

Compressed Air Foam Systems Air Compressor Air Control Circuit Adjustment Procedure

The following is the procedure recommended by Waterous for adjustment of the air control circuit. It includes both fixed air pressure and auto balance adjustments. Adjustments for other manufacturers systems will be similar. Check with your manufacturer for specific directions on your system.

Fixed and Auto Pressure Final Adjustments

The Air Control circuit is preset and adjusted at the factory prior to shipment. In most cases, the factory settings will provide satisfactory performance for typical CADS and auxiliary air applications. The FIXED air operation is factory set at 145-150 psi. The AUTO air operation is set (or trimmed) to match the pump discharge pressure (+/- 5%).

If the air control circuit requires changing or the circuit has lost its factory setting, the following procedure can be used to “fine tune” the system.

1. Preset the Inlet Air trim Valve (IATV) by closing the valve, then opening it 3 turns.
2. Preset the Piloted Balance Trim Valve (PBTV) to full open.
3. Start the fire pump and at idle, establish water flow either through a discharge or tank recirculation.
4. The Auto Sync Control Panel should be in FIXED-UNLOAD mode and all air discharges closed.
5. Start the air compressor by placing the compressor engage switch to “ON”.
6. The main air pressure gauge should read 40-50 psi. In the UNLOAD mode, this minimum pressure is always present to provide compressor oil circulation.

We are ready to proceed with the final adjustments for the FIXED and AUTO modes.

FIXED Air Mode

1. To set the pressure for FIXED operation, first locate the “Fixed Pressure Regulator”. The regulator has an adjustment screw with lock nut.
2. Loosen the regulator’s lock nut.
3. Go to the Auto Sync Panel and place the controls in FIXED-RUN positions. The compressor will build pressure to some value and hold (regulate).
4. While monitoring the air pressure gauge, adjust the screw on the Fixed Pressure Regulator until the desired pressure is reached. Turning the screw IN will INCREASE pressure and turning the screw OUT will DECREASE pressure.

5. Once the desired regulated pressure is achieved, tighten down the lock nut.
6. Verify the fixed regulator is performing by varying the compressor speed and monitoring the air pressure gauge. The pressure should remain steady at your fixed pressure setting.

With the final adjustments to the FIXED air mode complete, proceed with setting the AUTO air mode.

AUTO Air Mode

1. With the fire pump operating at 100 psi main discharge and minimal flow, place the Auto Sync controls to the AUTO-RUN position.
2. Monitor main water discharge pressure and the air pressure gauge. The pressure readings should be the same. If not, proceed to step 3.
3. The Air Inlet Trim Valve (AITV) is the first valve to adjust. If the air pressure is too high, close the trim valve in half turn increments, monitoring both water and air pressure gauges, until the pressures match. Once the pressures match, no further adjustments are needed and proceed to step 5. If the air pressure is still too low, again open the trim valve a half turn. If your pressures match, no further adjustments are needed and proceed to step 5. However, if your air pressure is still too low, proceed to step 4.
4. Your Air Inlet Trim Valve is now open four (4) turns from fully closed. It is not desirable to have the trim valve open more than four (4) turns. So to extend its range, go to the Piloted Balance Trim Valve (PBTM). From the fully open position, close the PBTM one turn then check the water and air pressure gauges. If air pressure is still too low, again close the PBTM one turn and check gauges. Keep repeating this process until the air pressure matches or is slightly higher than the water pressure. The final adjustment can be done using the AITV and step 4.
5. Verify the Piloted Balance valve is performing by varying the fire pump discharge pressure and monitoring the water and air pressure gauges. The air pressure should follow the water pressure and match it. If not, repeat the final adjustment procedure.