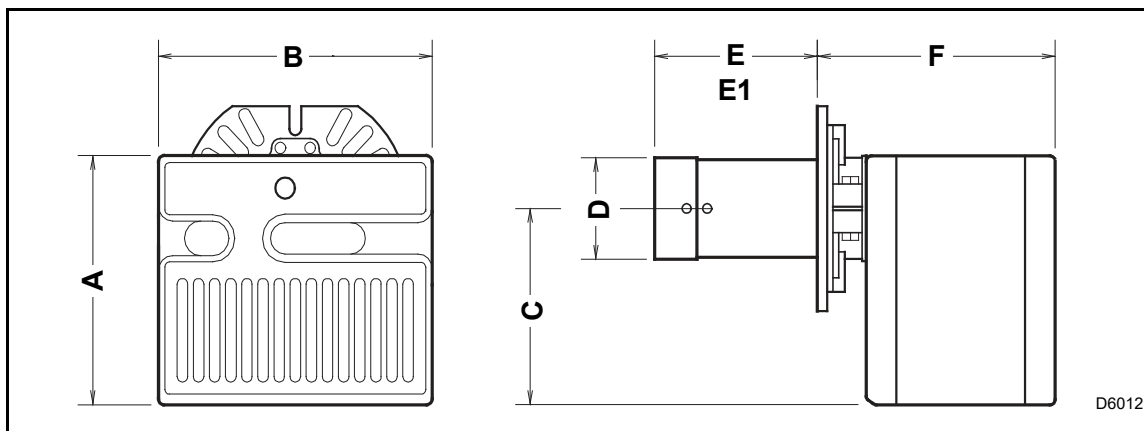


RIELLO 40 F10 TECHNICAL DATA



D6012

DIMENSIONS

MODEL F10	A	B	C	D	E	F
Inches	10 5/16	12	8 1/32	3 15/16	5	10 7/16
mm	262	305	204	100	127	265

E1: 10 inch long (254 mm) tubes also available.

SPECIFICATIONS

FUEL: No. 2 Fuel Oil

FIRING RATE: 1.45 to 2.95 GPH 4.7 to 9.5 kg/h

EFFECTIVE OUTPUT: 203,000 to 413,000 BTU/h 59.5 to 121 kW
51,160 to 104,130 kcal/h

VOLTAGE (Single Phase): 120V 60 Hz (+10% -15%)

ABSORBED ELECTRICAL POWER: 230 Watts

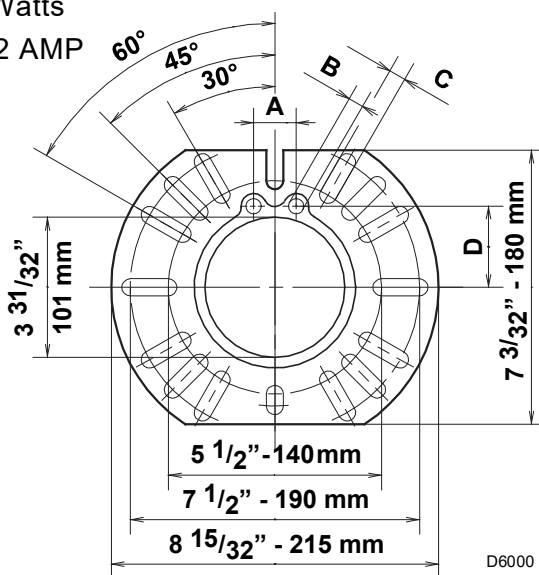
MOTOR (rated): 3250 rpm Run Current 2.2 AMP

CAPACITOR: 12.5 Microfarads 260V

PUMP PRESSURE: 100 to 200 PSI

PRIMARY CONTROL: RIELLO 530 SE/C

IGNITION TRANSFORMER: 8kV 16 mA

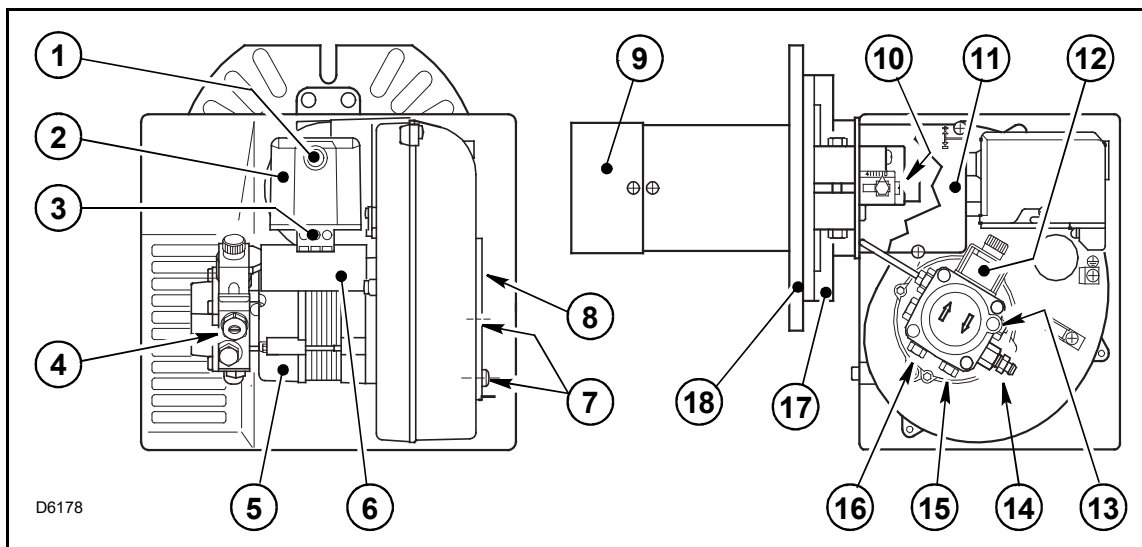


D6000

MOUNTING FLANGE DIMENSIONS

MODEL F10	A	B	C	D
Inches	1 1/4	1/4	7/16	2 3/16
mm	32	6	11	56

OIL BURNER COMPONENTS IDENTIFICATION RIELLO 40 SERIES

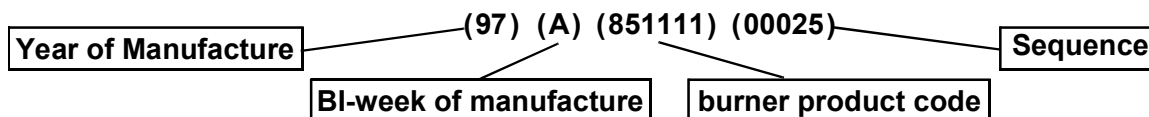


F10 BURNER COMPONENTS

- | | |
|---|-------------------------------------|
| 1. Lockout indicator lamp and Reset button | 9. End cone |
| 2. Primary control | 10. Turbulator adjustment screw |
| 3. Primary control sub-base | 11. Air tube cover |
| 4. Pump pressure regulator adjustment screw | 12. Coil |
| 5. Motor | 13. Vacuum gauge connection port |
| 6. Capacitor | 14. Pressure gauge and bleeder port |
| 7. Air adjustment fixing screws | 15. Return fuel line port |
| 8. Air shutter | 16. Supply fuel line port |
| | 17. Adjustable collar |
| | 18. Mounting flange with gasket |

SERIAL NUMBER IDENTIFICATION

The Riello 15 character serial number, example, 97 A 851111 00025, is identified as follows: 97 = last two digits of the year of manufacture; A = BI-week of manufacture; 851111 = burner product code; 00025 = increment of 1 for each burner produced - specific to product code - reset to zero each January 1st.



INITIAL SET - UP

- A)** Remove burner and air tube from cartons. Check parts list (inside cover) to ensure all parts are present.
- B)** Remove burner cover by loosening the three screws securing it. Remove control box and air tube cover (see page 7).
- C)** Remove drawer assembly from air tube, insert nozzle and set turbulator adjustment for specific input required (see pages 7 & 8), then set aside.
- D)** Mount air tube to burner chassis (see page 3).

ASSEMBLY OF AIR TUBE TO BURNER CHASSIS

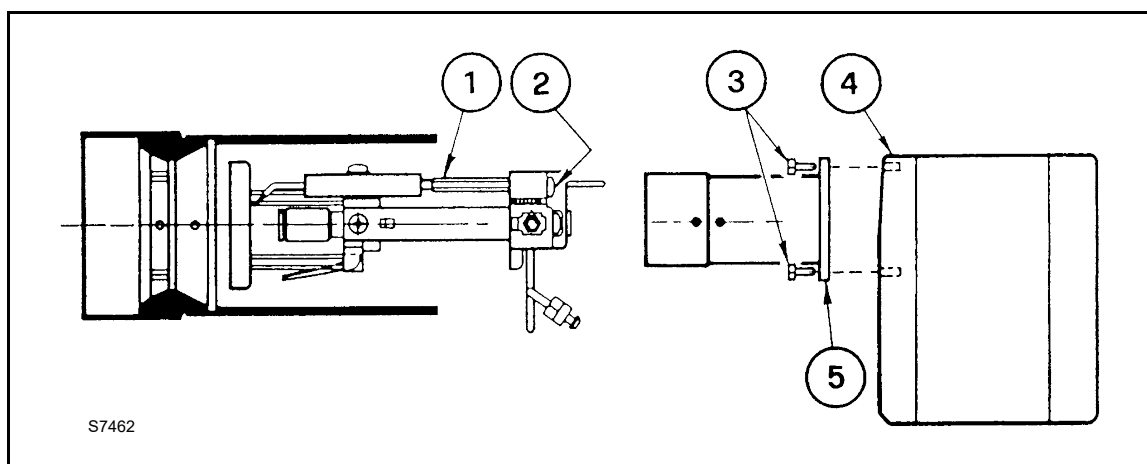
The air tube and drawer assembly are shipped in a carton separate from the burner chassis. Choose the proper air tube length to obtain the tube insertion for the specific installation.

A) Remove the AIR TUBE and BURNER CHASSIS from their respective cartons.

B) Remove the DRAWER ASSEMBLY (1) from inside the AIR TUBE by loosening the screw (2). Carefully pull the DRAWER ASSEMBLY out of the AIR TUBE, instal the required nozzle (see page 7) and set aside.

C) Remove the two BOLTS (3) from FRONT PLATE (4) of the BURNER CHASSIS. Align the two holes on the AIR TUBE HOLDING PLATE (5) with the two holes left open on the BURNER CHASSIS FRONT PLATE when the BOLTS (3) were removed. Replace the BOLTS and finger tighten only. Re-install DRAWER ASSEMBLY into AIR TUBE. Tighten SCREW (2) securely (see page 7).

D) Tighten the two bolts (3) securely.



MOUNTING THE BURNER TO THE BOILER OR FURNACE

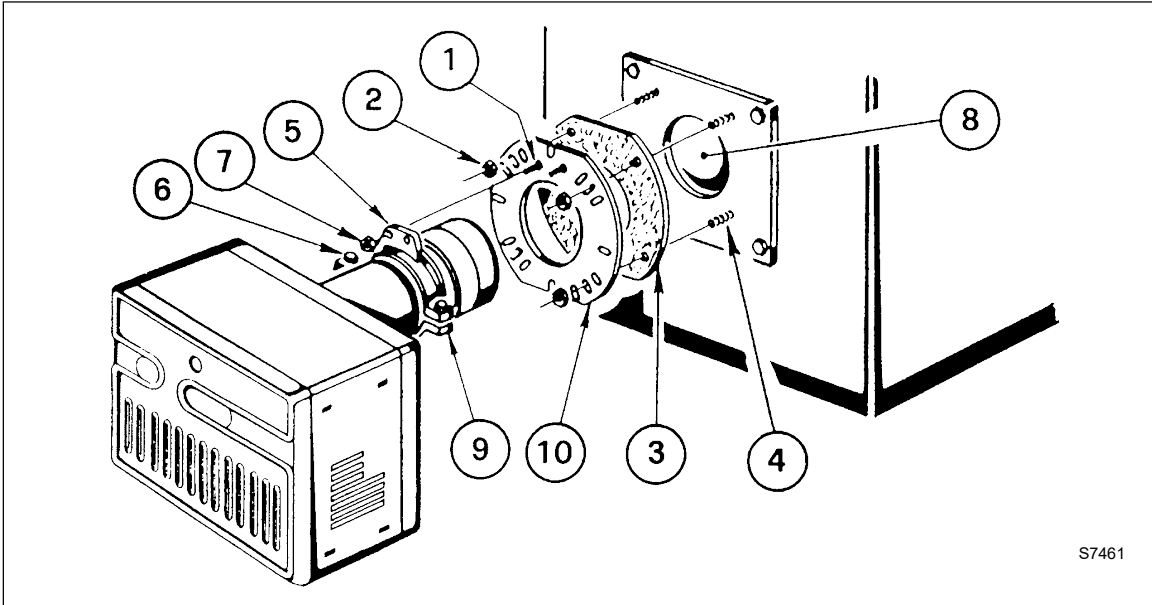
There are three possible methods to mount the burner, depending on the individual application. These are:

- 1) Universal flange bolted to Boiler/Furnace unit.
- 2) Semi-flange collar bolted to Boiler/Furnace unit.
- 3) Universal flange mounted to optional Pedestal mount, where flange-mounting direct to appliance is not possible. Pedestal kit must be ordered separately.

METHOD 1 - UNIVERSAL MOUNTING FLANGE

A) Insert the two BOLTS (1) into the UNIVERSAL MOUNTING FLANGE (10) from the flat side, ensuring the bolt heads are flush with the flat surface. Secure in place using two special CHROME NUTS (2) provided.

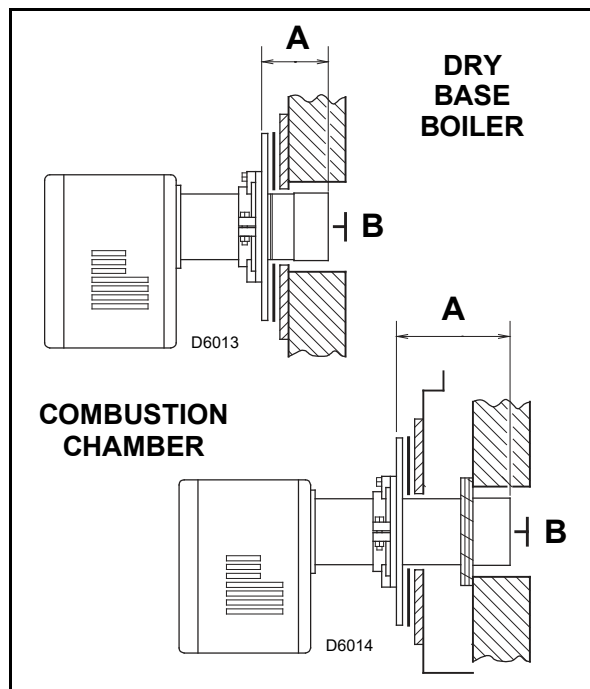
B) Position the MOUNTING GASKET (3) between the flat surface of the UNIVERSAL MOUNTING FLANGE (10) and the appliance. Line up the holes in the UNIVERSAL MOUNTING FLANGE with the STUDS (4) on the appliance mounting plate and securely bolt the UNIVERSAL MOUNTING FLANGE to the plate.



S7461

C) Secure the two semi-flanges of the ADJUSTABLE COLLAR (9) to the AIR TUBE using the two long BOLTS (6). Be sure that the ADJUSTABLE collar is properly positioned so the outside edge of the END CONE will be at least 1/4 inch (6.5 mm) back from the inside wall of the refractory of the combustion chamber (see dimension **B** at right). The measured length (**A**), is to include MOUNTING GASKET and FLANGE, if used.

D) The burner may now be attached to the heating unit by inserting the AIR TUBE through the BURNER ACCESS HOLE (8) and into the appliance, making sure the BOLTS (1) line up with the two HOLES (5) in the ADJUSTABLE COLLAR. Secure the burner in place using two NUTS (7).



A visual verification of the air tube insertion into the combustion chamber of the heating unit is suggested. Dimension B should be at least 1/4" (see drawing).

NOTE: A suggested method for creating mounting bolt holes in the mounting gasket: Hold the gasket against the appliance mounting bolts using the mounting flange for proper positioning. Lightly tap the flange with a hammer to form the holes.

METHOD 2 - SEMI-FLANGE COLLAR

A) Follow item C from METHOD 1.

B) Align the air tube and attached adjustable collar so air tube is centered in the burner access hole of the boiler/furnace unit. Mark the center of the two holes in the ADJUSTABLE COLLAR on to the front plate of the heating unit. Then drill 1/4 inch (6.5 mm) holes through the front plate of the unit, using marks as a guide.

C) Install two short BOLTS (1) through the front plate of the heating unit from the inside, and secure on the outside using the two special CHROME NUTS (2).

D) Follow item D from METHOD 1.

METHOD 3 - PEDESTAL MOUNT

Secure the MOUNTING FLANGE to MOUNTING PEDESTAL using the hardware provided with the pedestal. Secure burner to MOUNTING FLANGE as in METHOD 1, items A, C and D.

NOTE: It is suggested that the pedestal be anchored in position on the floor by installing brackets over the pedestal tube and securing brackets to the floor.

WARNING: WHEN THE COMBUSTION CHAMBER IS LINED WITH A REFRACTORY MATERIAL, IT IS IMPERATIVE THAT THE END CONE NOT PROTRUDE INTO THE CHAMBER AREA, AS EXCESSIVE HEAT AT BURNER SHUT-DOWN WILL DAMAGE THE END CONE.

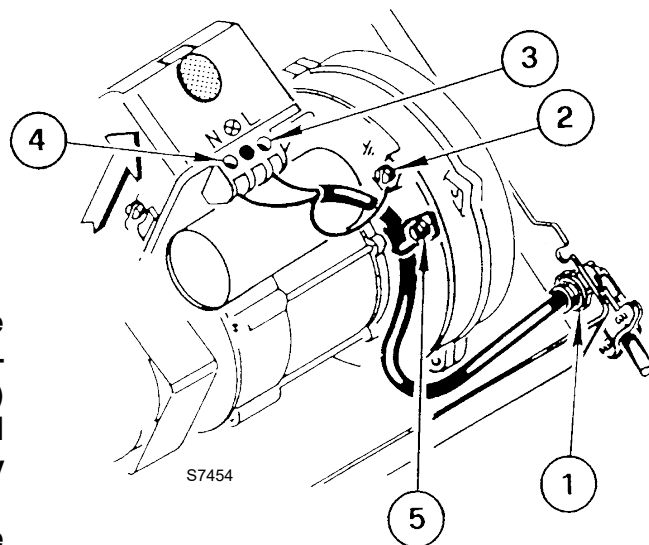
ELECTRICAL CONNECTIONS

It is advisable to leave the control box off the sub-base while completing the electrical connections to the burner.

- 1) Wire access hole
(Use BX electrical connector)
- 2) Earth ground conductor terminal
(GREEN WIRE)
- 3) Hot conductor terminal
(BLACK WIRE)
- 4) Neutral conductor terminal
(WHITE WIRE)
- 5) Strain relief clamp

WARNING: The hot (black) wire must be connected to the L terminal and the neutral (white) wire must be connected to the N terminal or the primary safety control will be damaged.

Do not connect either wire to the ⊗ Terminal.



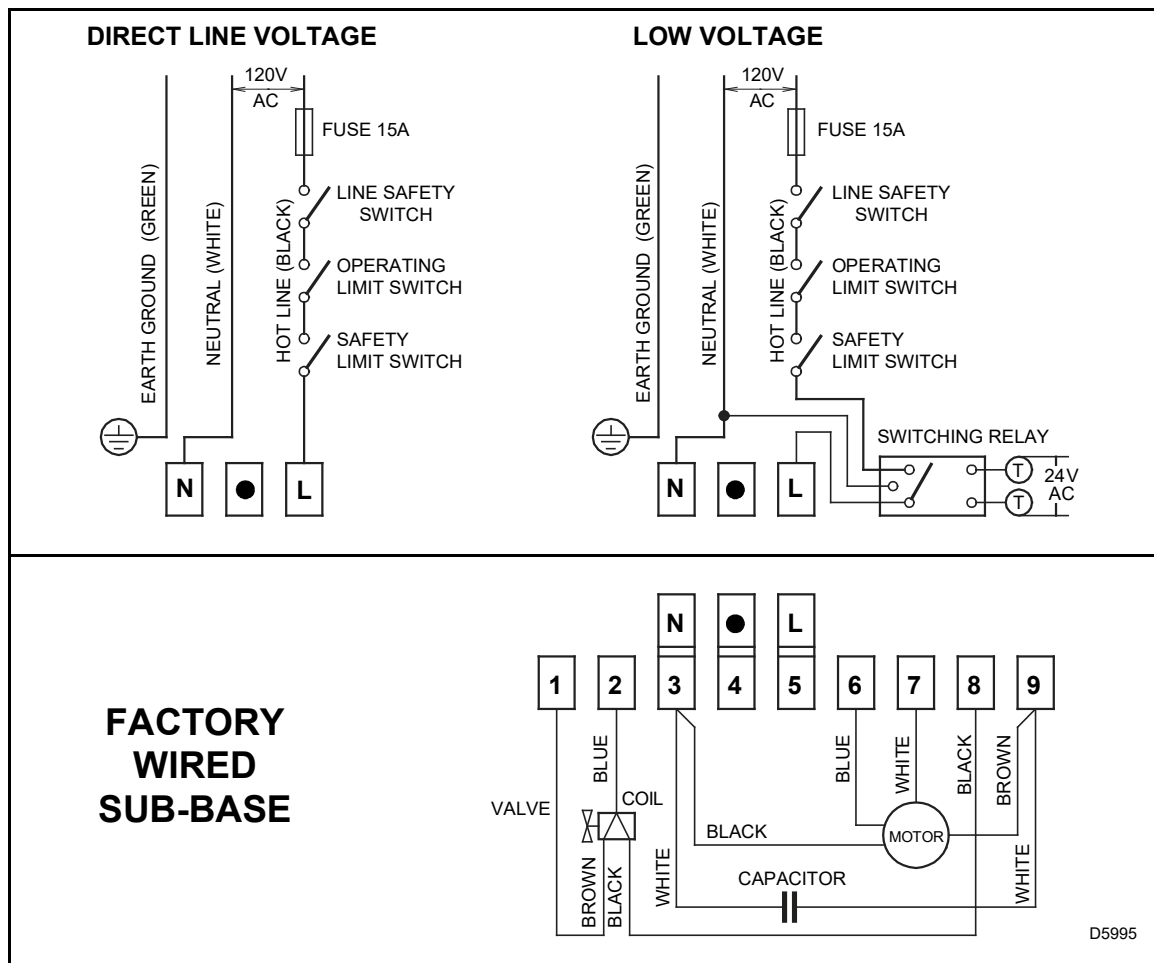
The burner may be controlled using either a DIRECT LINE VOLTAGE control circuit (120V AC 60 cycle) **OR** a LOW VOLTAGE control (24V AC 60 cycle) using a R8038A Honeywell switching relay or equivalent.

Using the appropriate diagram below, make electrical connections to burner. All wiring must be done in accordance with existing electrical codes, both national and local.

When all electrical connections have been made, the control box may be put back in place on the sub-base.

WARNING: DO NOT activate burner until proper oil line connections have been made, or failure of the pump shaft seal may occur.

APPLICATION FIELD WIRING



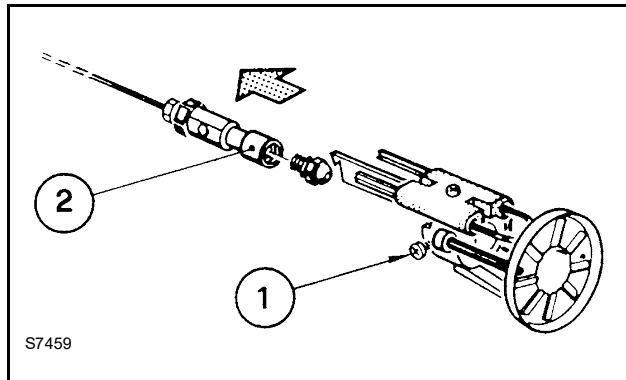
REMOTE SENSING OF SAFETY LOCKOUT: The SAFETY SWITCH in the 530SE CONTROL BOX is equipped with a contact allowing remote sensing of burner lockout. The electrical connection is made at terminal 4 (●) on the SUB-BASE. Should lockout occur the 530SE CONTROL BOX will supply a power source of 120Vac to the connection terminal. The maximum allowable current draw on this terminal (4) is 1 Amp.

WARNING: If a neutral or ground lead is attached to this terminal, the CONTROL BOX on the burner will be damaged should lockout occur.

NOZZLE PLACEMENT

A) Determine the proper firing rate for the boiler or furnace unit, considering the specific application, then use the Burner Set-up chart on page 12 to select the proper nozzle and pump pressure to obtain the required input from the burner.

B) Remove the NOZZLE ADAPTER (2) from the DRAWER ASSEMBLY by loosening the SCREW (1).



C) Insert the proper NOZZLE into the NOZZLE ADAPTER and tighten securely (Do not overtighten).

D) Replace adapter, with nozzle installed, into drawer assembly and secure with screw (1).

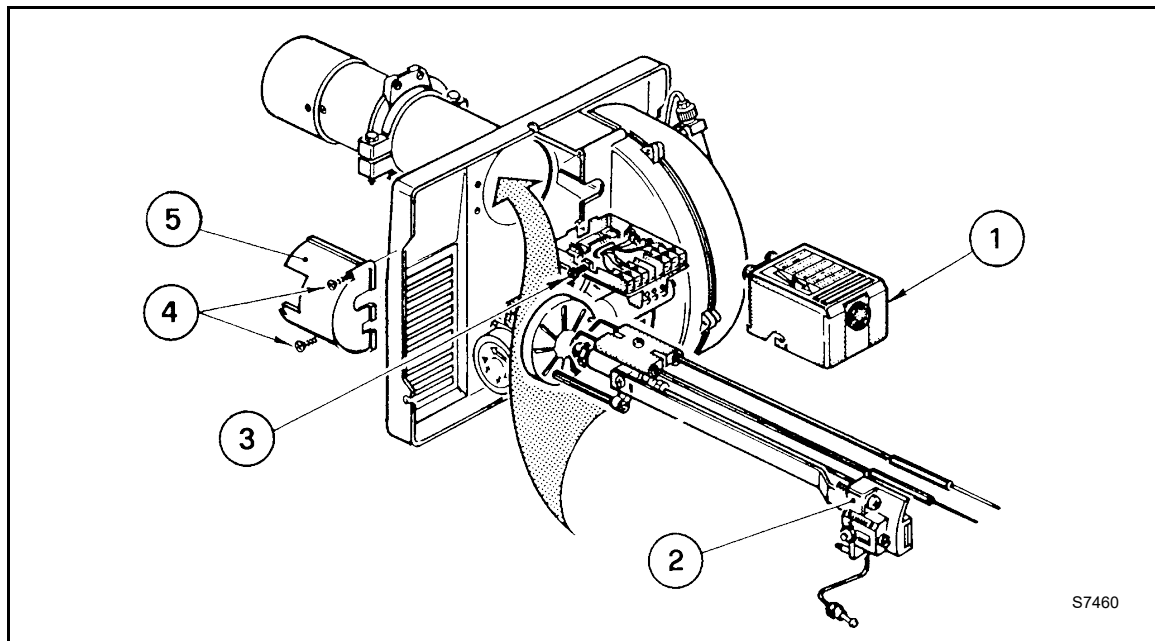
INSERTION/REMOVAL OF DRAWER ASSEMBLY

A) To remove drawer assembly, loosen SCREW (3), then unplug CONTROL BOX (1) by carefully pulling it back and then up.

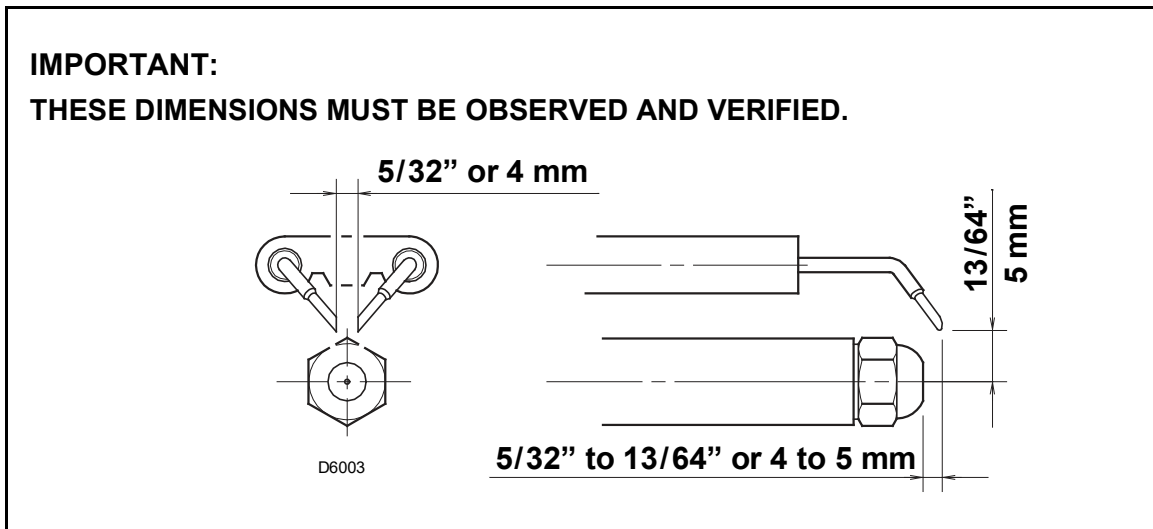
B) Remove the AIR TUBE COVER PLATE (5) by loosening the two retaining SCREWS (4).

C) Loosen SCREW (2), then slide the complete drawer assembly out of the combustion head as shown.

D) To insert drawer assembly, reverse the procedure in items A to C above, then attach fuel line to the pump.



ELECTRODE SETTING

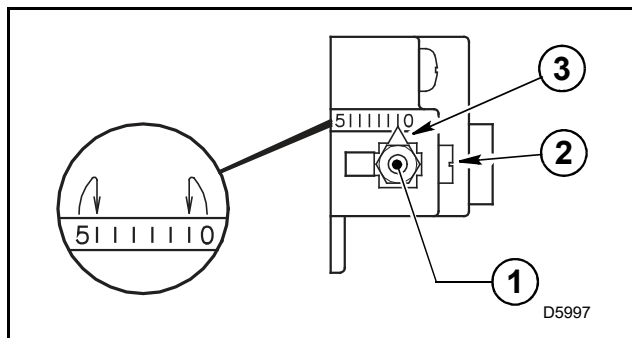


TURBULATOR SETTING

A) Loosen NUT (1), then turn SCREW (2) until the INDEX MARKER (3) is aligned with the correct index number as per the Burner Set-up chart, on page 12.

B) Retighten the RETAINING NUT (1).

NOTE: Zero and five are scale indicators only. From left to right, the first line is 5 and the last line 0.



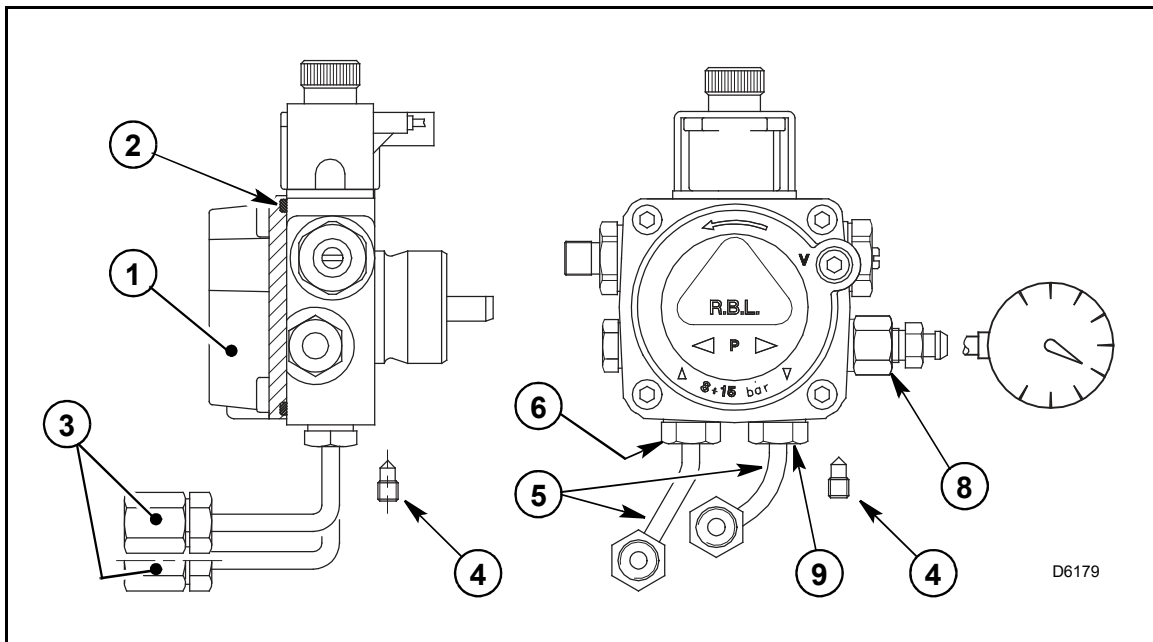
OIL LINE CONNECTIONS

This burner is shipped with the oil pump set to operate on a **single** line system. To operate on a **two** line system the by-pass plug **must** be installed.

Warning: Do not operate a **single** line system with the by-pass plug installed. Operating a **single** line system with the by-pass plug installed will result in damage to the pump shaft seal.

Note: Pump pressure must be set at time of burner start-up. A pressure gauge is attached to the **PRESSURE PORT** (8) for pressure readings. Two **PIPE CONNECTORS** (5) are supplied with the burner for connection to either a single or a two-pipe system. Also supplied are two **ADAPTORS** (3), two female 1/4" NPT, to adapt oil lines to burner pipe connectors. All pump port threads are **British Parallel Thread** design. Direct connection of NPT threads to the pump **will damage** the pump body.

Riello manometers and vacuum gauges do **not** require any adaptors, and can be safely connected to the pump ports. An NPT (metric) adapter **must** be used when connecting other gauge models.

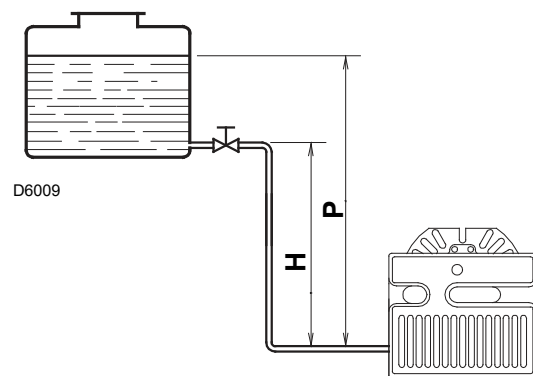


SINGLE LINE (GRAVITY FEED SYSTEM)

A) The burner is shipped configured for use in single line applications. No changes to the oil pump are required for use in single line applications.

NOTE: If the **pump cover (1)** is removed for any reason, be sure the O-ring (2), is properly seated in the pump cover (1) before re-attaching the pump cover to the pump housing.

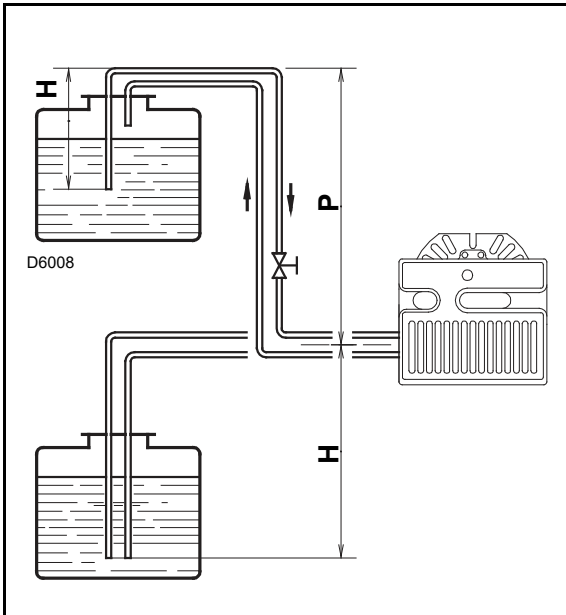
SINGLE LINE SYSTEM - PIPE LENGTHS					
H		3/8" OD		1/2" OD	
FT	M	FT	M	FT	M
1.5	0.5	33	10	65	20
3.0	1.0	65	20	130	40
5.0	1.5	130	40	260	80
6.5	2.0	195	60	325	100



NOTE: Do not exceed pipe lengths indicated in chart.

B) Connect the pipe connector to the SUPPLY PORT (6) of the pump. Attach the required piping to this pipe connector. Be sure that the plug in the RETURN PORT (9) is tightened securely.

TWO LINE (LIFT SYSTEM)



2 LINE (LIFT) SYSTEM - PIPE LENGTHS					
H		3/8" OD		1/2" OD	
FT	M	FT	M	FT	M
0.0	0.0	115	35	330	100
1.5	0.5	100	30	330	100
3.0	1.0	80	25	330	100
5.0	1.5	65	20	295	90
6.5	2.0	50	15	230	70
9.5	3.0	25	8	100	30
11	3.5	20	6	65	20

NOTE: Do not exceed pipe lengths indicated in chart.

A) If a two line system is required, install the By-pass plug (4) provided. The by-pass plug is installed in the return port (9) of the pump. A 2.5 mm hexagonal key provided with the by pass plug is to be used to install the plug. **DO NOT** use an inch size hexagonal key, damage to the by-pass plug may result. When operating on a two line system, supply and return lines should be the same diameter and both **should extend to the same depth inside the fuel tank**. Be sure there are no air leaks or blockages in the piping system.

Any obstructions in the return line will cause failure of the pump shaft seal. Do not exceed the pipe lengths indicated in the tables.

To install the by-pass plug:

- 1) Remove the return plug (9).
- 2) Install the by-pass plug (4) using the 2.5 mm hexagonal key.

B) Attach the two PIPE CONNECTORS (5) to the pump SUPPLY and pump RETURN PORTS (6 and 9). Attach the required piping to these two pipe connectors using the NPT/METRIC ADAPTERS that are supplied with the burner.

WARNING: Pipe dope or Teflon tape are **NOT** to be used on any direct oil connection to the fuel pump.

WARNING: The height "P" in Pipe Length charts on page 9 and 10 should not exceed 13 feet (4 m).

WARNING: The vacuum should not exceed 11.44 inches of mercury.

IMPORTANT: An external, appropriately listed and certified oil filter must be placed in the fuel line between the fuel tank and the burner pump.