

TK SERIES QUICK START INSTRUCTIONS

FOR YOUR SAFETY

If you smell gas:

1. Open windows.
2. Don't touch electrical switches.
3. Extinguish any open flames.
4. Immediately call your gas supplier.

RECEIVING AND INSPECTION

Upon receiving unit, check for any interior and exterior damage, and if found, report it immediately to the carrier. Also, check that all accessory items are accounted for and are damage free. Turn the blower wheel by hand to verify free rotation and check the damper (if supplied) for free operation.

WARNING!!

Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury or even death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment. ALWAYS disconnect power and turn main gas valve off prior to working on this equipment.

NOTE TO INSTALLER

The operation and installation manual should be reviewed with the customer and left with the equipment user.

1

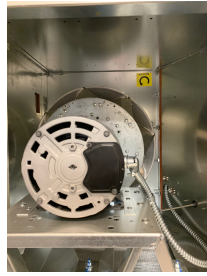
BLOWER ROTATION

Start the fan up by turning the external disconnect to the ON position and check proper rotation of the wheel based on directional arrow located in the unit. (Wait until VFD ramps up and blower wheel begins to move). *Connection of field wired controls may need to be installed prior to unit starting.*

Reversed wheel rotation will result in poor air performance, motor overloading and possible burnout.

For units equipped with a single-phase motor, check the motor wiring diagram to change rotation.

For 3-phase motors, any two power leads can be interchanged on the VFD to reverse motor direction.



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VFD FUNCTION

Once the proper wheel rotation is achieved, turn the external disconnect back to the ON position. (Delay will occur as VFD ramps up).

Note: Internal VFD operating Hz is factory programmed and should not be adjusted.



3

AIR FLOW

The MUA board contains an on-board pressure sensor for airflow monitoring. There are both high and low airflow tubing connection connected to the sensor.

With all the accessories and ductwork attached, measure the burner pressure differential in the on-board HMI, go to **Service (pw 1234)>Variable Values>Inputs>Onbd Prof PS**. With proper airflow, pressure range is (0.15 to 0.8" w.c.). If differential is low, increase VFD Hz, if high, decrease VFD Hz. Care should be taken not to exceed the FLA of the motor.

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MOTOR AMPS

Measure and record the motor voltage and amperage and compare the readings with the motor nameplate to determine if the motor is operating under safe load condition.

To access motor amperage, press the "M" button on the VFD twice, then use the Up/Down arrows until you reach P508, then "M" again. Record this value as the motors running amps and compare to FLA. If above FLA, use the Up/Down arrows to adjust VFD Hz down until below FLA value.

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GAS PRESSURE

Restart the fan and check the gas supply pressure at the inlet gas tap upstream of all electronic valves. The inlet pressure is noted on unit name plate.

If the inlet pressure is too high, install an additional pressure regulator external to the unit.

Open the field installed manual gas shut-off valve and the manual main gas valve on the combination gas control valve.

Call for heat using the HMI, go to **Service>Test Menu>Test Heating>High Fire**. If the pilot does not light, purge the pilot line. If air purging is required, disconnect the pilot line at the outlet of the pilot valve.

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PILOT ADJUSTMENT

Check the pilot flame voltage at the Flame Safety Control interface test jacks. A weak pilot flame can be caused by low gas pressure, or a dirty pilot orifice.

To adjust the pilot flame, remove the cap from the pilot adjustment screw on the combination gas valve. Increase the pilot gas flow by turning the screw counter-clockwise. Decrease the pilot gas flow by turning the screw clockwise. The pilot DC voltage should read 12 VDC minimum and should typically be 18 VDC.

Once the pilot has been established, open the main manual gas shut-off valve downstream of the electronic valves. Check to make sure that the main gas valve opens, and gas flows to the burner.



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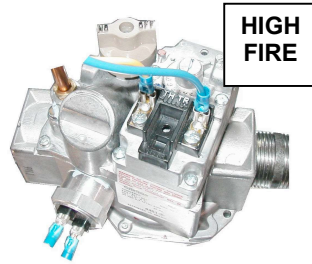
HIGH FIRE

Remove the cap from the combination gas valve regulator (size 1-3) or the cap from the MR212 valve adjustment (size 4-5).

Using the regulator pressure adjusting screw, adjust the high fire manifold pressure to name plate design manifold pressure.

High fire should be set to generate the desired temperature rise. If the high fire screw is at more pressure is needed, then adjust the end of its adjustment and main building gas pressure regulator achieve the proper spring (located external to the unit) manifold pressure.

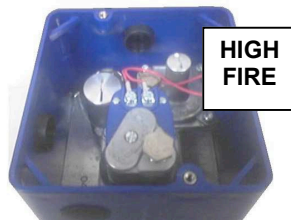
Turning the regulator clock-wise will increase pressure, and counter clock-wise will decrease pressure. **High Fire DC voltage should read 15-24V on the HMI.**



COMBINATION VALVE



MR212 VALVE



MR212 VALVE HIGH FIRE

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LOW FIRE

The low fire manifold pressure must now be set. Low fire can be achieved in the HMI, go to **Service>Test Menu>Test Heating>State>Low Fire**. Press Enter.

Using the bypass screw (located on the side of the M511 and M611 valves, and under the cap of the MR212 valve), adjust the low fire manifold pressure until there is a very thin flame along the **entire length of the burner**.

No dark spots should be seen in the burner. The burner may be observed through the view-port located on the external wall of the heater.

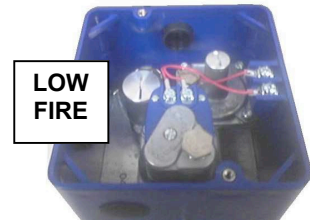
Replace the cap to the Maxitrol valve and restore all of the original wiring on the Maxitrol amplifier and gas components. Final gas leak check should now be performed.



MR411 / 511 / 611 VALVE



MR212 VALVE



MR212 VALVE LOW FIRE

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HIGH FIRE

Create a high fire call for heat. This should be done with the blower on and all gas controls on.

On the HMI, go to **Service>Test Menu>Test Heating>State>High Fire**. Press Enter.

The manifold pressure should be checked at the gas gauge downstream of the modulating valve. For natural gas systems, the high fire manifold pressure should not exceed 5" w.c. For propane gas, the high fire manifold pressure should not exceed 2.5" w.c.

Another method of checking high fire is to measure the temperature rise of the unit. The temperature rise should be set to design conditions per the ETL stickers located on the heater.