SUNTEC™

MODELS B2TA-88XX
SOLENOID TWO STAGE, TWO STEP
FUEL UNITS

INSTALLATION INFORMATION
II991364B - Form 2130-B100
Ed.5 - 09/08/23

IMPORTANT INFORMATION

This product is compatible with Fuel oil #2 and lighter, B6-B100 (blends from 6% up to 100% biodiesel, as defined in ASTM D396 and ASTM D6751). This product must be installed, adjusted and started only by a qualified and licensed technician and done so in accordance with all appropriate local and national codes and ordinances, such as National Fire Protection Standard for Liquid Fuel Equipment, NFPA 31, CSA B139-M91, etc.

CAUTION: Different aspects of the oil fired heating system can be affected by the use of a fuel/biodiesel blend (storage, piping system between the tank and the burner, burner components).
These units are designed to handle B6-B100 as defined in ASTM D396 and ASTM D6751). Ensure that all components of the heating system, supply line and burner components are B100 compatible. Before first start-up, ensure that the oil storage tank has been thoroughly cleaned prior to the biodiesel blend delivery.
Biodiesel blends are likely to have reduced long-term storage stability performance. Aging and oxidation can lead to high acid numbers, high viscosity, and the formation of gums and sediments that may cause filter clogging and pump seizing.

ATTENTION: *Différents aspects du système de chauffage peuvent être affectés par l'utilisation de mélanges composés de biodiesel (stockage, système d'alimentation entre le réservoir et le brûleur, composants du brûleur).*
*Ces éléments doivent être conçus de manière à être compatibles avec des mélanges B6 à B100 (mazout de chauffage selon l'*ASTM D396 et ASTM D6751 *avec 6% à 100% de biodiesel). Il est nécessaire de s'assurer que tous les composants du système de chauffage, de la ligne d'alimentation aux composants du brûleur, soient compatibles au B100. Avant le premier démarrage, vérifier que le réservoir ait été complètement nettoyé avant la livraison du mélange mazout/biodiesel.*
Les biodiesels auront probablement une durée de stockage réduite sur le long terme. Vieillissement et oxydation peuvent conduire à des indices d'acide élevés, une importante viscosité, et à la formation de gommes et de sédiments pouvant causer le colmatage du filtre et le grippage de la pompe.

GENERAL INFORMATION – ALL SYSTEMS

SOLENOID WIRING: refer to burner manufacturer's manual for instructions.
NOTE: Wiring of the solenoid in parallel with the safety control circuit will bypass the low fire regulator.
REGULATOR SETTING: install pressure gage in gage port (remove after adjustment) with proper nozzle in nozzle line.
• Low fire – Factory preset to 100 PSI with rated nozzle.
• High fire – With solenoid energized adjust high fire regulator to desired pressure. (Range 200 to 300 PSI)
NOTE: *EXTERNAL CUT-OFF VALVE (120V MAXIMUM) IS REQUIRED.*
NOTE: 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 into the pump gearset. Under lift conditions, oil lines and fittings must be air tight. To assure this, "Pipe Dope" may be applied to both the used and unused inlet and both return fittings. DO NOT USE TEFLON TAPE! DO NOT USE COMPRESSION FITTINGS!

1. Model B Two Stage Fuel Unit may be mounted in any position except upside down or shaft pointing upwards, but the shaft should not be submitted to any axial or radial force.
2. See the 1-PIPE or 2-PIPE section for line sizing. Lines must be airtight for proper operation. Pipe sealant may be used.
3. The unit may be primed with lube oil during start-up.

⚠ **WARNING:** Pressurized or gravity feed installations must not exceed 10 PSI on inlet line or return line at the pump. A pressure greater than 10 PSI may cause damage to the shaft seal. NFPA 31 further limits them to 3 PSI max.

⚠ ***AVERTISSEMENT:*** *Les installations sous pression ou en charge ne doivent pas dépasser 10 PSI dans la ligne d'aspiration ou dans la ligne retour de la pompe. Une pression supérieure à 10 PSI peut endommager l'étanchéité du joint d'arbre. La NFPA limite la pression d'entrée à 3 PSI max.*

ONE-PIPE SYSTEM – FIGURE 2

⚠ **WARNING:** ***DO NOT INSTALL BY-PASS PLUG!***
See 1-P sketch on p. 2. Units are shipped without the by-pass plug installed; verify it has not been installed!

⚠ ***AVERTISSEMENT:*** ***NE PAS INSTALLER DE BOUCHON BY-PASS!***
Voir le schéma en monotube ci-dessous.
Les pompes sont livrées sans le by-pass monté, vérifier qu'il n'a pas été monté.

This SUNTEC model may be installed one-pipe with gravity feed or lift.

Connect inlet line to the pump inlet. Inlet line joints must be perfectly tight to maintain prime! Max. recommended 1-P lift is 8' from tank bottom to pump. Start burner.

Arrange primary burner control for continuous operation during purging. Prime by opening the easy flow bleed valve one turn CCW. Bleed the unit thoroughly until all air bubbles disappear (hurried bleeding may impair operation), wait for 15 seconds after last air is seen from easy flow to be certain lines are air free, then securely retighten the bleed valve.

TWO-PIPE SYSTEM – FIGURE 3

REMOVE THE 1/4 NPTF PLUG FROM THE RETURN PORT AND DISCARD.
Then remove the 1/16'' by-pass plug from the plastic bag attached to the unit and, with a 5/32" Allen wrench, insert it securely into the recessed port inside the return port. (See Figure 1)
Finally, insert the return line fitting into the 1/4 NPTF return port and attach the return line.

⚠ **WARNING:** DO NOT BLOCK OR RESTRICT THE 1/4 NPTF RETURN PORT OR THE RETURN LINE!

⚠ ***AVERTISSEMENT :*** *NE PAS BLOQUER OU RESTREINDRE LE RETOUR 1/4 NPTF OU LA LIGNE RETOUR !*

Start burner – Air bleeding is automatic. Opening Easy Flow Air Bleed Valve will allow a faster bleed if desired. Return line must terminate 3-4" above supply line inlet. (See Figure 3). Failure to do this may introduce air into the system and could result in loss of prime.

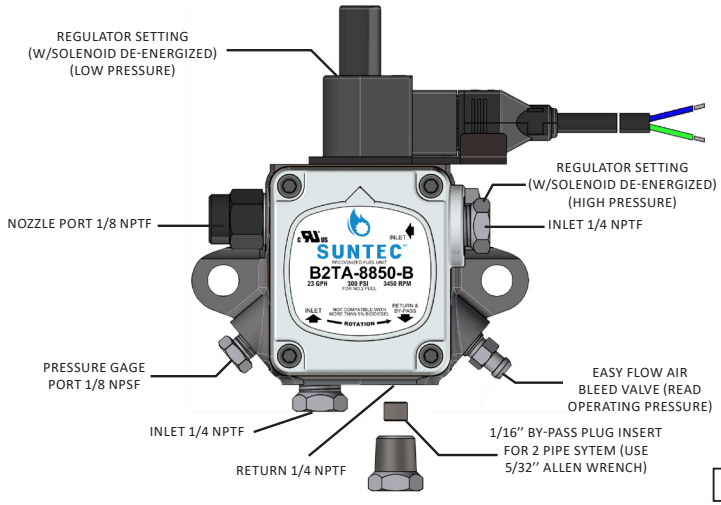

Fig. 1

OPERATING INFORMATION:

Max. Firing Rate: Use the decal nozzle rating, which may be less than the UL strainer rating

Vacuum Check: A vacuum gage may be installed in either of the 1/4 NPTF inlet ports or in the 1/4 NPTF return port (on single pipe installations), whichever is most convenient. The model B units should be used where vacuum does not exceed 17" hg. Running vacuum is the total of all pressure drops (ΔP) from the tank to the inlet of the pump.

Pressure Check: Use only the 1/8 NPTF GAGE PORT or 1/8 NPTF NOZZLE PORT. DO NOT USE THE EASY FLOW BLEEDER VALVE PORT, as the reading will be too high for nearly all models of this series, resulting in a WRONG operating pressure.

ONE-PIPE SYSTEM

L = H+R

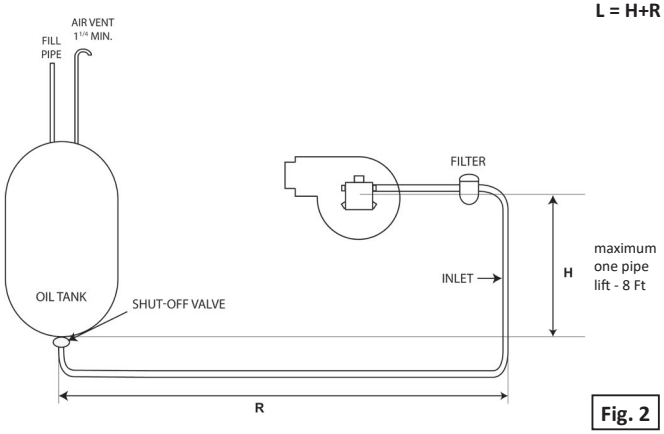

Fig. 2

L = Line length in feet H = Head in feet Q = Firing Rate in GPH

	Tank below pump	Tank above pump
3/8'' line	$L = \frac{6 - .75H}{.0086Q}$	$L = \frac{6 + .75H}{.0086Q}$
1/2'' line	$L = \frac{6 - .75H}{.00218Q}$	$L = \frac{6 + .75H}{.00218Q}$

Fittings, valves, and filters will reduce total length allowed.

TWO-PIPE SYSTEM

L = H+R

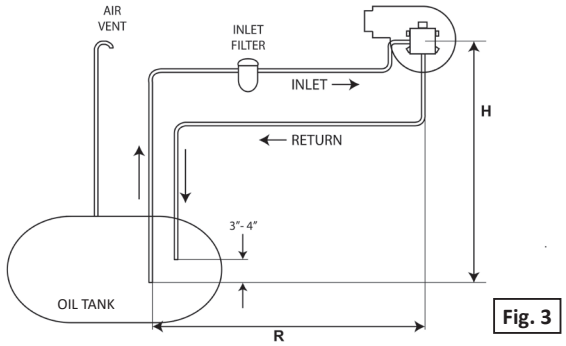

Fig. 3

MODEL B TWO-STAGE TWO-STEP AND TWO-STAGE HIGH-PRESSURE TWO-PIPE MAXIMUM LINE LENGHT (H+R)						
Lift ''H'' Figure 3	**3450 RPM**					
	3/8'' O.D Tubing		**1/2'' O.D Tubing**			**5/8'' O.D Tubing**
	10 GPH	**16 GPH**	**10 GPH**	**16 GPH**	**23 GPH**	**23 GPH**
0'	70'	60'	100'	100'	100'	100'
2'	64'	55'	100'	100'	100'	100'
4'	58'	50'	100'	100'	100'	100'
6'	52'	44'	100'	100'	100'	100'
8'	45'	39'	100'	100'	100'	100'
10'	39'	34'	100'	100'	100'	100'
12'	33'	28'	100'	100'	94'	100'
14'	27'	23'	100'	91'	76'	100'
16'	21'	18'	81'	70'	59'	100'
18'	-	-	57'	49'	41'	100'
-	-	-	-	-	-	-

Always terminate return line as shown in Figure 3. Line lengths include both vertical and horizontal lengths.