

Subject: Servicing the Volvo Instrument Cluster Right Module	Initial Release Date: 10/16/97	Revision Date:	Revision:
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1. Introduction

This Product Information Note supplements Chapter 4 of the 1996 Volvo Instrument Cluster Service Manual and tells how to service the Right Module.

All Right Modules contain a Fuel Level gauge, a Front Brake Air Pressure gauge, and a Rear Brake Air Pressure gauge. Optional configurations may include an Application Air Pressure gauge, a Forward Axle Temperature gauge, and a Rear Axle Temperature gauge. The service procedures are the same regardless of the number of gauges in the Right Module.

Before servicing the Right Module, please review Section 4.1 of the Service Manual for important servicing information.

2. Removing and Reinstalling the Right Circuit Board Assembly

2.1 Removal (Refer to Figure 1)

1. Place the cluster on a static dissipating mat.
2. Remove the Phillips screw at the top of the right rear cover, and the two at the bottom.
3. Lift off the cover, then lift out the Right Circuit Board Assembly with its gauges.

Note - Modules that do not have one or more of the optional gauges have gauge blanks installed in their places. Earlier gauge blanks are secured by a metal retaining clip. This clip can interfere with the the removal, disassembly, or reinstallation of the module. In these cases, removal may be easier if you first remove the Phillips screw that secures the Application Air Pressure gauge to the circuit board .

2.2 Reinstallation

1. Make sure all appropriate gauges are attached and that the LED connectors are plugged in. The air pressure gauges are secured with one Phillips screw each.
2. If the Right Module contains one or more gauge blanks, you may have trouble reinstalling it. If so:
 - a. Remove all gauges except the Front and Rear Brake Air Pressure gauges.
 - b. Place the gauges you removed into their locations in the housing.
3. Position the assembly into the housing, making sure all gauge pins are lined up with their sockets on the circuit board.
4. Seat the electrical gauges by pressing on the circuit board in the center of each gauge.
5. If the module has an Application Air Pressure gauge, secure it to the circuit board with a Phillips screw.

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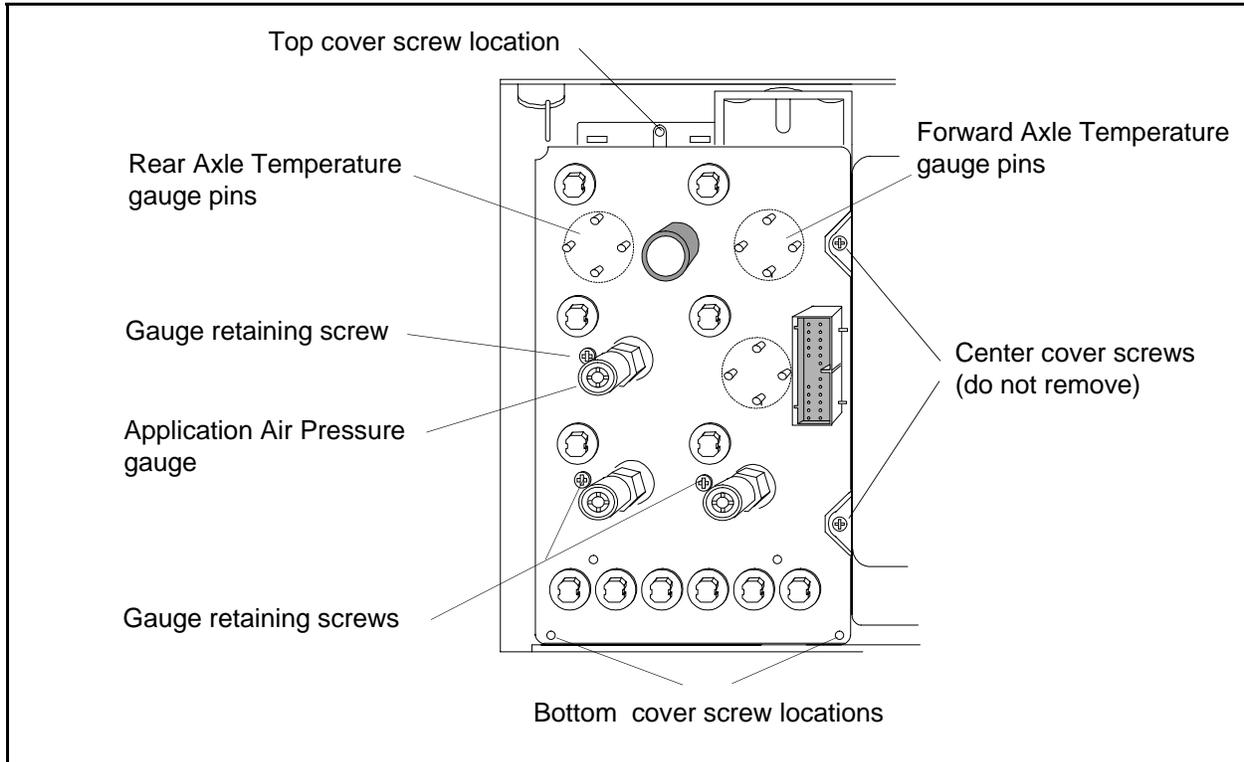


Figure 1 Right Circuit Board after cover removed

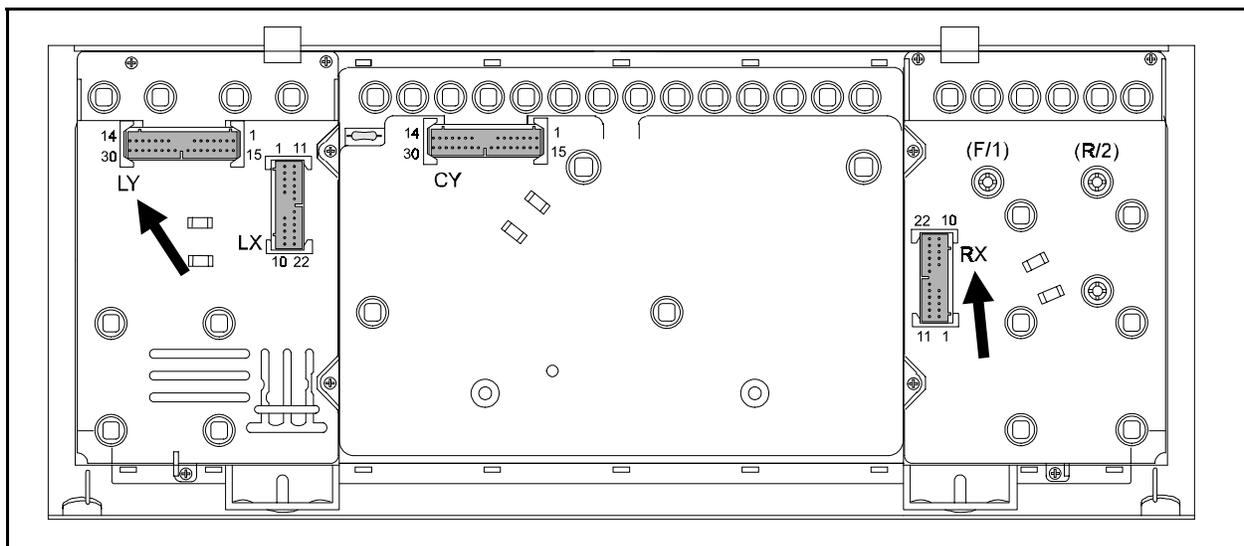


Figure 2 Cluster as seen when pivoted down from the dashboard.

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6. Position the cover over the board assembly and secure with three machine screws.

3. Servicing the Fuel Level Gauge

If the Fuel Level pointer does not sweep during the Gauge test, isolate the problem to the gauge or to a circuit board as follows:

1. Plug in all cluster connectors, turn the ignition key on and verify +5 volts at connector RX-12. See Figure 2 for connector locations.
2. If missing, check at LY-15. If not there, replace the Left Circuit Board as described in the Service Manual.
3. If +5 volts is present at RX-12, replace the Fuel Level gauge and run the Gauge test again.
4. If the gauge still fails, replace the Right Circuit Board as previously described.

3.1 Replacing the Fuel Level Gauge

The Fuel Level gauge is held tightly by its pin sockets. To remove it, grasp the side of the gauge face plate with your thumb on top of the face plate and your 2nd and 3rd fingers underneath. Carefully rock the gauge from side to side while pulling up until the gauge is free.

To install the Fuel Level gauge, position its pins into the pin sockets on the board, then press down firmly and evenly to seat the gauge. It is correctly installed when its face plate is flush with the other gauge face plates.

3.2 Servicing the Air Pressure Gauges

3.2.1 Removal and Reinstallation

The air pressure gauges are mechanical gauges. They are secured to the Right Circuit Board Assembly by one Phillips screw each. To remove an air pressure gauge:

1. Remove the Right Circuit Board Assembly as previously described.
2. Unplug the connector from the gauge to the circuit board
3. Remove the gauge's Phillips screw and remove the gauge.
4. To reinstall an air pressure gauge, secure it to the circuit board using a self-tapping Phillips screw, and reconnect the LED connector to the board (it can go on either way).

3.2.2 Brake Air Pressure Warning LEDs

Although the red warning LEDs for the Brake Air Pressure gauges shine through the gauges, they are actually mounted on and powered by the Right Circuit Board. At a predetermined pressure, contacts inside the gauge close and apply a ground from the Right Circuit Board to light the LED. Therefore if the LED fails to light, the problem may be either with the gauge or with the power or ground from the board. To isolate the problem, temporarily replace the suspect gauge with a known

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good gauge. This can be the other Brake Air Pressure on the board, if desired. If the problem follows the gauge, replace the defective gauge. Otherwise, replace the Right Circuit Board.

3.3 Forward and Rear Axle Temperature Gauges

If an axle temperature gauge is suspect, temporarily switch the positions of the Forward and Rear Axle Temperature gauges and reinstall the cluster into the vehicle. If the problem moves with the gauge, replace the defective gauge; otherwise replace the Right Circuit Board. The temperature gauges are removed and reinstalled like the Fuel gauge.

4. Gauge Blanks

If a gauge is to be removed and not reinstalled, install a gauge blank in its place. Early production models of the cluster may use a metal spring clip called a Gauge Blank Retaining Clip to hold a gauge blank in place. These clips have been replaced by plastic Gauge Blank Support Assemblies in later clusters. You may use a support assembly to replace a retaining clip. Both kinds are shown in Figure 3.

After removing a gauge that will not be replaced, install a gauge blank and a Gauge Blank Support Assembly in its place. When replacing a retaining clip with a support assembly, you must replace all existing clips with support assemblies.

To remove a retaining clip, remove the Phillips screw that secures the clip and lift it out. When replacing a retaining clip in clusters with more than one gauge blank on the right side, fan out the clips to secure each gauge blank.

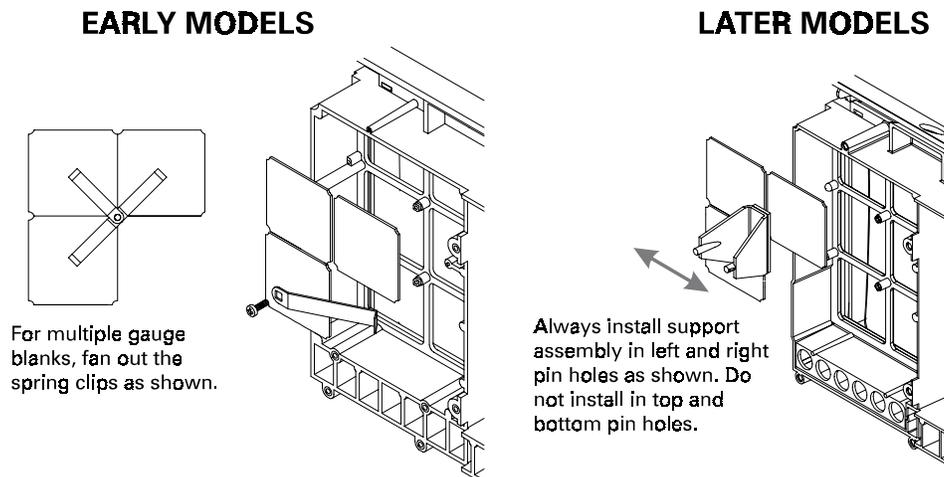


Figure 3 Gauge Blanks

5. Technical Assistance

You can obtain technical assistance by calling the AMETEK/Dixson Service Department at (970) 244-1259 Monday through Thursday between 7 a.m. and 5:30 p.m. Mountain Time, or Friday between 7 a.m. and 12 noon.