

Installation Notes For RXB/RDB Replacement Control Boards

Before Installing in Control Cabinet:

Step 1: Move the program chips from the original to the replacement board. Program chips are compatible for all revisions of the circuit board. This is most easily done with both boards removed from the control cabinet. The chips are removed from U4 and U5 (see **Figure 1**) by using a small screw driver to gently pry them from the socket. These parts are static sensitive so **DO NOT HANDLE THEM BY THE LEADS!** The parts are then installed in the same positions in the new board. Make sure the leads are straight then gently position the parts and press them into place making sure not to bend the pins. **GO SLOW!**

NOTE: LSI Controls has a chip duplication service that provides low cost insurance against program chip damage.

Verify that U8 (the setpoint RAM) is firmly in its socket.

Step 2: Transfer and install I/O modules. Revision A boards have built in I/O and will require a set of plug in I/O modules when replaced by a D or E version.

Install circuit board in Control Cabinet:

Step 3: Install the board in the control cabinet and plug in all the connectors for I/O (P1-P5), Display (P11), Power (P13), Keyboard (P10), and Communications Port 1 if used.

Step 4: Move the battery jumper to ON. The board is shipped with the battery disabled to minimize discharge during shipment and storage. It will take up to two weeks under power for the batteries to attain full charge.

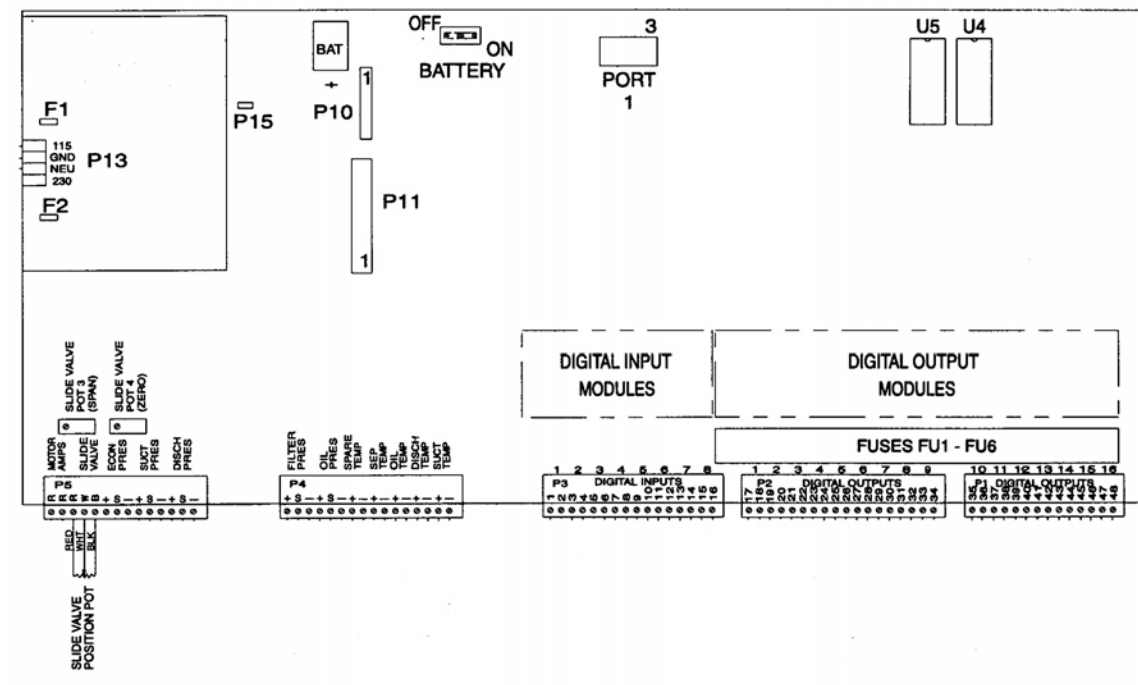


Figure 1

Step 5: Start the machine.

Step 6: Adjust the Slide Valve Pots.

Explanation of Operation:

The installation of a replacement control circuit board requires that the board be calibrated to the Slide Valve Pot on the machine. This pot is operated by internal mechanical linkage from the compressor, which varies somewhat machine to machine. Failure to make these adjustments may cause the compressor to operate at less than full performance. The RXB machine does not have a Slide Stop Pot. This machine is fitted with hydraulically operated fixed stops of 2.2, 3.5, and 5.0.

The potentiometers that make the adjustment are located in the lower left corner of the control as shown in the **Figure 1**.

The Slide Valve Pot assembly is illustrated in **Figure 2**. The linear potentiometer, with nominal value of 1K ohm, is operated by the Slide Stop Pushrod, which is shown as **SV POS** on the display as 0-100 %. The best way to confirm physical operation is to remove the cover and have a second person operate **MANUAL LOAD** and **MANUAL UNLOAD** from the control panel while the pot is observed moving in and out. The readout **%FLA** should also vary as the loading changes. Other responses are an indication of mechanical problems.

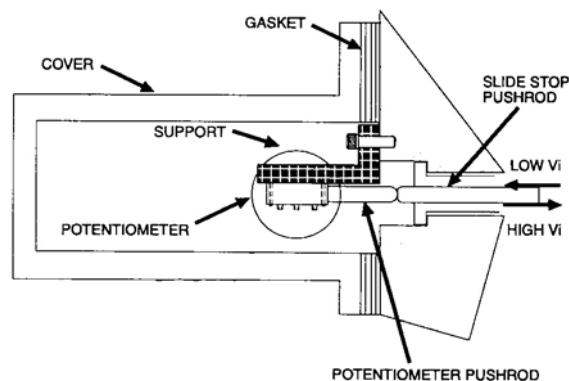


Figure 2

Slide Valve Adjustment Procedure:

1. Manually decrease the Slide Stop until **V RATIO** reads 2.2.
2. Press **Manual Unload** to unload the compressor all the way. This is nominally a **S V POS** of 0% but initially may not reach this value until properly adjusted.
3. Referencing **S V POS**, adjust POT4 until it reads more than 0%, then adjust the opposite direction until it reads 0% and then adjust a little farther.
4. Press **MANUAL LOAD** to move the Slide Valve as far to the opposite end of its travel as possible to the fully loaded position.
5. Referencing **S V Pos** on the display, adjust POT3 until it reads less than 100% then adjust opposite until it reads 100%, then adjust a little farther.
6. Repeat Steps 1-5 until the readings match at both extremes of the Slide Valve travel while **V Ratio** is 2.2.

Troubleshooting The Slide Valve

It is common for mechanical and control board problems to be confused. Before replacing the control board, it is wise to first verify mechanical operation. In the long run this can save a lot of expense. The following few steps will help confirm proper mechanical operation of the Slide Valve.

1. Press **MANUAL LOAD** and **MANUAL UNLOAD** while observing **%FLA** on the display. The reading should increase during load (**MAN I**) and decrease during unload (**MAN U**). If **%FLA** does not respond to load changes it is indication that the mechanism is not functioning.
2. Mechanical operation can be observed by removing the cover of the suspect mechanism and observing the operation as described in the installation section. The mechanical travel of the pushrod varies by machine. Refer to the OEM manual for you machine to confirm the correct length of travel.
3. Electrical operation can be observed by monitoring the corresponding electrical input to the control for response to keyboard commands. This is the best way to confirm that the pot and wiring are functional. The measurements can be made on the screw heads of the plug in terminal blocks to the control board. With a volt meter set to DC Volts, put the negative lead on the right most position of P5 (the left most terminal strip) and the positive lead on the 4th terminal (the White wire) from the left to read Slide Valve. The values should adjust in the 1-5VDC range when **MANUAL LOAD** and **MANUAL UNLOAD** are pressed. If the signal is present and varied at these points, but does not change on the display, replace the circuit board.
4. The Slide Valve Pot can be measured by unplugging connector P5 and measuring with an ohm meter the resistance between the Red and Black wires. The nominal value of the pot is 1K ohm.
5. The Slide Valve setting should not change when the machine is operated in **MANUAL MODE**. If the settings are observed to change or the machine is having difficulty controlling capacity in **AUTO MODE**, then there is probably a leak in the hydraulic system that controls the Slide Mechanism. The hydraulic valves should hold the mechanism in place, however leakage through a solenoid or check valve will allow the mechanism to move as the pressure changes.