

# BECKETT CLEANCUT INSTALLATION INFORMATION

**SINGLE STAGE FUEL UNIT**  
Part No. 21844

**2-STAGE FUEL UNIT**  
Part No. 21941

## GENERATION INFORMATION - ALL SYSTEMS

**IMPORTANT INFORMATION** Long or oversized inlet lines may require the pump to operate dry during initial bleeding period. In such cases, the priming may be assisted by injecting fuel oil in the pump gearset. Under lift conditions, lines and fittings must be air tight. To assure this, oil-resistant pipe joint compound may be applied to both the used and unused inlet and both return fittings.

## **WARNING** Professional Service Required



**Incorrect installation, adjustment, or misuse of this burner could result in severe personal injury, death, or substantial property damage from fire, carbon monoxide poisoning, soot or explosion.**

Please read and understand the manual supplied with this equipment. This equipment must be installed, adjusted and put into operation only by a qualified individual or service agency that is:

- Licensed or certified to install and provide technical service to oil heating systems.
- Experienced with all applicable codes, standards and ordinances.
- Responsible for the correct installation and commission of this equipment.
- Skilled in the adjustment of oil burners using combustion test instruments.

The installation must strictly comply with all applicable codes, authorities having jurisdiction and the latest revision of the National Fire Protection Association Standard for the installation of Oil-burning Equipment, NFPA 31 (or CSA-B139 and CSA-B140 in Canada).

Regulation by these authorities take precedence over the general instructions provided in this installation manual.

## **WARNING** Oil Leak & Fire Hazard

- The inlet and return line pressures must not exceed 3 psig, or pump seal damage and oil leaks could result! See NFPA 31-25, 8.6.3.
- Do not use a check valve in the inlet line of a 1-pipe system (with or w/o a boost pump), or in the return line of a 2-pipe system.
- NFPA 31-25, 8.5 states that 'A return line from a burner or pump to a supply line shall have no valves or obstructions and shall enter the top of the same tank.'
- Check valve flow restriction in a return line can elevate pressures and damage the fuel unit seals.
- **Dangerous thermal expansion** of oil trapped by an inlet line check valve can create extreme pressures that damage fuel unit seals, line fittings, inlet filters, gauges and other components. A properly installed vacuum safety valve, such as Suntec PRV-38, having accumulator effect and pressure relief to tank is acceptable in the inlet line.
- Do not use teflon tape or compression fittings.

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**CAUTION** This pump must be used with a controlling device that provides a valve on delay (pre-purge).

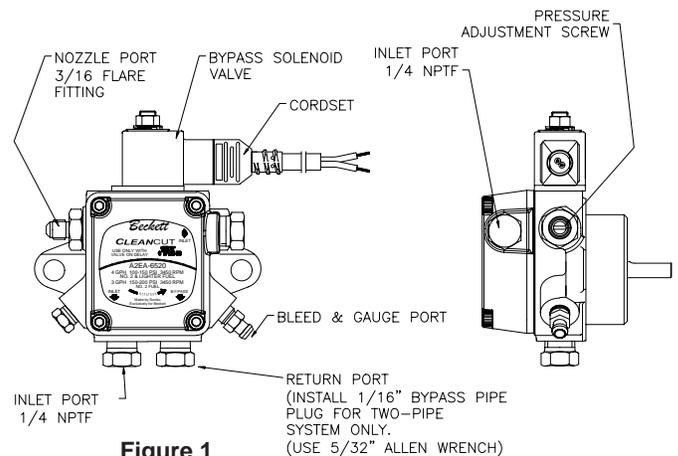


Figure 1

**MOUNTING POSITION** Beckett CleanCut fuel unit may be mounted in any position (except upside-down during single pipe installation).

**VACUUM CHECK** A Vacuum Gauge may be installed in either of the 1/4" NPT inlet ports. The Beckett CleanCut pump should be used where the vacuum does not exceed 6" hg. single pipe and 12" hg. two pipe. The Beckett CleanCut **XL** pump should be used where the vacuum is less than 17" hg. Remember, running vacuum is the total of all pressure drops ( $\Delta P$ ) in the system from tank to inlet of pump.

**PRESSURE CHECK** When a pressure check is made use either the BLEED PORT OR NOZZLE PORT.

**CUTOFF CHECK** To check cutoff pressure, dead head a pressure gauge in nozzle port. Run burner for short period of time. Shut burner off. The pressure will drop and hold above zero.

## **MOUNTING PUMP** (If the shutter screw interferes with the solenoid on the fuel unit)

To install a CleanCut fuel unit on chassis with existing shutter tab see Figure 2 and follow these steps:

Remove existing fuel unit and solenoid valves, if applicable, and appropriately dispose of them.

Note the air setting of the shutter, then remove the air shutter, set the shutter aside to be reinstalled.

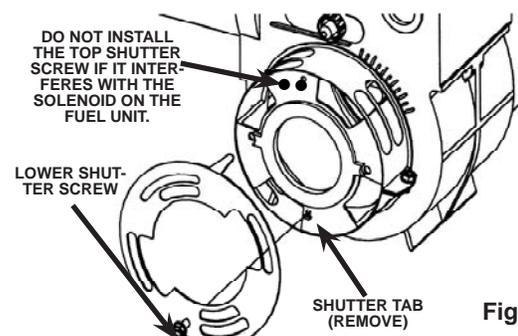


Figure 2

Remove the shutter tab by using a pair of side cutter pliers and file sharp edges flush with burner surface. This will permit the shutter to be locked securely.

Install the air shutter using the screw located below the pump. Adjust the shutter to the original air setting and tighten screw securely.

**NOTICE** On older burners, do not install the top shutter screw, it will interfere with the solenoid on the fuel unit.

To install a CleanCut fuel unit on a housing that has two top shutter mounting screw holes, make sure the screw is installed in the hole on the left that is closest to the front of the burner (air tube side).

**Other Mounting Installations:** The CleanCut Pump with a standard cord set or a PD Timer can be installed on the following burners: Carlin EZ-1, Wayne 'M', Wayne 'E', Wayne 'HS', Ducane 'DM', or Aero. Ducane 'DR': 5/16" diameter hole will have to be drilled into the housing through the wire cavity. Weil 'QB': The valve coil blocks the air shutter screw. Allow enough slack in the cord set in order to pivot the valve coil away from the housing.

## SYSTEM INSTALLATION REQUIREMENTS

### ONE-PIPE SYSTEM

**⚠ DO NOT Install bypass plug - the shaft seal will rupture!** Connect inlet line to pump inlet. Start burner. Arrange primary burner control for continuous operation during purging. Open bleed valve 1 turn CCW. Bleed unit until all air bubbles disappear. **Notice:** Hurried bleeding will impair efficient operation of unit. Tighten bleed valve securely.

The Clean Cut fuel unit may be installed with a Gravity or Lift Oil Supply System. The maximum allowable lift is 8 ft.

**IMPORTANT:** One pipe installations must be absolutely air tight or leaks or loss of prime may result. Bleed line and fuel unit completely. Bleed for 15 seconds after last air is seen from bleed / gauge port to be certain lines are air free.

L = line Length in Feet H = Head in Feet Q = Firing rate in GPH

$$\begin{matrix} 3/8" \text{ Line} & L = & \frac{6-.75H}{.0086Q} & 1/2" \text{ Line} & L = & \frac{6-.75H}{.00218Q} \end{matrix}$$

\* If tank is above pump, change - to +. Fittings, valves and filters will reduce total length allowed.

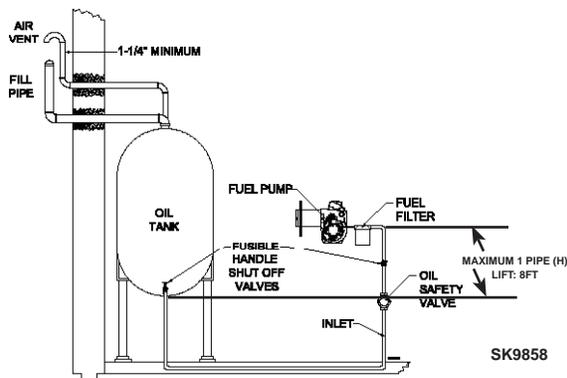


Figure 3

### TWO-PIPE SYSTEM

Remove 1/16" pipe bypass plug from plastic bag attached to unit. Remove 1/4" plug from return port. Insert by-pass plug. Attach return and inlet lines. Start burner - Air bleeding is automatic. Opening air bleed valve will allow a faster bleed if desired. Return line must terminate 3-4" above supply line inlet. Failure to do this may introduce air into the system and could result in the loss of prime.

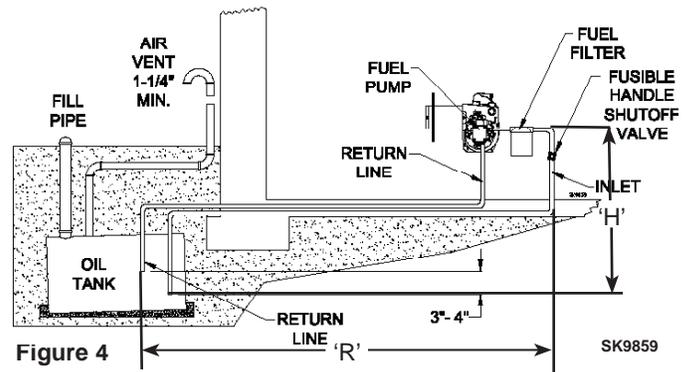


Figure 4

Lift - 'H' in Figure 4 (ft)	Run - 'R' in Figure 4 Single Stage Pump (4GPH)		Run - 'R' in Figure 4 Two-Stage XL Pump (4GPH)	
	3/8" OD tubing	1/2" OD tubing	3/8" OD tubing	1/2" OD tubing
0	84'	100'	93'	100'
2	73'	100'	85'	100'
4	63'	100'	77'	100'
6	52'	100'	69'	100'
8	42'	100'	60'	100'
10	31'	100'	52'	100'
12	21'	83'	44'	100'
14	-	41'	36'	100'
16	-	-	27'	100'
18	-	-	-	76'

## WIRING INSTRUCTIONS

### SOLENOID WIRING

**⚠ Disconnect power supply before wiring to prevent electrical shock or equipment damage.**

Lead wires on these devices are long enough to reach the junction box on most burner installations. Note: check the burner manufacturer's installation sheets for correct solenoid wiring. (See Figure 5). All electrical work must be done according to local and national codes. (Solenoid 115V, 0.1 amp, 60 HZ)

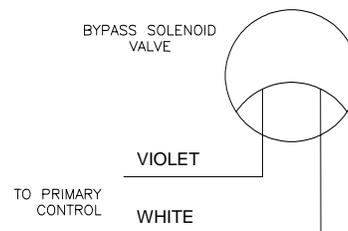


Figure 5

## REPLACEMENT PARTS

Item	Beckett Part Number
Strainer/Gasket	51974U
Valve stem	21877U
Valve Coil (115vAC)	21755U
Valve Coil (220/240vAC)	21756U
Valve Coil (12vDC/24vAC)	21754U
PD Timer	21887U
Valve Cord Set	21807