SUNTEC™

MODELS A-7000 & B-8000
SINGLE AND TWO-STAGE FUEL UNITS

INSTALLATION INFORMATION
II991362B - Form 2100-B100
Ed.7 - 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.

⚠**WARNING: Check Valves with Fuel Oil Heating Equipment**
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. Check valve flow restriction in a return line can elevate pressures and damage fuel unit seals. Dangerous thermal expansion of oil trapped by an inlet line check valve can create extreme pressures that damage fuel unit seals, fittings, filters, gages 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.

⚠ ***AVERTISSEMENT : Clapets anti-retour avec équipement de chauffage au fioul***
Pour une pompe de gavage ou de brûleur (utilisée avec ou sans pompe de gavage), ne pas utiliser de clapet anti-retour dans la ligne d'aspiration d'un système monotube, ou la ligne retour dans un système bitube. La restriction de débit faite par le clapet anti-retour dans la ligne retour peut augmenter la pression et endommager les joints de la pompe. Une dilatation thermique dangereuse de fioul piégée dans la ligne d'entrée par un clapet anti-retour peut conduire à des pressions extrêmes et endommager joints, raccords, filtres, jauges et autres composants de la pompe. Il est possible d'installer dans la ligne d'aspiration une soupape de sécurité sous vide, telle que la PRV-38 de SUNTEC ayant un effet accumulateur et limiteur de pression dans le reservoir.

GENERAL INFORMATION:

1. Fuel units may be mounted in any position (except shaft upwards), but the shaft should not be submitted to any axial or radial force. Model B units can't be mounted upside down. Most model A & B units have a pressure regulating valve with cut-off function. Models without cut-off require an external shutoff valve (noted on decal).
2. See the 1-PIPE or 2-PIPE section for line sizing. Lines must be airtight for proper operation. Pipe sealant may be used. DO NOT USE TEFLON TAPE OR COMPRESSION FITTINGS.
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.*

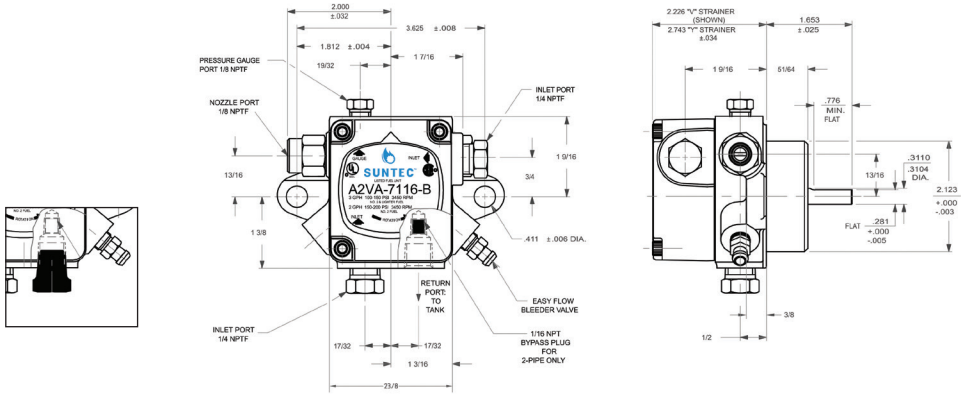
ONE-PIPE SYSTEM - INLET LINE ONLY (NO RETURN LINE) - FIGURE 2 :

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

⚠ ***AVERTISSEMENT : NE PAS MONTER LE 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.



RH NOZZLE PORT
(RH OR LH ROTATION)
1-PIPE HOOK-UP
(do not install by-pass plug!)

RH NOZZLE PORT
(RH OR LH ROTATION)
2-PIPE HOOK-UP
(do not block 1/4 NPTF return port!)

SIDE VIEW

Fig. 1

TWO-PIPE SYSTEM - INLET AND RETURN LINE - 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 !*

The return line must terminate in the supply tank 3-4" above the supply inlet, or air can be introduced and cause loss of prime.
Priming is automatic, but may be accelerated by opening the bleed valve. See 2-P sketches below (figure 3), and see the chart or recommended line sizes and lengths.

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 1/4 NPTF INLET PORT. Model A units should be used where the running vacuum does not exceed 6'' Hg single pipe or 12'' Hg two-pipe. Model B units should be used where the running vacuum does not exceed 17'' Hg.

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

Cut-off Pressure: Units having cut-off can be checked by installing a pressure gage directly into the NOZZLE PORT. Run the unit briefly, shut it off and watch for the pressure to drop and then hold above zero.

ONE PIPE SYSTEM

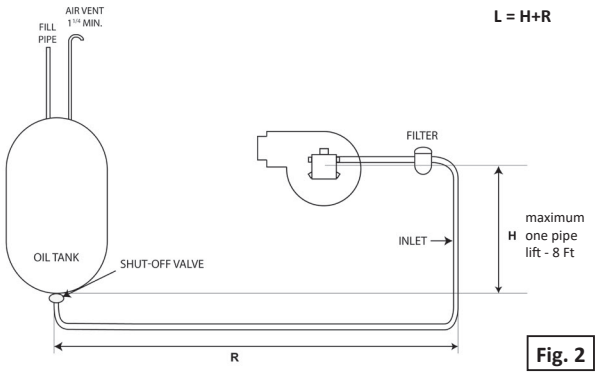


Fig. 2

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.

NOTE: It is recommended to avoid 3/8" lines where feasible.

TWO-PIPE SYSTEM

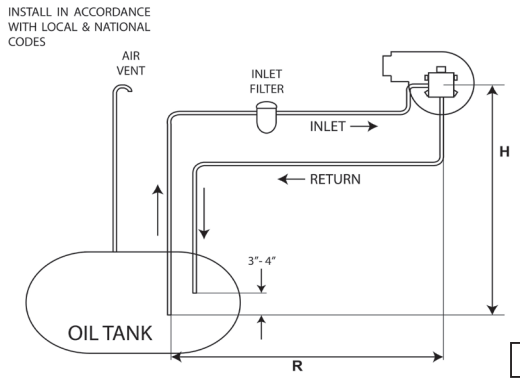


Fig. 3

Inlet Tubing Size	Lift H (Ft.)	-Model A Single Stage-				Model B Two-Stage			
		1725 RPM		3450 RPM		1725 RPM		3450 RPM	
		3 GHP	7 GPH	3 GPH	7 GPH	3 GPH	7 GPH	3 GPH	7 GPH
3/8'' O.D. Copper Tubing	0	86	70	84	71	100	91	93	80
	2	75	60	73	62	100	83	85	73
	4	64	50	63	53	89	75	77	66
	6	54	41	52	44	80	67	69	59
	8	43	32	42	35	70	59	60	52
	10	32	22	31	27	61	51	52	45
	12	21	13	21	18	51	43	44	38
	14	-	-	-	-	41	35	36	31
	16	-	-	-	-	32	27	27	24
	18	-	-	-	-	22	-	-	-
1/2'' O.D. Copper Tubing	0	100	100	100	100	100	100	100	100
	2	100	100	100	100	100	100	100	100
	4	100	100	100	100	100	100	100	100
	6	100	100	100	100	100	100	100	100
	8	100	100	100	100	100	100	100	100
	10	100	90	100	100	100	100	100	100
	12	85	60	83	70	100	100	100	100
	14	42	30	41	35	100	100	100	100
	16	-	-	-	-	100	100	100	100
	18	-	-	-	-	88	74	76	65

(max. total line lenght L=H+R ; calculated for fuel viscosity 57 SSU)

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