



SERVICE BULLETIN No.1120

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COACH MODEL	: T 2100 Series
BULLETIN TYPE	: Service Information
MANUAL & SECTION	: Maintenance Manual: Chapter 10 – HVAC System Spare Parts Manual: Section 7710 – 7713 - Heating
PARTS BOOK REVISION	: Yes
DATE	: October 29th, 2003
SUBJECT	: Front heater water control valve - maintenance
TERMS & CONDITIONS	: No claims will be accepted with reference to this Bulletin.

THIS SERVICE BULLETIN SUPPLEMENTS VAN HOOL SERVICE BULLETIN No. 1033

APPLICATION:

The service information subject of this Bulletin is applicable to following units:

Model	Engine	VIN
T2145	Cummins	→ 44266
	Detroit Diesel	→ 44584

DESCRIPTION:

The purpose of this Bulletin is to provide owners and operators of T2100 Series coaches, which have been factory equipped with an electrically powered front heater water control valve, with the latest information available regarding maintenance, calibration and parts availability for these valves.

Service personnel: please read, initial and circulate.

Service Manager	Parts Manager	Warranty Administrator	Workshop Foreman	Service Technician

PARTS AND PRODUCTS:

Parts available

Part No.	Description	Qty.
VH 10695679	Repair kit (set of seals)	1
VH 10589844	O-ring, 30x3 mm	1
VH 10613590	3-way water valve w/o motor	1
VH 10600113	Valve motor w/ adapter	1
VH 10523327	Barb hose fitting straight, 3/4 inchx28 mm	1
VH 757741402	Compression fitting, 3/4 inchx28 mm	1

- Parts are directly interchangeable.
- Parts may be purchased from your nearest ABC Customer Care & Parts Source dealership.
- Parts and products disposition: discard according to applicable environmental regulations.

PROCEDURE:

1. General:

- For your information only: the time required to remove, repair and reinstall the front heater water control valve is approximately 3 hours.
- This job should be executed by a technician experienced in HVAC maintenance.

2. Special tools, equipment or services:

- This job requires the use of a dummy water valve.

3. Preparations:

- Park the coach on a level-surfaced service pit with the front wheels straight. Apply the parking brake and shut down the engine. Install wheel chocks.
- Leave the battery master switch on.
- Put a "DO NOT OPERATE" tag on the instrument panel.
- Read the entire procedure before beginning to work.

CAUTION: Observe safe shop practices at all times.

4. To drain the heating system for water valve servicing:

- 1) Turn the driver's temperature selector knob counterclockwise to the zero position.
- 2) Switch-off and disconnect the combustion heater.
- 3) Allow coolant to cool down to approximately 95°F (35°C).
- 4) Close the combustion heater gate valves.
 - T2140: The gate valve in the heating supply line is located behind the right-hand engine compartment door. The gate valve in the heating return line is accessible via the interior access trap above the transmission.
 - T2145: Both valves are located in the combustion heater compartment on the left-hand side of the coach (see Figure 1).

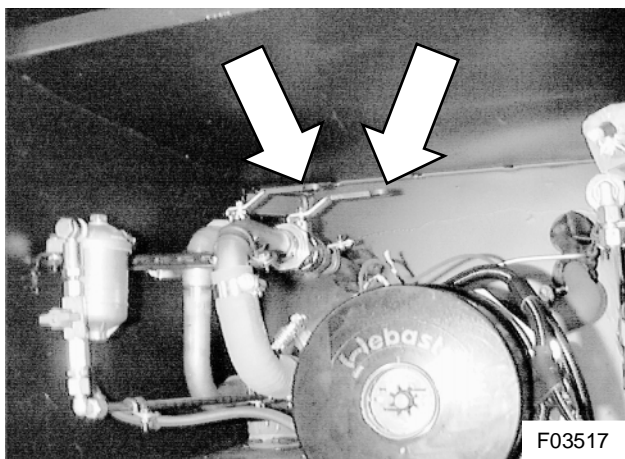


Figure 1: Location of gate valves in the T2145 combustion heater compartment (valves in the closed position)

- 5) At the back of the luggage compartment, open the access door to the heating system valve and pump panel. Close the ball valves in the engine main supply (2, Figure 2) and return lines (3, Figure 2).

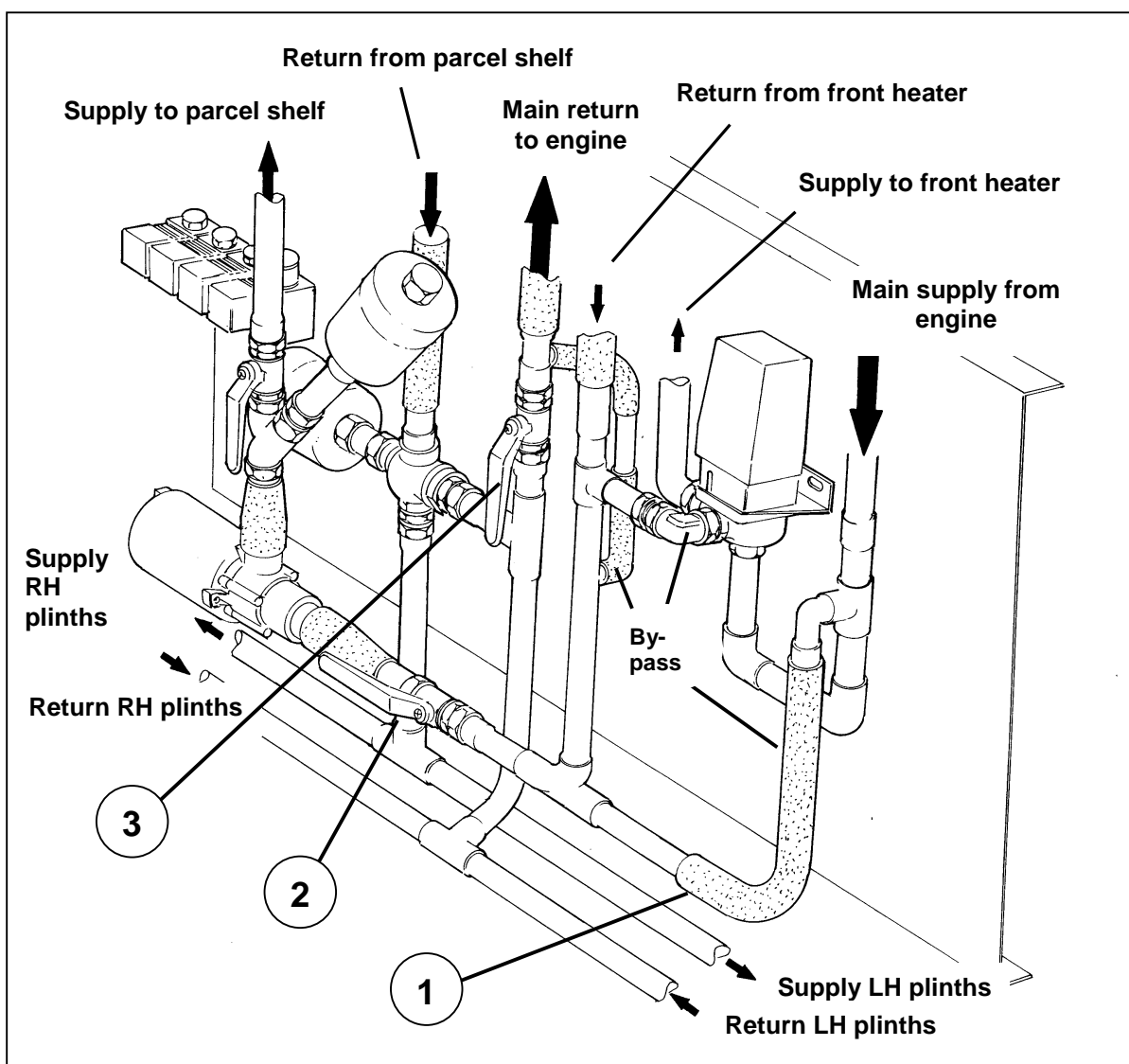


Figure 2: Heating system valve and pump panel. The engine main supply and return valves are in the open position.

- 6) Working underneath the coach, in front of the drive axle, attach a suitable hose to the drain pipe of the drip pan below the heating system valve and pump panel. Install a suitable clean container to catch approximately 3 gallons of coolant.
- 7) Undo the lower hose clamp of the engine main supply hose beneath the water valve (1, Figure 2). Carefully remove the hose from its fitting and allow coolant to drain.

5. To replace the water valve seals:

Refer to the HEAVAC Work Procedure in attachment (Van Hool SB1120 Attachment 1).

6. To adjust the water valve motor and metering cylinder:

Refer to the HEAVAC Work Procedure in attachment (Van Hool SB1120 Attachment 2).

7. To add coolant to the engine cooling and heating system:

- 1) With the lower hose of the engine main supply line refitted, and the hose clamp properly torqued, open the ball valves in the engine main supply (2, Figure 2) and return lines (3, Figure 2). Open the gate valves (see Figure 1).
- 2) Refill the cooling system, referring to Chapter 2 of the Maintenance Manuals. Drained coolant may be recovered if it is not contaminated and meets the specifications in the Maintenance Manual.
- 3) While running the engine for about 20 minutes, check cooling system plumbing for leaks. Rectify if necessary.
- 4) Reconnect the combustion heater.
- 5) Check "all systems go" on the multifunction display (indicated by an asterisk on the bottom middle of the display).
- 6) Shut down the engine. Remove the wheel chocks and the warning label on the instrument panel.
- 7) Remove the drain pan and hose underneath the coach.

Procedure complete.

DISCLAIMER:

The procedures contained herein are not exclusive. Van Hool cannot possibly know, evaluate, or advise the transportation industry of all conceivable ways in which a procedure may be undertaken or of the possible consequences of each such procedure. Other procedures may be as good, or better, depending upon the particular circumstances involved.

Each carrier who uses the procedures herein must first satisfy itself thoroughly that neither the safety of its employees or agents, nor the safety or usefulness of any products, will be jeopardized by any procedure selected.

SERVICE INFORMATION:

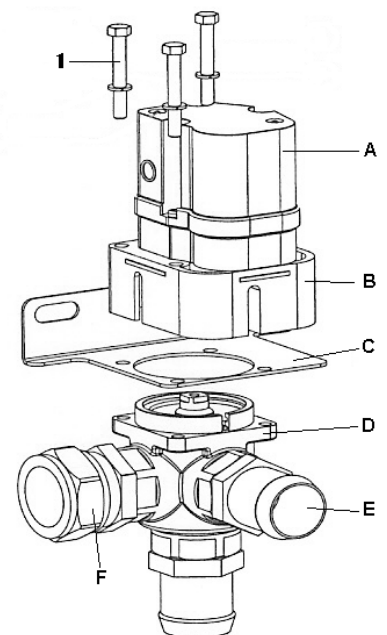
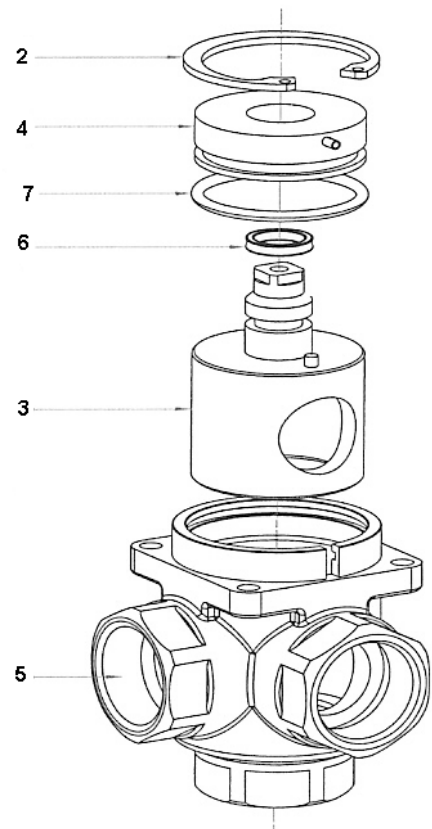
Service Bulletins are issued to supplement or supersede information in the Van Hool manuals. Note Service Bulletin number, date and subject on the register at the end of the relevant chapter(s). File Service Bulletin separately for future reference.

DESCRIPTION : O-ring replacement on brass 3-way water valves

HEAVAC REFERENCE : 8191.107

CAUTION: Prevent spilling of coolant on the valve and motor assembly

1. Undo and remove the three M5x40 bolts securing the valve motor and adapter assembly to the valve. Withdraw the assembly (1).
2. Remove the snap ring (2) securing the metering cylinder assembly in the valve body (5).
3. Install a M4x50 into the square drive of the metering cylinder (3) and carefully withdraw the cylinder and its guide plate (4) from the valve body (5).
4. Separate the guide plate (4) from the metering cylinder (3).
5. Note the O-ring (6) and (7) installation. Remove the O-rings and thoroughly clean the metering cylinder and the guide plate.
6. Carefully install new HNBR O-rings in the guide plate and the cylinder. Lubricate with a smear of valve grease.
7. Thoroughly clean the inside of the valve body.
8. Install the metering cylinder and guide plate in the valve body. Check that the guide plate locating pin is engaged in the vertical locating slot in the valve body.
9. Install the snap ring and manually close the valve. The opening in the metering cylinder should face the valve by-pass port.
10. Open the ball valves in the main supply and return lines. Check that there's no coolant leakage.
11. Reinstall the motor and adapter assembly. Make sure the motor coupling properly fits the square drive of the metering cylinder.
12. Switch on the master switch and check valve operation using the control knob on the instrument panel.



DESCRIPTION	: Water valve motor adjustment
HEAVAC REFERENCE	: 8125.002

To readjust the water valve motor

1. Turn the driver's temperature selector knob counterclockwise to the zero position.
2. Turn off the battery master switch.
3. Remove the motor dust cap (1).
4. Disconnect the motor from the control box by pulling the plug (3).
5. Disassemble the motor and adapter assembly.
6. At the motor wiring harness, carefully remove the heat shrink tubing covering the potentiometer (4).
7. Turn the motor potentiometer (5) fully counterclockwise.
8. Connect a multimeter to pin #2 and pin #4 of the motor plug (6).
9. Adjust the wire harness potentiometer to read 4 k Ohm between pin #2 and pin #4.
10. Fit a new shrink tube over the wire harness potentiometer.
11. Fit the motor and adapter assembly to a dummy water valve.
12. Connect the dummy valve and valve motor to the control box.
13. Turn on the master switch.
14. Set the driver's temperature selector knob to position 1.
15. Turn the motor potentiometer clockwise until the metering cylinder in the water valve just starts to open (5).
16. Set the driver's temperature selector knob to position 0.
17. Check that the dummy valve is fully closed.
18. Turn off the master switch.
19. Close the water valve on the vehicle manually.
20. Separate the motor and adapter assembly from the dummy water valve.
21. Install the assembly on the vehicle water valve.
22. Reinstall the motor dust cap.

The water valve is now properly adjusted.

Tools required:

- 1 Dummy 3-way water valve.
- 1 Multimeter.
- 1 Small screwdriver 1/8 inch (3mm)

