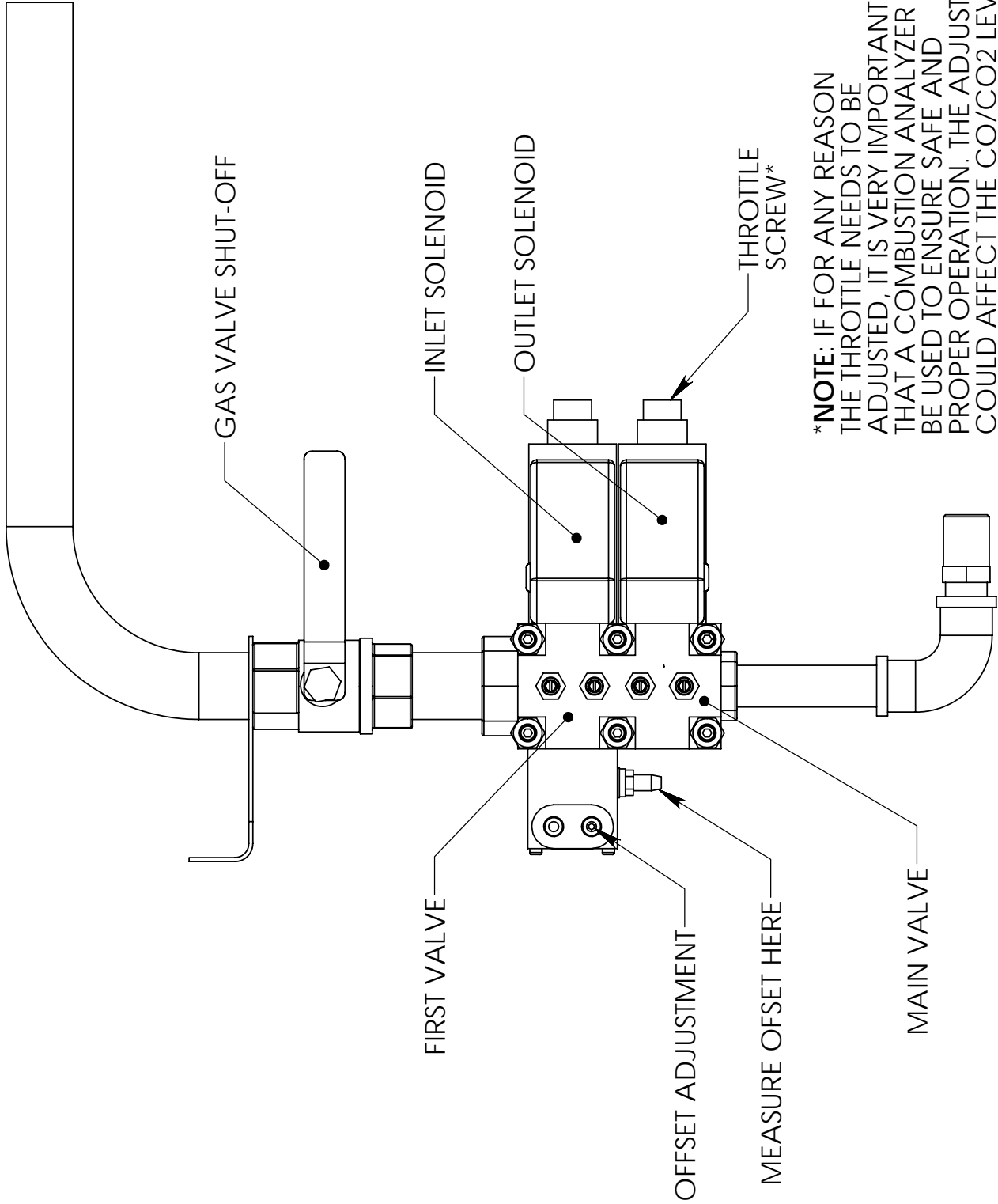


Natural gas Munchkin calibration procedure

- 1) Loosen inlet pressure tapping and set up your manometer to test incoming gas pressure. We're looking for 7" water column (W.C.)
- 2) Bottom out (CW) the throttle adjustment screw and bring back 2½ turns (CCW) for a 399 or 6 turns (CCW) on a Dungs valves.
- 3) Start up boiler using the service mode and if necessary use your hand to throttle the air/gas mixture assembly to get unit to establish flame
- 4) Once the unit is running, check incoming gas pressure again. We're looking for 7" W.C. at high fire, and < 1" W.C. pressure drop from step 1. If there is > 1" W.C. pressure drop the unit will start roughly.
- 5) Press the S1 button to run the unit down into the lowest fire, and hook up your digital manometer onto the offset tapping
- 6) Once low fire has been established, start making adjustments to the offset adjustment screw targeting -.02" W.C.
- 7) Immediately run the unit to high fire by pressing the S2 button
- 8) In the hub of the first fitting, drill a hole into the exhaust pipe and insert your combustion analyzer's probe
- 9) When high fire has been established, start making adjustments to the standard throttle screw targeting 9.5% CO² - be sure to take a peek at your CO levels to be sure they fall within the suggested parameters
- 10) Run the unit back into a low fire and begin adjusting the offset to reach a value of 9.1% CO² - again check the CO to be sure it is less than 20 PPM.
- 11) Bring the unit back up to high fire to make sure that your 9.5% CO² has not changed, and CO is at acceptable level
- 12) Send the unit back down to low fire to make sure that your 9.1% CO² has not changed, and CO is at acceptable level
- 13) Disable service mode (momentarily depress the S1 & S2 buttons together) and let the post purge complete it's cycle.
- 14) Restart unit to be sure that the ignition is smooth.
- 15) Seal the test port made in the exhaust pipe

Notes:

- If you are unable to maintain combustion at low fire, you may need to enrich the offset adjustment screw for the next attempt. Make the adjustments in ¼ turn (CW) increments
- When you first send the unit down into a low fire, take a peek inside the chamber through the sight glass, make note of the overall color of the combustion. Don't focus your eyes at the burner; let them drift off towards the rear of the chamber. If the color is predominantly blue in color you are too lean. Once the unit is dialed in correctly, the overall color within the combustion chamber should be a light orange/yellow. This coloring is a characteristic of the newer burners it is not necessarily an indication to the operation of the unit. The color looks the same at 20PPM and 2000PPM. Do not use it solely as a gauge!
- Once the unit has been adjusted to these parameters, if your combustion is still a little rough be sure to check the spark gap on the igniter.
- If you do not have a digital manometer, at low fire adjust the offset to find the spot where the overall color changes from dark blue to orange/yellow. Leave it on the orange/yellow side. You are too lean at this point, (in my experience you're somewhere between -.06" and -1.2" W.C.) but at least it gives you a benchmark to start from without spiking your combustion analyzer. Without the digital manometer you will be going into low and high fire more frequently than a normal adjustment.



***NOTE:** IF FOR ANY REASON THE THROTTLE NEEDS TO BE ADJUSTED, IT IS VERY IMPORTANT THAT A COMBUSTION ANALYZER BE USED TO ENSURE SAFE AND PROPER OPERATION. THE ADJUSTMENT COULD AFFECT THE CO/CO2 LEVELS. MAKE SURE THE LEVELS CORRESPOND TO THE CHART IN FIG. 3-2 COMBUSTION SETTINGS.

OFF SET ADJUSTMENT
CAUTION: DO NOT REMOVE THIS SCREW OR ATTEMPT TO MAKE ANY ADJUSTMENT TO THIS SCREW WITHOUT A COMBUSTION ANALYZER. SEE PART 12 SECTION "D" FOR COMBUSTION SETTING TABLE.

PRESSURE TAP OUTLET

THROTTLE ADJUSTER
NOTE: IF FOR ANY REASON THE THROTTLE NEEDS TO BE ADJUSTED, IT IS VERY IMPORTANT THAT A "COMBUSTION ANALYZER" BE USED TO ENSURE SAFE AND PROPER OPERATION. TURN THE ADJUSTER TO THE (+) TO INCREASE GAS OR THE (-) TO DECREASE THE GAS SUPPLY. THIS ADJUSTMENT COULD AFFECT CO/CO% LEVELS. MAKE SURE THE LEVELS CORRESPOND TO THE CHART IN COMBUSTION SETTINGS. SEE PART 12 FIGURE 12-1

GAS VALVE

PRESSURE TAP INLET

GAS SHUT OFF VALVE

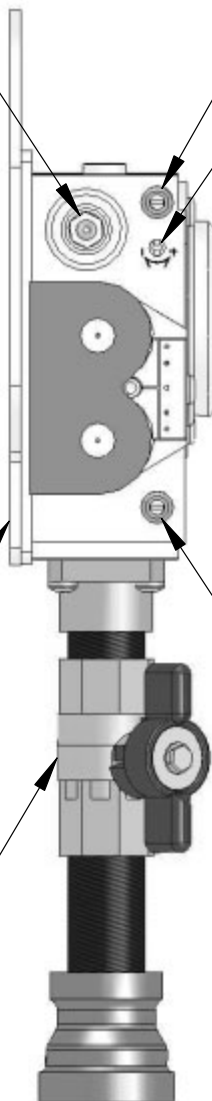


Fig. 8-2