



START-UP PROCEDURE

INDIRECT FIRED AIR MAKEUP UNITS WITH RTC Discharge Temperature Control:

Initial start-up of indirect fired units with power burners must be performed by burner manufacture trained personnel. This start-up procedure is intended to serve as a maintenance and service aid to individuals with factory training.

Read the entire start-up procedure and review all reference material (Unit Specifications, Gas Train/Burner Specifications, Sequence of Operation, Parts Lists, and Electrical Schematic) supplied with the unit.

STEP 1

Turn off incoming electrical power and gas supply. Disconnect electrical power at the unit disconnect. Shut off gas supply at inlet to unit's gas manifold. Turn service switches in the unit to the off position.

STEP 2

Verify that incoming electrical and gas supply match the name plate requirements (i.e., voltage/amp capacity, gas pressure and volume capacities, etc). Gas pressure must be 7" – 14" w.c. If they do not, stop at this point and contact Titan Air. Also verify that any associated exhaust systems, etc., have been properly interlocked with the unit.

STEP 3

Open the access doors to blower and control vestibule sections. Check all electrical connections and hardware (blower drives, bearings, damper linkages, etc.) for tightness and correct field wiring connections.

STEP 4

Check that all gas, pilot, vent, and pressure sensing lines are properly connected and unobstructed. Verify that the incoming gas line was "blown out" to flush out debris prior to connecting gas line to unit. Also verify that incoming gas line has been purged of air up to unit's gas inlet.

STEP 5

At the manifold pressure test ports, downstream of the gas valves, connect a gas pressure gauge (pressure gauge must read inches of water column to 5").

STEP 6

After verifying correct field wiring of remote panel, lights, air solenoid, etc., turn on incoming electrical power at unit disconnect. Verify that the remote graphical user interface powers up properly.

STEP 7

Make sure the blower access door is securely held open. Turn SW-5 On.

STEP 8

The optional intake or discharge damper must open prior to starting the supply fan. The damper actuator's internal "proof open" end switch must close prior to enabling the blower circuit. Check for proper blower rotation direction. If the rotation is reversed, turn both SW-5 and the disconnect switch off. For 3 phase motors, reverse two leads.

STEP 9

With proper blower rotation verified, check and record the RPM of the supply blower. Increasing or decreasing RPM to achieve rated CFM may be required due to



START-UP PROCEDURE

actual static pressure differing from predicted static pressure. If the blower speed has to be either decreased or increased (*to change the rated CFM of the unit*), contact the factory.

STEP 10

Turn the unit off. Close and latch the blower access door.

STEP 11

Start on the unit with SW-5. Check and record the amp draw for the motor. If the motor amp draw exceeds listed Full Load Amps (FLA), stop and contact the factory.

STEP 12

Turn the unit off. Check the main gas lines for proper and tight connections with no leaks.

STEP 13

Turn on the main gas valve; slowly open the manual gas valves.

STEP 14

With all wiring in place and the unit operating in the winter mode, adjust the discharge temperature setpoint and verify proper modulation of the burners.

STEP 15

When the burner lights a qualified technician should analyze the flue gas composition and adjust the burner at low and high fire to meet the burner manufacture recommendations. This process is very important and vital to proper burner operation and is to be done by qualified technicians only.

STEP 16

Check the high fire and low fire manifold pressure of the burner. Turn the high temperature limit (TL-1) to its lowest setting. The limit should trip out and shut down the burners. Turn TL-1 back to the factory setting of 185°F and reset the control

STEP 17

With the unit operating in the burner mode, close the main manual gas shutoff valve. The burner should shut down in a few seconds and attempt to relight. When the burner does not light, the unit should shut down following a 30 second post purge. Open the manual valves and reset the flame safeguard.

STEP 18

Turn SW-5 and the disconnect off in the unit. Verify all terminals, electrical connections and hardware (bearings, sheaves, blower wheels, etc.) are securely tightened. Adjust all controls to desired settings. Remove all gauges, meters, and hand tools from the unit. Replace all covers on controls. Make sure all safety devices are reset.

STEP 19

Turn the disconnect on. Verify proper operation in all modes according to the sequence of operation.

STEP 20

Instruct end-user personnel on proper operation, setpoint entry, and fault resets for the equipment.

The unit should be ready for operation. To assure long lasting and efficient operation of Titan equipment, a regular service inspection should be set up. Refer to the maintenance section at the back of this manual for detailed maintenance information.

BELIMO ACTUATOR COUPLED WITH MODULATING VALVE



Low Fire Position

Low Fire Adjustment: Disconnect wire at terminal #1 on actuator. Press “clutch” to manually rotate shaft as needed. Adjust mechanical stop at counterclockwise end of actuator’s stroke to set low fire.

High Fire Adjustment: Adjust high fire at separate regulator. Do NOT adjust mechanical stop at clockwise end of actuator’s stroke. Refer to detailed instructions in start-up procedure.



High Fire Position

Actuator Replacement/Installation: Installation of a replacement actuator should be made with actuator rotated to high fire position. Clockwise high fire mechanical stop should be set and modulating valve stem should be parallel with pipe as shown in “High Fire Position” photo above.

Low fire mechanical stop can initially be set similar to original actuator. Adjust low fire per start-up procedure.

Figure 1