compartment Heater Hose Replacement



COOLANT FILL PROCEDURE
T3/Y3RE 2013

1. OPEN CAB HEATER SUPPLY VALVE AND CLOSE CAB HEATER RETURN VALVE.
2. OPEN THE CAB HEATER BLEEDER VALVE IN THE CAB HEATER RETURN LINE.
3. OPEN UPPER RADIATOR PIPE BLEEDER VALVE NEAR ENGINE COOLANT OUTLET.
4. TURN ON IGNITION TO THE "ON" POSITION, TURN ON HEATER BOOSTER PUMP AND SET DEFROST TEMPERATURE CONTROL TO FULL HOT.
5. FILL COOLANT SYSTEM TO THE "COLD FULL" LINE ON THE TANK.
6. CLOSE THE UPPER RADIATOR PIPE BLEEDER VALVE AS SOON AS COOLANT IS PRESENT AT THE VALVE.
7. LET SYSTEM SETTLE FOR 5 MINUTES, THEN REFILL TO "COLD FULL" LINE (CLOSE CAB HEATER BLEEDER VALVE ONCE COOLANT IS PRESENT AT VALVE).
8. OPEN THE CAB HEATER RETURN VALVE.
9. START ENGINE AND IDLE ONLY LONG ENOUGH FOR THE COOLANT LEVEL IN THE TANK TO STABILIZE AND THEN TURN OFF THE ENGINE.
10. REFILL TANK TO "COLD FULL" LINE.
11. RESTART ENGINE AND IDLE FOR FIVE MINUTES. REFILL TANK TO "COLD FULL" LINE WHILE THE ENGINE IS STILL RUNNING.
12. RUN ENGINE AT GOVERNED SPEED UNTIL ENGINE THERMOSTAT OPENS AND THEN FOR ANOTHER 15-20 MINUTES.
13. RETURN ENGINE TO IDLE AND REFILL TANK TO THE "HOT FULL" LINE IF NEEDED.
14. INSTALL CAP ON TANK. COOLING SYSTEM IS NOW FULLY OPERATIONAL.

Fig. 4