



Service Bulletin No. 1014

MODEL	: T2140 & T2145
TYPE	: Product improvement
MANUAL & SECTION	: Maintenance Manual: Chapter 10- HVAC System
DATE	: January 20 th, 1998
SUBJECT	: Air balance and air flap control
CONDITIONS	: Parts may be purchased from your nearest International Coach Parts Inc.

DESCRIPTION : From units 40074 (40 feet) and 43081 (45 feet) onward, following detail modifications have been made to the 2100 Series' ventilation system:

- the number of vent holes in the parcel rack rails has been reduced.
- the passenger window butterfly valve air diffusers have been replaced by air diffusers with directional non-closing valves.
- a supplementary air duct above the rear passenger seats has been fitted.
- supplementary air diffusers at the window side of the parcel rack. Quantity: one between each existing one in front and in the rear of the AC-unit; no additional diffusers under the AC-unit, blowers included)

These changes provide for:

- improved air distribution in the front and in the rear of the vehicle.
- increased demisting capacity along passenger windows.
- quieter operation.

The service procedure further in this Bulletin shows how these improvements can be adopted on vehicles already in operation.

PARTS

Always use genuine maintenance products and parts. Do not accept imitations!

Part No.	Description	Qty.
VH 10572219	Air vent plug	302
VH 10606732	Side window air diffuser (on T2140)	36
VH 10606732	Side window air diffuser (on T2145)	40
VH 660074812	Air hose to rear seats	9 ft.
VH 660520425	Air hose mounting flange	1

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.

!!! CAUTION !!!

**USE SAFE SHOP PRACTICES AT ALL TIMES
READ ENTIRE PROCEDURE BEFORE BEGINNING WORK**

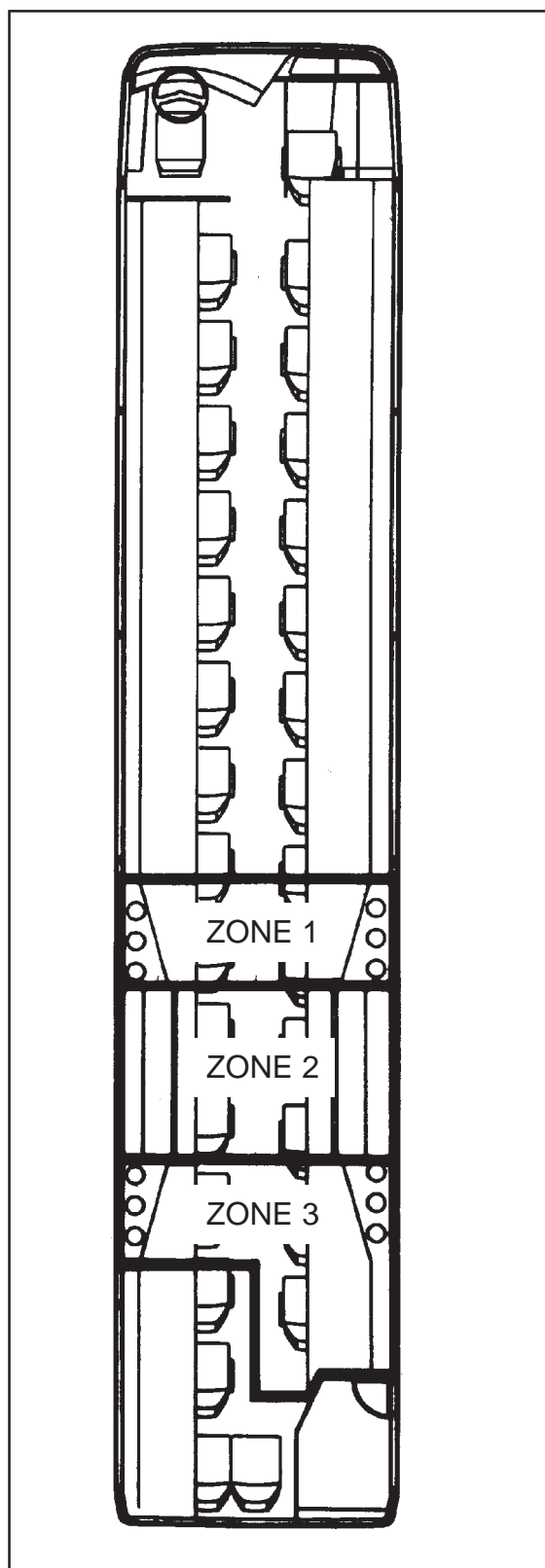


Figure 2: Zones with reduced number of vent holes

1. To reduce the number of vent holes in the parcel rack rails

The lower edge of the parcel rack facing the aisle, consists of a curved aluminum extrusion with a row of 19/64 inch holes punched on the inside. These holes allow air from the ventilation system to enter the passenger compartment. In order to provide a more even distribution of air inside the vehicle, some of these holes should be blocked off (see Fig.1).

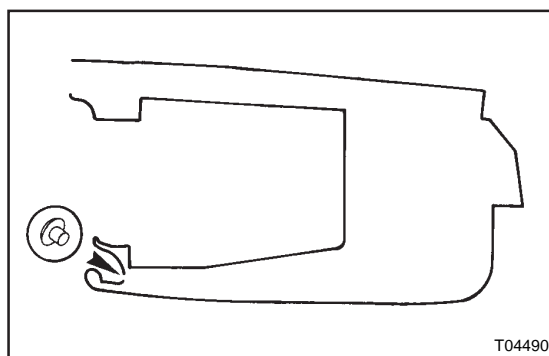


Figure 1: Plugging vent holes in parcel rack rail

Starting halfway the coach and moving towards the back, use the plastic plugs VH No. 10572219 to reduce the amount of vent holes on the left and the right hand side of the coach as follows:

- Block off 1 in 3 holes near the front parcel rack blowers (Figure 2, zone 1)
- Block off 2 in 3 holes near the evaporators (Figure 2, zone 2)
- Block off 1 in 3 holes near the rear parcel rack blowers (Figure 2, zone 3)

Leave the rest of the parcel rack rail vents untouched.

- 2 To replace passenger window butterfly valve air diffusers (see Figure 3) by directional non-closing valve air diffusers (see Figure 4)**

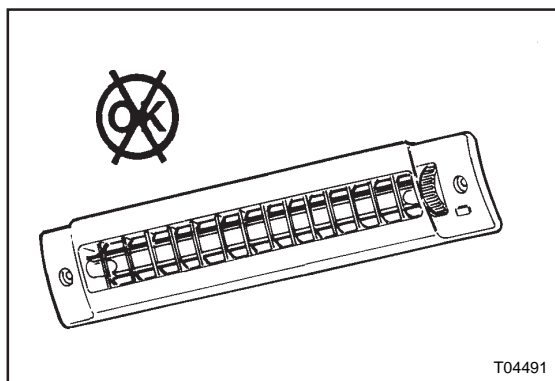


Figure 3: Butterfly valve air diffuser

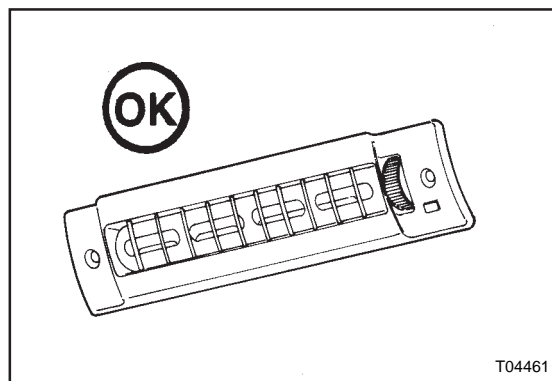


Figure 4: Directional non-closing valve air diffuser

1. With a stubby screwdriver, unscrew and remove the two countersunk cross head screws holding the passenger window butterfly valve air diffuser to the parcel rack.
2. Note the direction of assembly of the knurled adjuster wheel and pry out the diffuser with a flat tip screwdriver.
3. Taking the same direction of assembly, press the new directional non-closing valve air diffuser in the now vacant slot, and fit it to the parcel rack with the two crosshead screws.
4. Replace all butterfly valve air diffusers.

3 To install a supplementary air hose above the rear passenger seats

a Removal of ABS rear bench moulding

1. Inside the recess between the two rear bench reading lights, undo and remove the four self-tapping screws securing the rectangular cover plate. Remove the cover plate.
2. Undo and remove the retaining screws of the two rear passenger reading lights/air vents (see Figure 5). Pull the light/vent units from the moulding and disconnect the terminals.

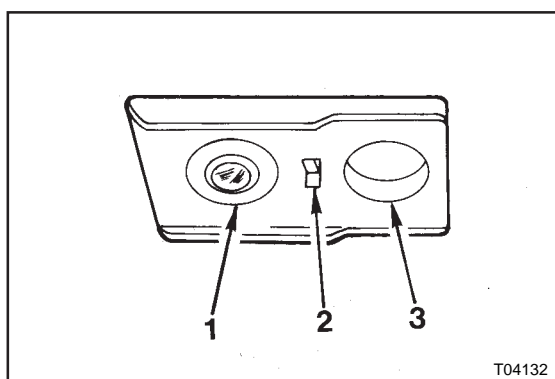


Figure 5: Rear passenger reading light

1. Reading light
2. Switch
3. Air vent

3. Remove the rearmost passenger light and ventilation control panel from the left hand parcel rack by withdrawing the six retaining screws (see Figure 6).

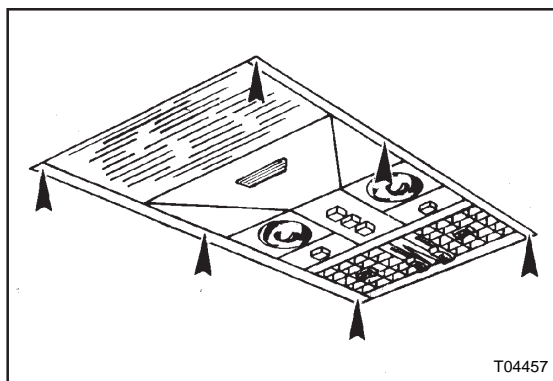


Figure 6: Passenger light and ventilation control panel

4. Mark and disconnect the control panel terminals (see Figure 7).

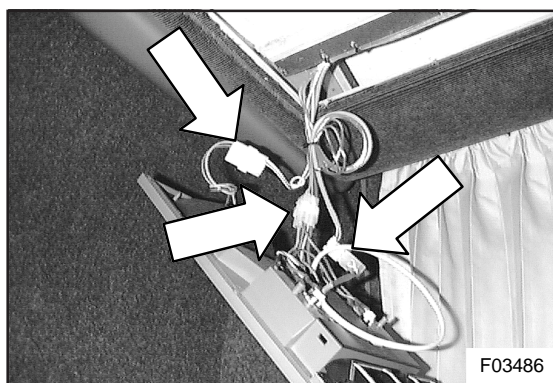


Figure 7: Passenger light and ventilation control panel terminals

5. Remove rearmost left hand curtain by pulling curtain retaining spring from eyelet screws.
6. Remove small L-shaped moulding end plate between rearmost passenger window and parcel rack.
7. Using a long cross tip screwdriver undo and remove the retaining screw on the inside of the moulding through the opening between the two reading lights bowls (1, Figure 8).
8. Undo and remove the two retaining screws at the back of the moulding (2, Figure 8).
9. Through the control panel opening in the parcel rack, withdraw the three retaining screws at the front of the moulding (3, Figure 8).

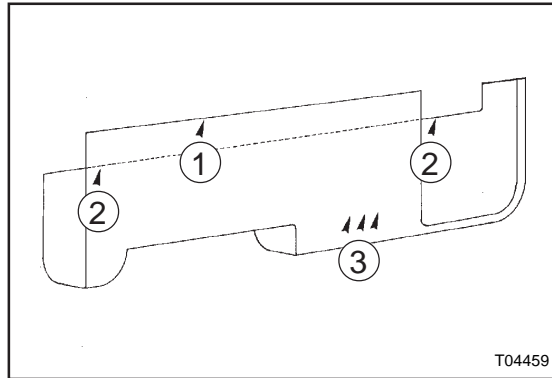


Figure 8: ABS rear bench moulding. Approximate location of retaining screws

10. Pull ABS moulding down.

11. Loosen Y-piece hose clamp next to roof reinforcement tube. Pull Y-piece from feeder hose (see Figure 9) . Retain hose clamp.

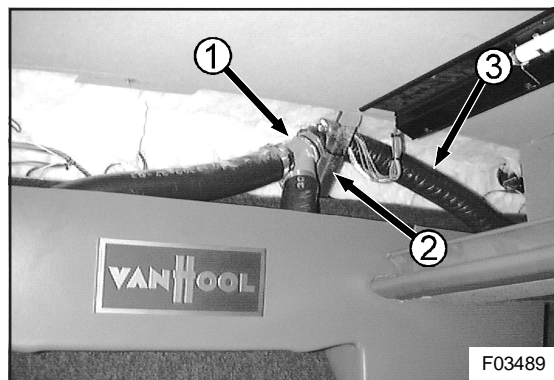


Figure 9: Y-piece (1), roof reinforcement tube (2) and feeder hose (3)

12. Remove ABS rear bench moulding.

b Modifications to parcel rack bulkhead

1. Slacken hose clamp and remove feeder hose from mounting flange (Figure 10) . Retain hose clamp.

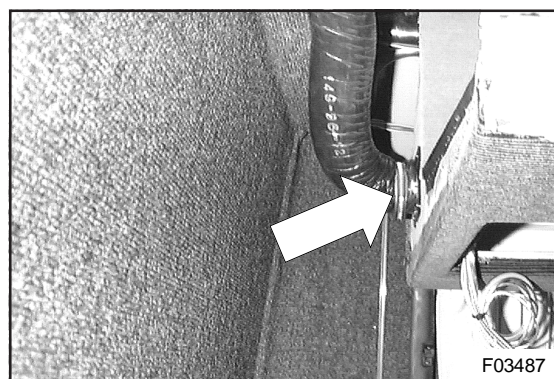


Figure 10: Feeder hose and mounting flange

2. Undo and remove the four screws securing the air hose mounting flange to the parcel rack bulkhead. Remove and retain mounting flange.
3. With Figure 11 as a reference, modify the existing feeder hole in the plywood parcel rack bulkhead to form a 2 by 5 inch rectangle. A full-size template is provided at the end of this bulletin. Use a jabsaw and rasp (see Figure 12).

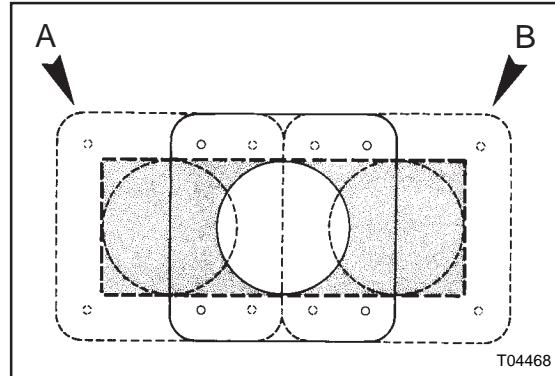


Figure 11: Feeder hole modification: cut along bold dotted line and remove shaded area to form 2 x 5 inch rectangle



Figure 12: Feeder hole modification using a jabsaw

4. Fit two air hose mounting flanges, one next to the other, over the rectangular feeder hole in the parcel rack bulkhead (see dotted lines A and B in Figure 11). First apply construction adhesive to mating surfaces, then secure mounting flanges with self-tapping screws (see Figure 13).

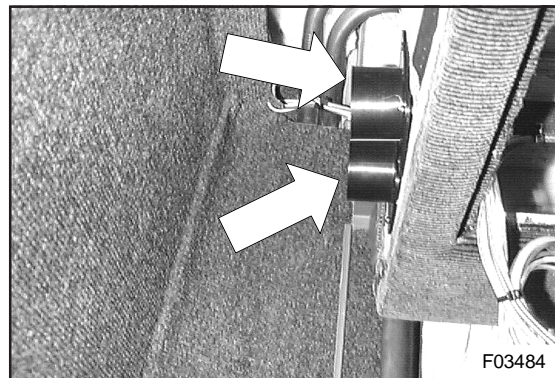


Figure 13: Installation of air hose mounting flanges to parcel rack bulkhead

5. Using a utility knife and cutter pliers, cut two lengths of air hose (VH No. 660074812):

1 length 4 ft long
1 length 5 ft long

!!! CAUTION !!!

BROKEN TIPS OR CUT MATERIAL CAN FLY. WEAR SAFETY GOGGLES TO AVOID EYE INJURY.

BE CAREFUL WHEN CUTTING HOSE REINFORCEMENT WIRE. CUTTING EDGE MAY BE VERY SHARP.

6. Fit new hoses with hoseclamps to mounting flanges on parcel rack bulkhead. Tighten hoseclamps.
7. Guide new hoses over roof reinforcement tube (2-Fig. 9).
- c. Fitting new air hoses to ABS rear bench moulding
1. Slacken hose clamps A and B and remove airhoses and Y-piece from mounting flanges in moulding (see Figure 14). Retain hose clamps.

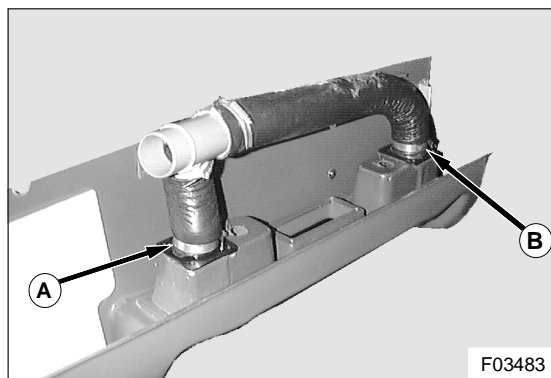


Figure 14: ABS rear bench moulding hose clamps and mounting flanges (rear view)

2. Check that mounting flanges are located over vent holes of rear bench reading light and ventilation units. If necessary, rectify.
3. With the aid of an assistant, lift the rear bench moulding and hold it against the rear wall of the vehicle with the Van Hool badge pointing towards the front of the coach.

- 4 Fit the new hoses with hose clamps to the mounting flanges in the moulding. Attach the longer hose to the flange on the far side (see Figure 15). Tighten hose clamps.



Figure 15: Installation of twin hoses to moulding mounting flanges

- 5 Push the moulding against the ceiling between the parcel rack bulkhead and the rear wall of the coach. Check that hoses do not double-bend or twist.
- 6 Attach the moulding by fitting the three screws through the parcel rack bulkhead first. Then fit and tighten the two screws at the back. Finally fit the top screw inside the moulding.
- 7 Reconnect and refit the passenger light and ventilation control panel to the parcel rack.
- 8 Reinstall the L-shaped moulding end plate.
- 9 Hook up the rearmost left hand curtain.
10. Reconnect the rear passenger reading light and ventilation units. Fit a grommet in the wire hole inside the bowls. Reinstall the units with self-tapping screws.
11. Refit the cover plate in the recess between the rear passenger reading light and ventilation units.

4 Fresh air flap operation checklist

1. Check labels on instrument panel switches No. S112 (interior) and S130 (front unit):



2 Check air flap operating mode:

- Contact: on
- Switches No. S112 and S130 on instrument panel: off (press upper part of switch)
- Switch telltale light: out
- Air flap position: open

(to check interior air flap position: remove access door to evaporator in parcel rack)

(to check front unit air flap position: remove cover plate and air filter behind front bumper)

IF NOT OK: GO TO ITEM 3

3 Check solenoid valves (A and B - Fig. 16) in luggage compartment:

- Interior valve A (normally open) should have a zinc plated hex on top.
- Front unit valve B (normally closed) should have a black plastic cylinder on top.

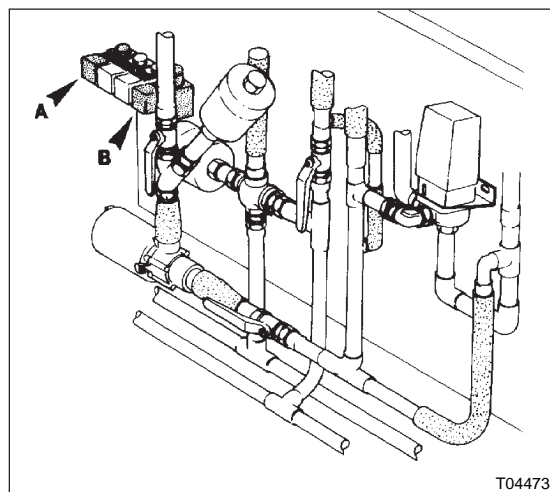


Figure 16: Location of air flap solenoid actuating valves

A: interior (normally open)
B: front unit (normally closed)

IF NOT OK: GO TO ITEM 4

4 Replace solenoid valve(s):

Check air flap position: open

IF NOT OK: GO TO ITEM 5

5. Rewire switches No. S112 and S130 (also refer to Service Bulletin No. 1005 "Front heater fresh air flap electrical circuit")

- Disconnect the batteries
- Dislodge switch, pull it out of the instrument panel and remove the connector
- Looking at the open end of the connector, remove the terminal of the yellow and blue wire (S112) or the blue and yellow wire (S130) from slot No. 1 (see Figure 17) and insert it in slot No. 7

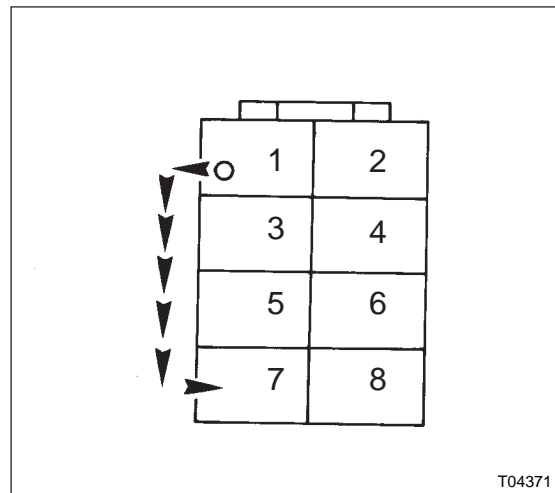


Figure 17: Connector of switch No. S112 and S130

- Refit the connector to the switch and reinstall the switch.
Reconnect the batteries

5 To install supplementary air diffusers at the window side of the parcel rack

1. Hold the template (see figure 19) against the parcel rack fabric, between two air diffusers.
2. Following the outline of the template, secure the template to the parcel rack with a continuous row of staples. This to avoid air flow between the fabric and the wooden frame of the parcel rack.
3. Following the dash lines of the template, cut with a sharp knife through the parcel rack fabric. Fold out fabric flaps (secure with adhesive tape).
4. Saw with a fretsawing machine in the wooden frame closely to the inside of the staple row.
5. Fold in fabric flaps and glue them onto the inner side of the wooden parcel rack frame (follow instructions of glue manufacturer).
6. Install air diffuser with screws.

Procedure complete.

SERVICE INFORMATION:

1. Butterfly valve and non-closing valve diffusers and interchangeable.
2. Butterfly valve diffusers (VH No. 10560711) will be no longer available as service parts for this application

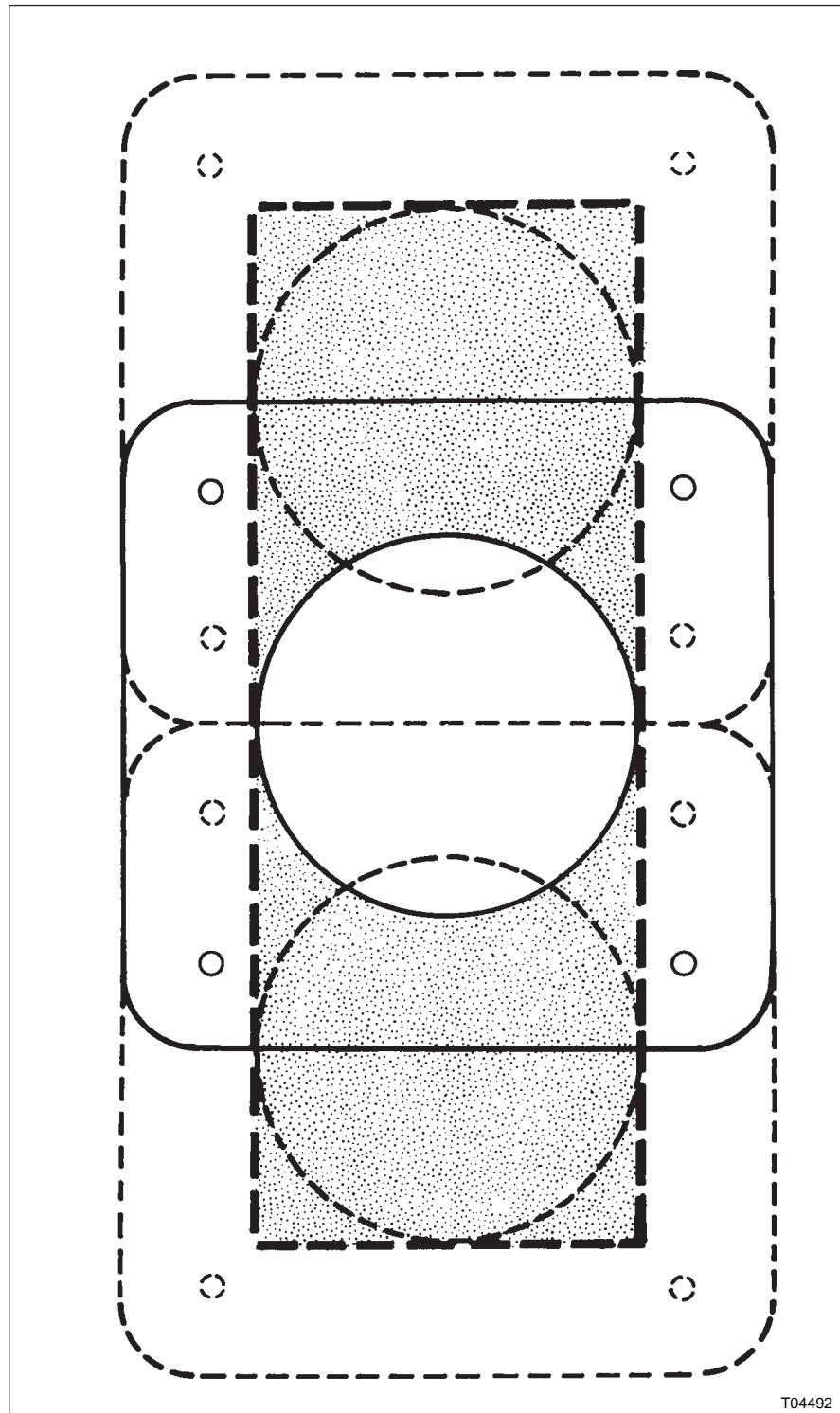
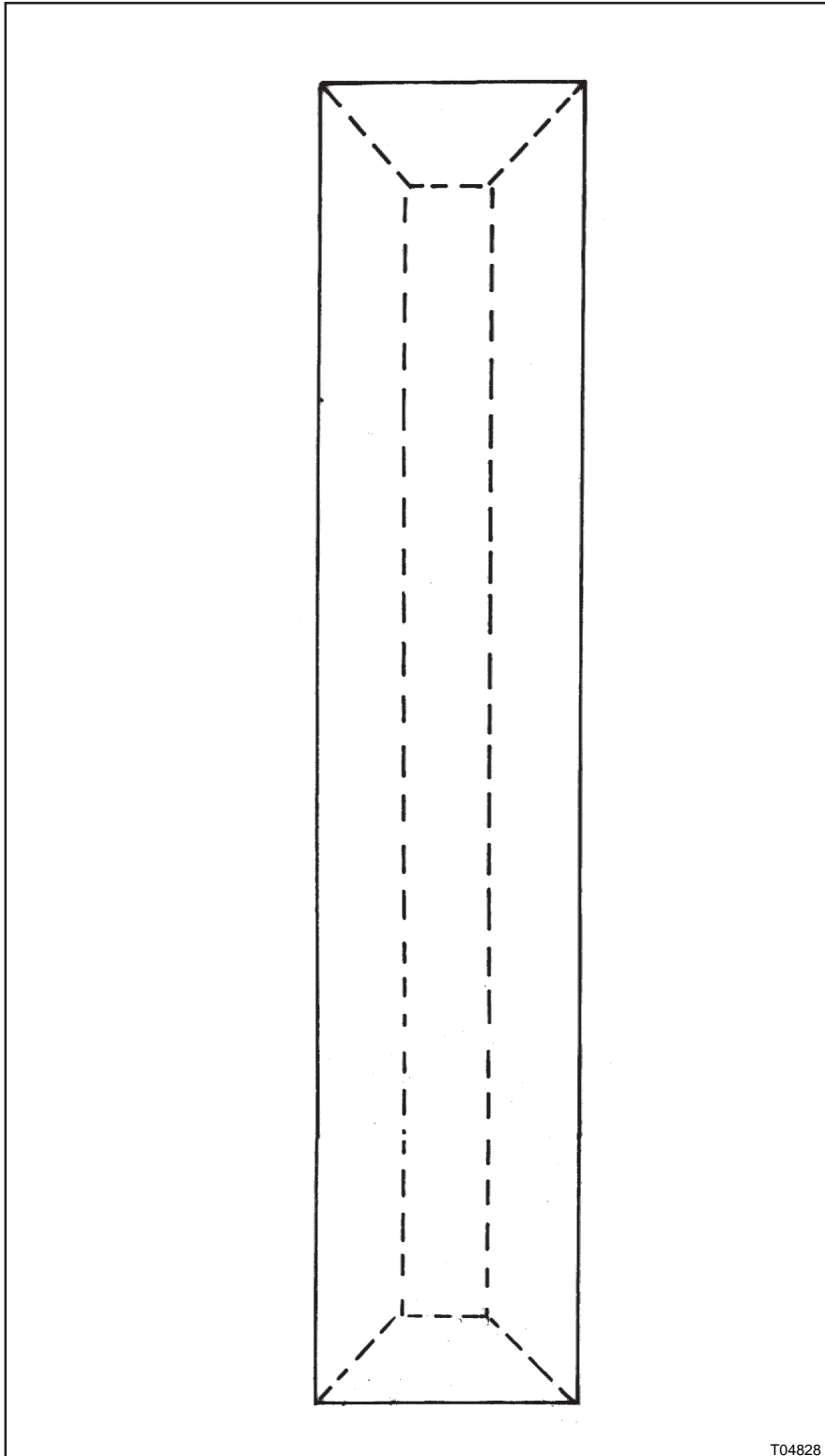


Figure 18: Template to be used for parcel rack bulkhead modification



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Figure 19: Template to install supplementary air diffusers at the window side of parcel rack