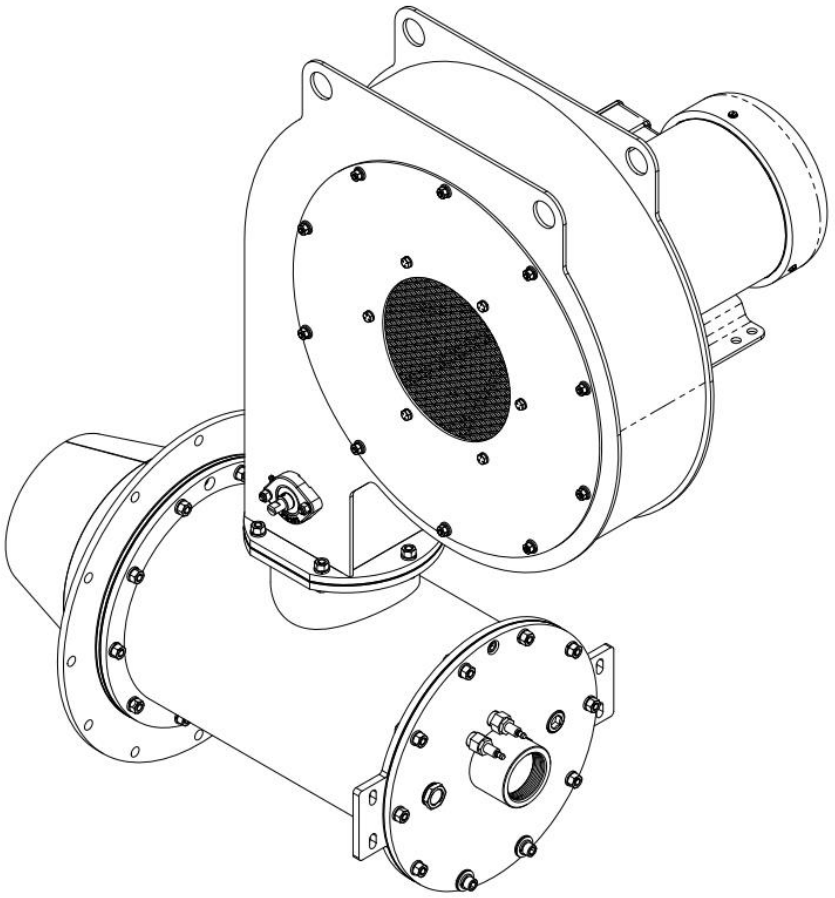
FABER
Burner Company

FOREFRONT APT BURNER

Instruction Manual

(Installation & Maintenance)



OM_APT_24R3

1000 East Bald Eagle Street • Lock Haven, PA 17745-3215
Phone: 570-748-4009 • Toll Free: 888-FABER11 (322-3711) • Fax: 570-748-4324
E-mail: sales@faberburner.com

NEED PARTS?

Burner Parts Now

(A Division of Faber Burner Company)

www.burnerpartsnow.com

We believe that real customer service starts with having the parts you need ready for immediate shipment. For this reason, we stock thousands of parts that make up our combustion equipment and systems. From the components for valve train piping to electrical control components, there is a good chance that we have the parts you need.

Table of Contents

[This Page Intentionally Left Blank]

Foreword

Faber Burner Company (the Company) has prepared this instruction manual to serve as a general guide for operating and maintaining the burner and auxiliary equipment furnished by the Company. These instructions represent the Company's best judgment at the time of issuance and are based on Faber Burner Company's best knowledge, experience, and standard technical procedures and on recommendations from publications such as the NFPA standards. In offering this guide and instructions for preparation, operation, maintenance, and safety, Faber Burner Company assumes no responsibility for actions taken in reliance on this guide or for the results of such actions. They shall be at the entire risk of the user.

THE INFORMATION AND RECOMMENDATIONS CONTAINED IN THIS MANUAL DO NOT ESTABLISH, IMPLY, OR WARRANT ANY RESPONSIBILITY ON THE PART OF FABER BURNER COMPANY. THE COMPANY EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, WHICH MIGHT ARISE UNDER LAW, EQUITY, OR CUSTOM OF TRADE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR ANY PARTICULAR, SPECIFIED, OR INTENDED PURPOSE.

The manual is intended for use by qualified personnel who are experienced in the operation and maintenance of furnaces, ovens, heaters, and their auxiliary equipment. It is not intended to cover all possible variations in equipment and operating conditions or to provide for specific operating or maintenance problems that may develop. Specific component information from the manufacturer takes precedence over any general recommendations supplied in these operating instructions.

The presence of Faber Burner Company Field Representatives on new or existing projects is to aid in training the user's personnel. The function of these engineers is to advise or consult, not to supervise or operate.

General Warnings

This instruction manual has been prepared to serve as a general guide in installing, operating, and maintaining equipment furnished by this company. It is intended for use by qualified personnel with a knowledge of combustion equipment. It is not intended to cover all possible variations in equipment nor to provide for specific operating problems that may arise.

⚠ IMPORTANT

Should any question with regard to the operation of the burner and/or auxiliary equipment arise, or should any procedure not be covered by this manual, Faber Burner or its field representative should be contacted IMMEDIATELY.

Written instructions cannot replace intelligent thinking and reasoning on the part of the operator. This manual is intended as a guide to proper operation. But it does not and cannot anticipate every possibility. The responsibility for the proper operation of the equipment remains with the burner operator. Proper operation and maintenance are the sole responsibility of the burner operator. Personnel must be thoroughly familiar with the equipment before operating or maintaining it.

The company's liability for the equipment furnished is as outlined in the Contract. The company neither assumes nor has any responsibility for any of the equipment not furnished by the company. No employee of the company is authorized to assume any responsibility for equipment not furnished by the company.

Competent supervision of mechanical and electrical equipment in burners and controls is necessary to maintain safe and reliable operation.

One of the benefits to the owner of a burner system is its operation using automatic controls. Such controls reduce the amount of manual labor required, afford a consistently high degree of regulation, and, therefore, contribute to the low cost of operation.

To maintain these advantages, the owners and operators of burner systems must recognize that adequate supervisory maintenance is necessary and that the automatic operation of these units does not eliminate the need for employing qualified operators.

General Instructions

⚠ IMPORTANT

This manual should be given to any personnel who will operate this burner or those who will perform maintenance thereon. Operators should read this manual carefully and be warned of the potential hazards of this equipment.

- All services must be performed by qualified personnel while the equipment is in a safe lockout/tagout state according to the user's policies. Follow proper lockout/tagout procedure before performing any maintenance. If you have any questions about how to perform any maintenance properly, **consult Faber Burner Company**.
- Position the burner away from direct heat and areas with excessive inert gases. If this is unavoidable, consider using filters, moving the burner, or employing an external air source.
- The electrical supply must match the voltage, phase, and frequency requirements of all electrical components of the system and be in line with the equipment specifications.
- Ensure all standard control safety measures are met.
- After the burner is switched off, the air blower for combustion should keep operating to cool down the burner.
- The diameter of the gas supply pipes must be sufficient to sustain the necessary fuel pressures for the specific burner size at its maximum capacity.
- The burner should be connected to the gas train in a manner, such as using unions, that makes the burner removal simple and quick.
- The inlet pipe to the burner should be a minimum of four pipe diameters long. For setups with multiple burners using a single gas source, ensure even pressure distribution and minimal pressure loss.
- Keep fuel lines clean to avoid blockages in the pipe train components or the burner's gas ports.
- Place the main Shut-Off Cock before the main gas regulator and the pilot line connection. Use it to cut off the fuel supply to both the pilot and main burner for extended shutdowns.
- The fuel throttling valve is not designed for complete shut-off.
- A main gas regulator is crucial for consistent system pressure. Each burner line should have its own regulator for systems with multiple burners. Size the regulator for the system's full capacity, considering pipe losses.

- The pilot take-off should be located after the main Shut-Off Cock. It typically includes a pilot gas regulator, a solenoid valve, and a shut-off cock.
- Ensure the pilot piping is sized to deliver the full flow and pressure as specified for your burner size.
- Horizontal mounting is preferred, but other positions can be used if they suit the actuator(s) and UV scanner.
- The air inlet and motor should be in a clean, cool, and fresh air environment for optimal performance.
- Flame sensing can be done using a flame rod or UV scanner. Place UV scanners as close as possible to the burner. Be aware that heat shields may interfere with some scanner signals.
- An external viewing port for observing the flame is recommended, ideally positioned to view both the pilot and main flame.
- Changing from a flame rod system to a UV scanner system, or vice versa, might require additional parts. Contact Faber for specific requirements.
- The control system should be wired to prevent the main Fuel shutoff Valve from opening unless combustion air is present. It should also deactivate the valve if there is a loss of combustion air pressure and maintain other standard system interlocks.
- The motor starter should be interconnected with the valve, regardless of whether a combustion air pressure switch is used.
- One should run the air fan before and after burner operation to purge combustibles from the furnace.

⚠ IMPORTANT

Should there be a delay in installing the burner, it should be stored in an area that is dry and secure. Ensure the burner is safeguarded against moisture and vibrations. Cover all machined parts, like the shafts, for protection. Every two weeks, turn the wheel several times, making sure to stop it at a different position than where it began. Regularly, once a month, lubricate the bearings with grease.

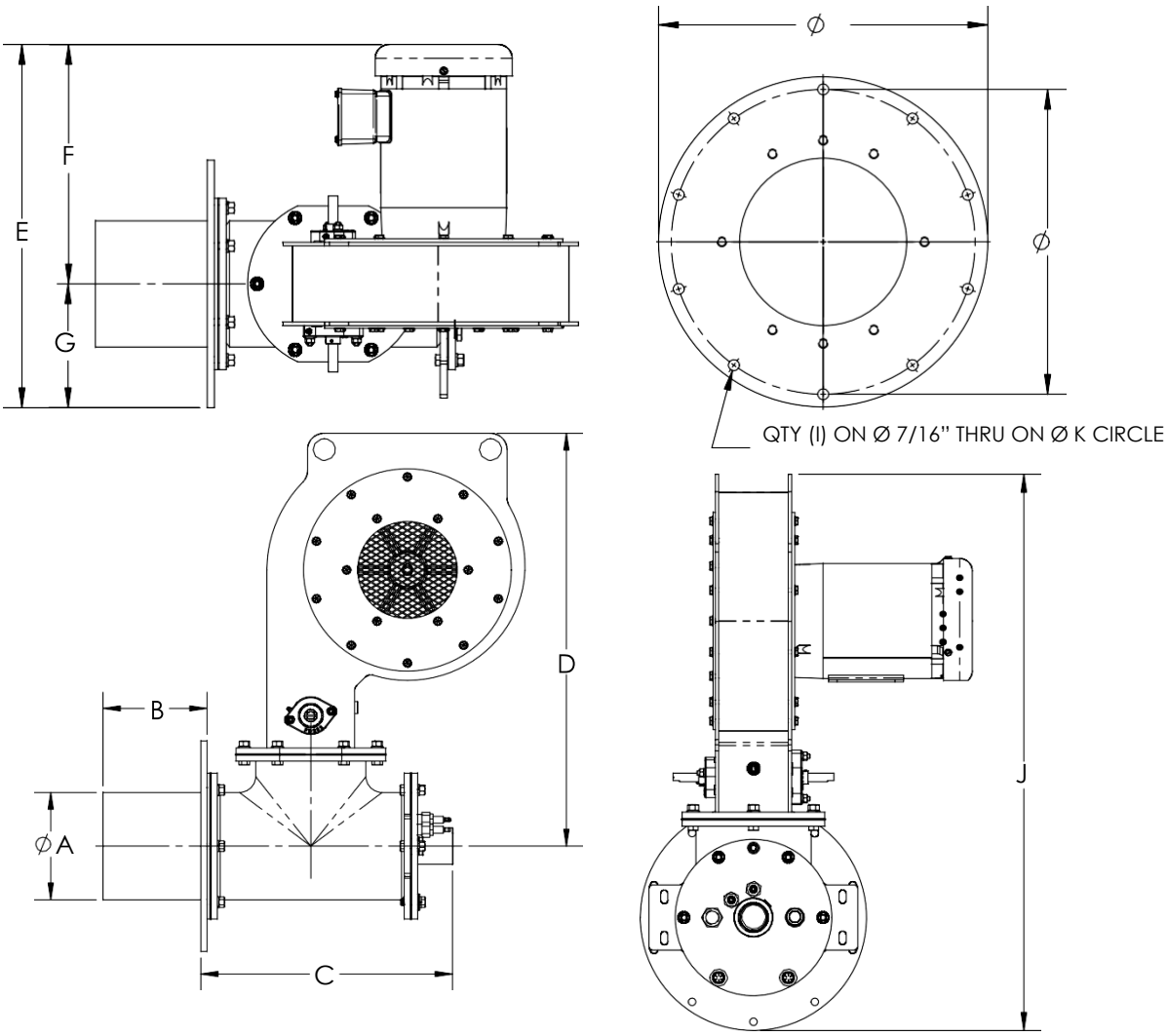


Figure 1 - Overall APT Dimensions

Table 1 - Overall Dimensions for Figure 1

SIZE	A	B	C	D	E	F	G	H	I	J	K
6	6.625"	7.37"	15.17"	33.04"	23.6"	17.11"	6.5"	13"	10	39.54"	12"
8	8.208"	8.37"	18.09"	34.12"	24.6"	17.11"	7.5"	15"	12	41.62"	14"
10-S	10.24"	10.5"	20.97"	35.31"	25.6"	17.11"	8.5"	17"	12	43.81"	16
10-C	10.24"	8.37"	20.97"	35.31"	25.6"	17.11"	8.5"	17"	12	43.81"	16
12	12.34	8.37"	20.97	38.75"	27.7"	18.22"	9.5	19"	12	48.25"	18

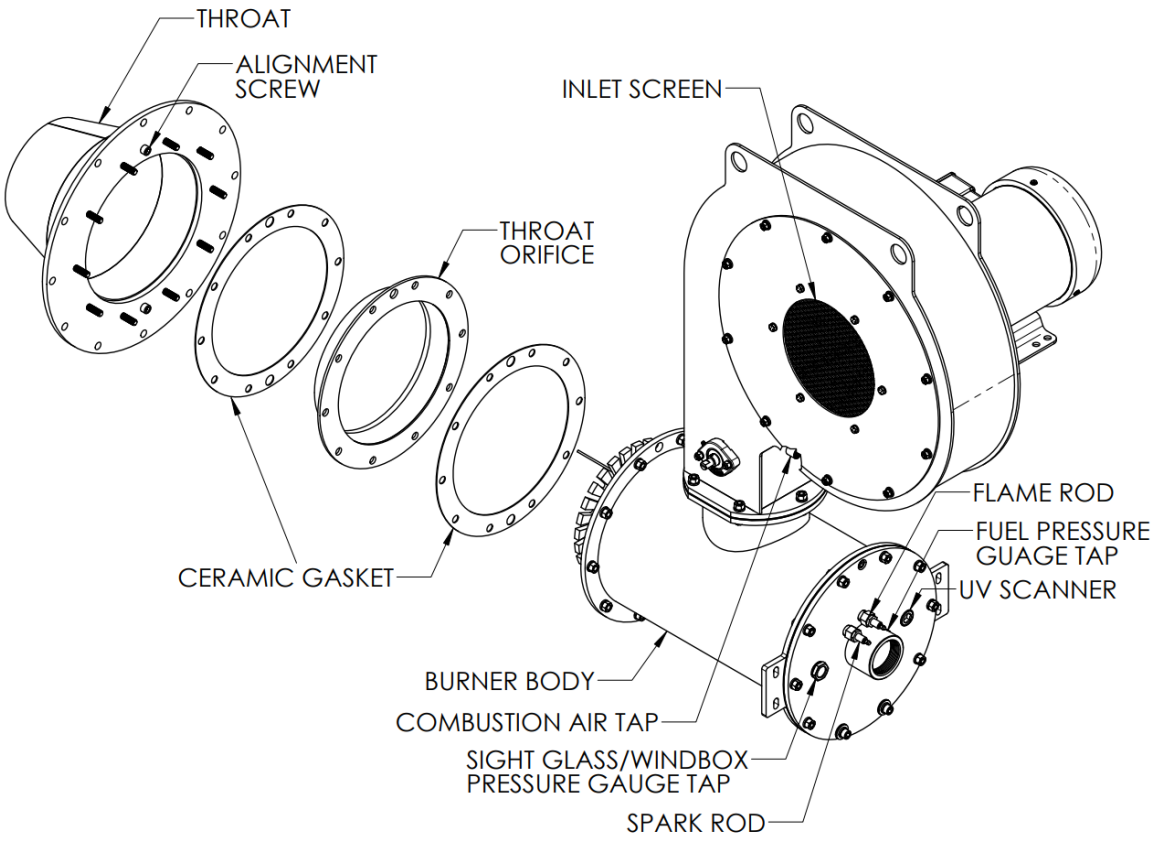


Figure 2 - Exploded view of the throat connection.

⚠ IMPORTANT

Keep the packaging until assembly is complete to ensure no parts are missing.

⚠ WARNING

Always follow all regulatory agency, NFPA, code, and insurance requirements applicable to the installation and operation of the burner.

Burner Installation

Before initiating any procedure, ensure that you have thoroughly reviewed all provided instructions and drawings. Additionally, ascertain that the installation of your equipment adheres strictly to the most recent directives issued by the original manufacturer.

Burner Throat

The burner throat is designed to be attached to the fired equipment, with the throat protruding into the combustion chamber. If the furnace refractory wall is thicker than the throat length, the refractory must be chamfered at a 45° angle from the end of the throat.

- Orient the throat so that the alignment screws are at the 12 o'clock and 6 o'clock position.
- Bolt or weld the throat flange to the front plate of the fired equipment using a sealant or gasket suitable for the temperature of the equipment.
- If a gap remains between the throat side and the interior refractory wall, fill it with a suitable high-temperature insulating material.

Burner Assembly

- Ensure that the burner is electrically grounded per local codes.
- Bolt the burner assembly to the throat flange using a new gasket.

Flame Rod

The burner may be equipped with a flame rod to monitor the presence of flame. If no flame is detected while fuel is admitted to the burner, the burner management system (BMS) will trip and lock out the burner. Refer to burner management system documentation for more information on operation and lockouts.

Using a flame rod to detect the presence of flame relies heavily on the importance of proper burner grounding. It is important to read and understand the burner management system documentation on flame rod use and adhere to the wiring requirements. Unless the wiring requirements state otherwise, it is recommended to use a coaxial cable (Belden 8254-RG62 or equivalent), and if run in a conduit, do not run it with high voltage wiring. Maximum wiring run should not exceed 100 feet.

Gas Supply

- Refer to the Burner data sheet for the required gas pressure.
- The installer is responsible for providing all required piping, regulators, safety shut-off valves, and fuel pressure safety limit switches per NFPA standards.

NOTE: It is highly recommended to provide fuel regulators that have a spring range that will allow for flexibility above and below the stated pressures.

Wiring

- Ensure the burner is grounded and wired per local codes and industry best practices.
- Confirm the fan wheel is turning in the correct direction.

Purge and Low Fire Limit Switches

Purge and Low Fire Limit Switches: Refer to the actuator manual for operating and adjustment procedures, should adjustment be necessary.

Actuator Stroke

Actuator Stroke limits are used to prevent the actuator from stalling against the travel stops in the open position and to set the valve in a fully closed position. Refer to the actuator manual for operating and adjustment procedures, should adjustment be necessary.

Combustion Air Pressure Switch

A combustion air pressure switch must be installed to help prevent the burner from operating with a malfunctioning fan. The setpoint required depends on the flow characteristics of the fired equipment and must be determined after the burner is installed. A switch kit is supplied with the burner, including the switch.

To find the **initial setpoint**:

- Connect a manometer to the ¼" NPT pressure tap on the fan housing.
- Ensure that the burner is isolated from the gas supply.
- Start the burner.
- Record the pressure reading with the damper fully open (Purge).
- Adjust the initial setpoint to 80% of the recorded reading.

⚠ WARNING

Keep the fan wheel and inlet screen free from obstructions at all times.

⚠ DANGER

An obstructed screen or dirty fan wheel will cause inefficient combustion and may cause loss of flame and an explosive atmosphere in the fired equipment.

Initial Start-up and Burner Tuning

The APT can be equipped with a variety of fuel/air ratio control (Combustion Control System - CCS) strategies depending on the application. It is imperative that the operator of this equipment understands the function, variables, and limitations of the CCS provided with the burner.

ⓘ SOME NOTICES

The commissioning and setup of this burner shall be by competent personnel trained in the startup and commissioning of burners.

Refer to the start-up and tuning information supplied with the burner control system being used.

To properly tune this burner, an accurately calibrated flue gas O2 instrument is required.

Faber Burner is not responsible for harmonic coupling of the burner with the fired equipment.

Changes in back pressure or fuel pressure will result in a change in the air/fuel ratio and will require re-tuning of the burner.

Actuator Function

- Verify that the actuator rotates the fan damper open during the purge.
- Confirm the actuator closes the fuel valve to the near 0° position for light off.

Actuator Stroke

The actuator stroke is usually pre-set using internal limit switches. These limits are used to prevent the actuator from stalling against the travel stops in the open position and to set the valve in a fully closed position. Refer to the actuator manual for adjustment procedures should adjustment be necessary.

Purge and Low Fire Limit Switches

Purge and Low Fire Limit Switches may be contained in the actuator. These switches should only be adjusted by trained and qualified personnel. Refer to the actuator manual for adjustment procedures should adjustment be necessary.

Gas Pressure

A significant variable when tuning the burner is the regulated pressure supplied to the gas control valve.

- Higher pressures correspond to lower excess air.
- Lower pressures will increase the excess air.

Combustion Air

The centrifugal fan supplied with your burner is a volumetric device that will deliver consistent air flow rates for a given damper position. The customer is responsible for tuning the desired performance. To find the target oxygen concentration in the flue gas, please refer to the design sheet provided with the burner. Please contact Faber Burner if you have any questions.

Any operation with less than 3% oxygen concentration in the flue gas should be avoided. However, the mass flow of air depends on the density, and the air temperature affects its density. In other words, when the air temperature increases compared to the temperature at commissioning, the mass flow rate of air will be reduced, and the oxygen could drop below the target oxygen in the flue gas. To prevent this, use the tables in this document to identify the target oxygen concentration for the commissioning and switch setting procedure to ensure the target oxygen concentration is at the maximum expected air temperature.

NOTE: Faber Burner provides calculators at www.FaberBurner.com for other conditions.

ⓘ EXAMPLE: (Oxygen Concentration Correction Tables)

If the commissioning is done at 60 °F but the maximum summer combustion air temperature is expected to be 110 °F, then the target oxygen concentration during commissioning should be 6.5%. This will ensure that the operating oxygen concentration will not fall below 5% in the summer months. If this important correction was not made and the O_2 at 60°F was set at 5%, when the temperature reached 110 °F, the O_2 would be at a potentially dangerous level of 3.3%.

5% Oxygen Concentration Correction Table

Commissioning Air Temp. [°F]	Maximum Expected Air Temperature, °F									
	30	40	50	60	70	80	90	100	110	120
30	5.0%	5.3%	5.7%	6.0%	6.3%	6.6%	6.9%	7.2%	7.4%	7.7%
40	4.6%	5.0%	5.3%	5.7%	6.0%	6.3%	6.6%	6.8%	7.1%	7.4%
50	4.3%	4.7%	5.0%	5.3%	5.7%	6.0%	6.3%	6.5%	6.8%	7.1%
60	3.9%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%	6.2%	6.5%	6.8%
70	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%	6.2%	6.5%
80	3.2%	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%	6.2%
90	2.8%	3.2%	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%
100	2.5%	2.9%	3.3%	3.7%	4.0%	4.4%	4.7%	5.0%	5.3%	5.6%
110	2.1%	2.5%	2.9%	3.3%	3.7%	4.0%	4.4%	4.7%	5.0%	5.3%
120	1.8%	2.2%	2.6%	3.0%	3.3%	3.7%	4.0%	4.4%	4.7%	5.0%

 • 1000 East Bald Eagle Street • Lock Haven, PA 17745-3215
Phone: 570-748-4009 • E-mail: sales@faberburner.com

4% Oxygen Concentration Correction Table										
Commissioning Air Temp. [°F]	Maximum Expected Air Temperature, °F									
	30	40	50	60	70	80	90	100	110	120
30	4.0%	4.4%	4.7%	5.1%	5.4%	5.7%	6.0%	6.3%	6.6%	6.8%
40	3.6%	4.0%	4.4%	4.7%	5.0%	5.4%	5.7%	6.0%	6.3%	6.5%
50	3.2%	3.6%	4.0%	4.4%	4.7%	5.0%	5.3%	5.6%	5.9%	6.2%
60	2.9%	3.3%	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%
70	2.5%	2.9%	3.3%	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%	5.6%
80	2.1%	2.5%	2.9%	3.3%	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%
90	1.7%	2.1%	2.5%	2.9%	3.3%	3.7%	4.0%	4.3%	4.6%	5.0%
100	1.3%	1.7%	2.2%	2.6%	2.9%	3.3%	3.7%	4.0%	4.3%	4.6%
110	0.9%	1.4%	1.8%	2.2%	2.6%	3.0%	3.3%	3.7%	4.0%	4.3%
120	0.5%	1.0%	1.4%	1.8%	2.2%	2.6%	3.0%	3.3%	3.7%	4.0%

5% Oxygen Concentration Correction Table										
Commissioning Air Temp. [°F]	Maximum Expected Air Temperature, °F									
	30	40	50	60	70	80	90	100	110	120
30	5.0%	5.3%	5.7%	6.0%	6.3%	6.6%	6.9%	7.2%	7.4%	7.7%
40	4.6%	5.0%	5.3%	5.7%	6.0%	6.3%	6.6%	6.8%	7.1%	7.4%
50	4.3%	4.7%	5.0%	5.3%	5.7%	6.0%	6.3%	6.5%	6.8%	7.1%
60	3.9%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%	6.2%	6.5%	6.8%
70	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%	6.2%	6.5%
80	3.2%	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%	6.2%
90	2.8%	3.2%	3.6%	4.0%	4.3%	4.7%	5.0%	5.3%	5.6%	5.9%
100	2.5%	2.9%	3.3%	3.7%	4.0%	4.4%	4.7%	5.0%	5.3%	5.6%
110	2.1%	2.5%	2.9%	3.3%	3.7%	4.0%	4.4%	4.7%	5.0%	5.3%
120	1.8%	2.2%	2.6%	3.0%	3.3%	3.7%	4.0%	4.4%	4.7%	5.0%

6% Oxygen Concentration Correction Table										
Commissioning Air Temp. [°F]	Maximum Expected Air Temperature, °F									
	30	40	50	60	70	80	90	100	110	120
30	6.0%	6.3%	6.6%	6.9%	7.2%	7.5%	7.8%	8.0%	8.3%	8.5%
40	5.7%	6.0%	6.3%	6.6%	6.9%	7.2%	7.5%	7.7%	8.0%	8.2%
50	5.3%	5.7%	6.0%	6.3%	6.6%	6.9%	7.2%	7.4%	7.7%	7.9%
60	5.0%	5.3%	5.7%	6.0%	6.3%	6.6%	6.9%	7.2%	7.4%	7.7%
70	4.7%	5.0%	5.4%	5.7%	6.0%	6.3%	6.6%	6.9%	7.1%	7.4%
80	4.3%	4.7%	5.0%	5.4%	5.7%	6.0%	6.3%	6.6%	6.9%	7.1%
90	4.0%	4.4%	4.7%	5.1%	5.4%	5.7%	6.0%	6.3%	6.6%	6.8%
100	3.7%	4.0%	4.4%	4.7%	5.1%	5.4%	5.7%	6.0%	6.3%	6.6%
110	3.3%	3.7%	4.1%	4.4%	4.8%	5.1%	5.4%	5.7%	6.0%	6.3%
120	3.0%	3.4%	3.7%	4.1%	4.5%	4.8%	5.1%	5.4%	5.7%	6.0%

Linkage System Tuning

In some burner systems, a linkage rod is used to mechanically connect the actuator to both the air damper and fuel control valve, creating a single-point positioning system. This setup allows for simultaneous modulation of both air and fuel by a single actuator, simplifying control and reducing component cost. However, it requires careful mechanical tuning to achieve the desired air-fuel ratio (AFR) across the burner's firing range.

Purpose and Principle

The goal of a linkage-based positioning system is to maintain a stable and efficient combustion process throughout the burner's operating range. Proper adjustment ensures:

- Stable flame characteristics
- Low excess air without risking incomplete combustion
- Minimized emissions (CO, NOx)
- Consistent fuel economy

Adjusting the Linkage System

Adjustments to the linkage will alter the fuel-to-air ratios. There are two main methods which the linkage system can be adjusted by:

- Adjusting Fuel Supply Pressure

This is the primary and manufacturer-recommended method to adjust the predetermined air-to-fuel ratio. The fuel supply pressure (provided by the regulator) is a key variable affecting fuel flow rate at a given valve position.

- Higher pressures decrease excess air.
- Lower pressures increase excess air.

Adjustment guidance:

1. Set gas train regulator to a baseline pressure recommended by Faber.
2. Monitor fuel flow (via orifice or pressure drop) and combustion readings (O_2, CO) during tuning.
3. Adjust supply pressure gradually and re-check linkage interaction to maintain proportional modulation.

- Rod length:

If further adjustments are required, changing the effective length of the rod (via threaded connectors) alters the synchronization between air and fuel.

- A longer rod decreases excess air.
- A shorter rod increases excess air.

NOTE: Always verify damper and valve travel limits before adjustment to avoid binding or over-travel.

Example: If the burner shows signs of lean combustion at low fire (e.g., flame instability, high O_2), lengthening the linkage rod slightly may delay air opening and improve fuel-richness at startup.

Final Tuning and Verification

After making mechanical and pressure adjustments:

1. Measure the stack O_2 across the burner's range.
2. Check flame stability at light-off, low, mid, and high fire.
3. Log CO/NOx emissions if applicable.
4. Perform a safety shutdown and startup test to verify consistent and safe.

Light-Off / Tuning

⚠ WARNING

All safety devices must be installed and verified to function correctly prior to lighting the burner.

- Initiate and supervise the start sequence. Ensure the system cycles through a purge, then to the low fire position for light off.
- Increase the burner firing rate slowly in increments of 10%, holding each increment until the oxygen analyzer shows a stable target reading for the flue gas that is greater than 3% oxygen.
- Confirm that the oxygen is greater than the target oxygen at a minimum through maximum firing rate.
- Carefully consider the high-temperature ambient combustion air conditions when tuning the burner. **One MUST tune for the worst-case high ambient combustion air temperature condition.**

⚠ WARNING

Air temperatures have a significant impact on O_2 levels; 60°F ambient air temperature change corresponds to approximately 2% exhaust stack O_2 change.

Retuning the burner during periods of high or low temperatures may be required to prevent inefficient combustion, loss of flame, and an explosive atmosphere in the fired equipment.

NOTE: Faber Burner provides Oxygen Concentration Calculators at FaberBurner.com

- Adjust the necessary tuning variables to obtain the target oxygen in the flue gas.
- Carefully fill out the burner combustion data sheet from (low fire to high fire) and then from (high fire to low fire).

Maintenance

Fan Assembly Maintenance

If the fan assembly is separated from the burner assembly, the tuning of the burner may be compromised. Create index marks on the fan outlet flange and its mating flange on the burner to minimize this effect.

To ensure long life and trouble-free service, frequently check the bearing lubrication. Should excessive vibration develop, check the following possibilities:

- Build-up of dirt or foreign material on the wheel.
- Loose bolts on bearings, housings, foundation, and drive.
- Check wheel set screws.
- Foreign matter may have entered the fan, causing damage to the wheel, shaft, or bearings.
- Vibration may be coming from a source other than the fan. Stop the fan and determine if the vibration still exists. Disconnect the driver from the fan and operate it by itself to determine if it produces vibration.
- Proper clearance between the wheel and the inlet.

After approximately one month of operation, all base, hub, bearing, pedestal, etc. bolts should be checked. Potentially damaging conditions are often signaled in advance by changes in vibration and sound. A simple, regular audio-visual inspection of fan operation leads to correction of the condition before expensive damage occurs.

If the fan is to remain idle for an extended period, fill the bearing with grease. Protect motor and exposed surfaces. Follow the motor manufacturer's recommendations for storage and rotate the shaft by hand several revolutions each month.

Linkage Maintenance

It is important to regularly check the linkage bolts and set screws for tightness.

Spud Sub-Assembly Removal - (See Figure 3)

- Remove the gas supply piping and the flame/spark rods from the burner and ensure adequate clearance to withdraw the spud sub-assembly.
- Disconnect the Linkage Rod from the Fuel Linkage Arm. (If supplied on the burner)
- **DO NOT TURN THE LINKAGE ROD ENDS.** The length of the rod is critical to the fuel/air ratio and the performance of the burner.

- Loosen the set screw that secures the actuator to the linkage adapter
- Create index marks on the actuator mounting bracket, mount plate, and burner end plate to ensure proper alignment upon reassembly.
- Remove the actuator mounting bracket from the burner mount flange as one unit; do not remove the actuator from the bracket.
- Remove the 3/8" hex nuts & washers from the burner end plate.
- Carefully Slide the Spud Sub-Assembly out of the main housing.
- Discard the old gasket.
- Inspect the ceramic guide tubes for the flame rod and spark rod. If any cracks are found, replace them according to the instructions on the following page.

Installing a new burner end plate gasket.

Carefully align the burner end plate, actuator mounting bracket, and burner mount plate using the index marks on the mating surfaces.

Spud Sub-Assembly Installation - (See Figure 3)

Installation is the reverse of the "Spud Sub-Assembly Removal".

Flame and Spark Rod Removal & Installation

ⓘ NOTICE

The flame rod or spark igniter can be withdrawn from the burner, without disassembling the burner.

Removing The Rods:

- Using a 7/8" hex wrench, turn the flame/spark rod counterclockwise and carefully withdraw it from the burner.

Replacing The Ceramic Guide Tubes:

- The ceramic tubes are held in place with a threaded fitting and some high-temperature RTV silicone where the tube passes through the metal support. Always coat the threads with a high-temperature anti-seize compound prior to reassembly and reapply some high-temperature RTV silicone.
- Assembly is the reverse of the above.

Installing The Rods:

- Flame and spark rods look the same, except that the flame rod is longer than the spark rod. Rods should be installed in the holes, as shown in Figure 2.
- Insert the flame/spark rod into the burner, gently rotate, and slide in until the rod is fully inserted into the burner. Please do not force it into the burner. Retighten using a 7/8" hex wrench. Do not over-tighten.
- After sliding the spark rod in, check the gap between the spark rod and the ignition post. The gap should be 1/8 in.

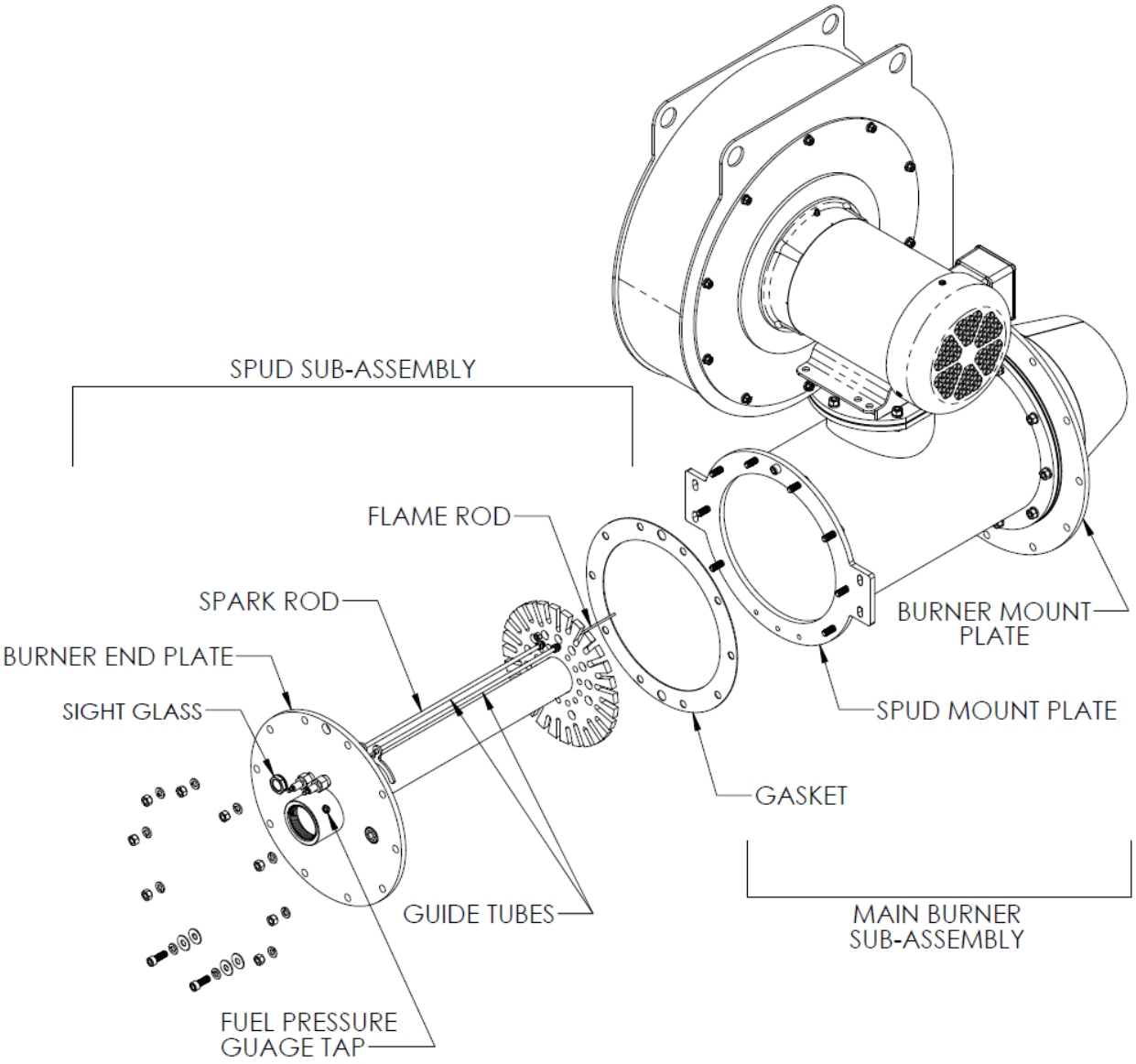


Figure 3 - Exploded view of the spud sub-assembly.

1000 East Bald Eagle Street, Lock Haven, PA 17745-3215
Phone: 570-748-4009
Toll Free: 888-FABER11 (322-3711)
Fax: 570-748-4324
E-mail: sales@faberburner.com