



Service Bulletin No.1020

MODEL	: T-900 Series, T 2100 Series
TYPE	: Service information
MANUAL & SECTION	: Maintenance Manual: Chapter 10-HVAC System
DATE	: August 27th, 1998
SUBJECT	: Combustion heater maintenance and fuel line inspection
CONDITIONS	: -

DESCRIPTION :

a. Maintenance:

Webasto Germany has made recommendations regarding the maintenance of the Thermo 300 Combustion heater, as installed in the T-900 and T2100 Series coaches. Service procedures include a yearly inspection by an authorized Webasto Service Center, prior to the seasonal heating period. A routine service during operation will have to supplement this inspection. For more details, refer to US Webasto Service Centers. Comprehensive service instructions will be released later this year.

b. Fuel line inspection Part I:

When removing the burner head or the entire combustion heater for intermediate maintenance purposes, great care should be taken when reinstalling the fuel lines. Recent developments have shown that fuel line installation is critical to the service life of the T-900 and T 2100 Series combustion heater fuel pump. Sharp bends and kinks in the fuel return line may cause the pump to build-up excessive pressure, causing the combustion heater to malfunction. This Bulletin will aid maintenance and service personnel in identifying and applying proper hose routing and securing techniques when inspecting and servicing fuel lines, thus ensuring trouble free operation of the combustion heater.

c. Fuel line inspection Part II:

During the next service stop and after every major intervention, the installation of the combustion heater fuel lines on your Van Hool coach should be checked , applying the guidelines mentioned in Part I.

Part II of the service procedures shows a practical example of the right and the wrong way to install a Thermo 300 fuel return line.

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.

SERVICE PROCEDURE:

1. Installation and securing guidelines

- a. Figure 1 illustrates some typical hose installations. Those in the left column are **WRONG**. The correct methods are shown in the right column. Notice how single, smooth bends, without twisting are made.

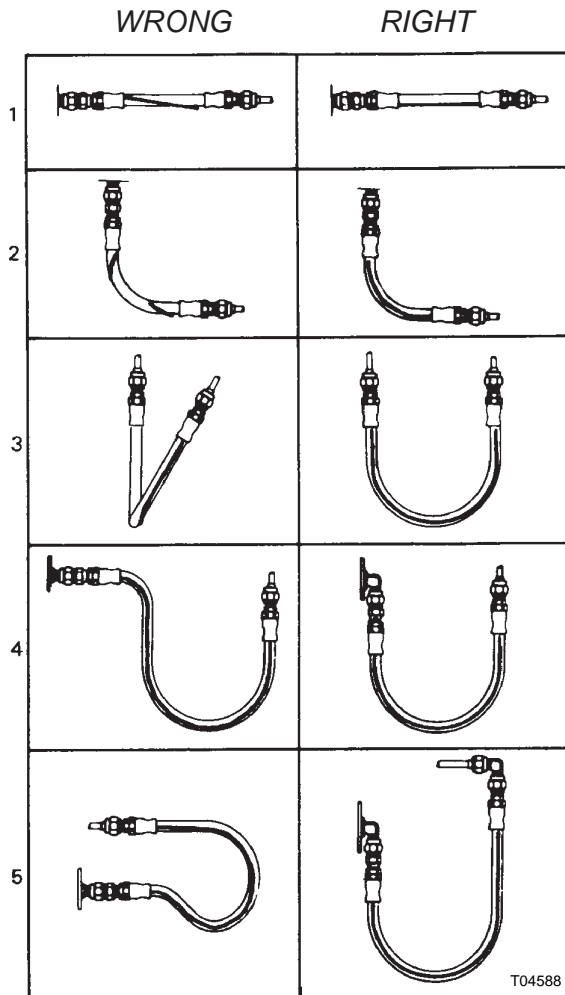


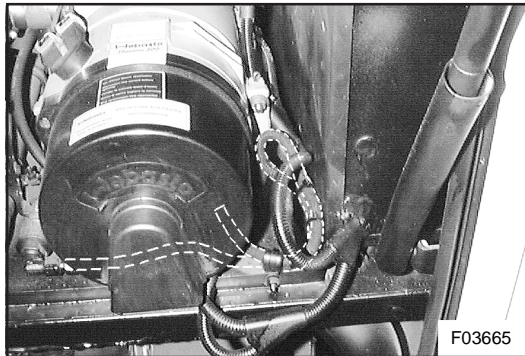
Figure 1: Incorrect and correct hose installations. Double bends and twisting are to be avoided

- b. In determining how sharp a hose bend may be, figure that the radius of the bend should be at least five times the outside diameter of the hose. For example: a hose with an O/D of 1/2 inch should have a bend radius of 2 1/2 inch. In other words, if the hose were pulled around a circle, the circle would be at least 5 inch diameter.
- c. Do not kink the hose, either by too tight a bend, by misalignment between the hose end and the port or adapter on short assemblies or by getting the whole assembly into a helix on long assemblies. Align the hose ends with the adapters so that the hose is not placing any strain on the hose end or on the adapter.

- d. Do not allow the hose to contact a sharp corner, nut, bolt, rivet stem or anything else that might cause damage. At any point where a hose passes through a panel, install a grommet for chafe protection.
- e. Do not allow the hose to rub against anything- even when the surface on which it rubs is flat. Spiral wrap is a convenient way to protect against chafe damage on flat panels.
- f. Make sure there is adequate clearance between the hose ends and anything that they might be able to contact.
- g. When making straight run connections, allow some slack to avoid stressing the hose from the pressure, vibration or part shifting. If the hose is run long, use clips or cushion clamps at regular intervals to secure it in place.
- h. Keep hoses away from extreme heat sources (like the heater body and exhaust) as far as possible.
- i. When tightening hose fittings, tighten the swivel end last. Always support one portion with one wrench, while tightening with another to prevent twisting the hose. Use flare wrenches. Do not overtighten the hose ends onto the adapter fittings or ports.

2. To check combustion heater fuel line installation

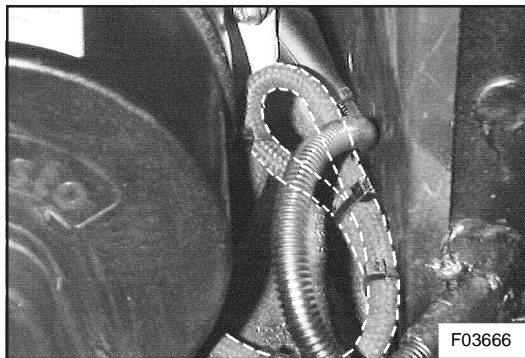
During the next service stop and after every major intervention, check the installation of the combustion heater fuel lines on your Van Hool coach, applying the guidelines mentioned in Part I. If necessary, rectify (refer to Figures 2, 3, 4 and 5).



WRONG:

- *Hose bend to sharp*
- *Tie-wraps to tight*
- *Hose too long*

Figure 2: Incorrect combustion heater fuel return line installation (40 ft coach)



WRONG:

- *Hose rubs against chassis and body parts, heater and wire harness*

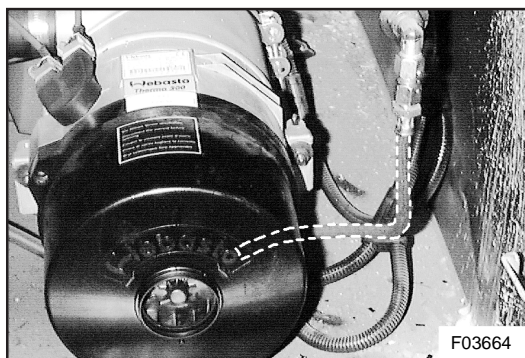
Figure 3: Detail of incorrect combustion heater fuel return line installation (40 ft coach)



RIGHT:

- *Hose length correct*
- *Hose well supported by cushion clamp*
- *Hose not twisted*

Figure 4: Typical combustion heater fuel return line installation on 40 ft coach (with air intake duct removed)



RIGHT:

- *Hose has adequate clearance*
- *Stress-free installation*
- *Hose kept away from heat source*

Figure 5: Typical combustion heater fuel return line installation on 45 ft coach (with air intake duct removed)

Service procedure complete