KleeBlue™

Diesel Exhaust Fluid

Apex™ Fleet & Retail Dispensers

Includes Models SBD 1010A1, 1010A2, 1040A1, and 1040A2

Fleet Version, Model SBD 1040A1

Retail Version, Model SBD 1010A1

Installation & Operation Manual

C US

Meets ISO 22241 and PEI RP1100

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⚠ WARNING

TURN POWER OFF
Before performing maintenance, be sure to turn system power off to avoid electric shock.

EYE PROTECTION
Pressurized systems may cause hazardous leaks and spray that may be dangerous for your eyes. Always wear eye protection.

INJURY
Wear gloves for protection from liquids that may cause irritation or burns.

READ
Read and understand manuals thoroughly. If you have any questions, please consult the factory.

DEF Purity CAUTION

DEF is WATER based and must be kept PURE and UN-CONTAMINATED

Use only compatible wetted materials for storing and dispensing DEF. Compatible materials include:

- 300 series Stainless Steel
- Polypropylene and Polyethylene
- EPDM and Viton gaskets and seals
- Special, approved hose.

DO NOT USE: Cast Iron, black iron, carbon steel, plated steel, aluminum, plated aluminum, copper, brass, bronze, zinc, lead, magnesium, silver, PVC, CPVC, or ABS plastics. See ISO 22241 and PEI RP1100 for additional information.

Thread Sealant: Threaded connections should be made as follows:

1. Coat the male thread with Loctite® 7649 Activator/primer. Allow to dry for 2 minutes.
2. Apply a liberal amount of Loctite® 567 Thread Sealant to the male thread only. Assemble the threaded components, and tighten well.
3. Allow to cure for at least 6 hours before running DEF through the connection.

Receipt, Inspection, and Identification

Figure 1a.

Upon receipt of the KB-Dispenser, inspect for any damage before signing the receipt of the shipment. Notify the delivery company about possible damage and refuse receipt of the shipment.

Each Dispenser is identified with a dispenser Serial Number and Model Number, which can be found behind the small upper door as shown in Figure 3a.

Retail dispensers also have a name plate or card that gives the certificate of Conformance number as required by Weights and Measures, shown in Figure 3b.

Figure 1b.

CSA Listed dispensers have a CSA Identification label attached as shown in Figure 3c.

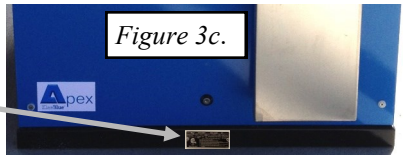


Figure 3c.

General Description

KLEER-BLUE™ Diesel Exhaust Fluid (DEF) Model KB-1010A & 1040A Series Apex Dispensers are specially designed to dispense DEF into DEF tanks on vehicles with diesel powered engines that are fitted with Selective Catalytic Reduction (SCR) pollution control systems. Each Dispenser unit is housed in an industrial grade, powder coated cabinet and is fitted with field proven digital display electronics. The sealed and insulated dispensers are designed to protect the DEF solution from direct exposure to severe weather, and the dual, forced air heaters prevent the water-based DEF from freezing.

Standard Dispenser Specifications

- Industrial grade, 'galvannealed' steel cabinet with powder coated finish.
- Industrial-grade insulation with FRP facing for added durability.
- Durable spring rewind hose reel with stainless steel flow path, loaded with 3/4" ID DEF compatible hose.
- High efficiency, stainless steel, 1-micron, replaceable cartridge filter.
- High visibility electronic register**:**
  - ⇒ Emulates most standard dispenser protocols and integrates with most standard POS systems
  - ⇒ Retail backlit digital LCD sale, volume (gallons or liters), and price displays
  - ⇒ Volume only for Fleet applications, or if desired for retail.
  - ⇒ Non-volatile memory
- Stainless steel Nozzle door is obvious and easy to access. Nozzle door switch activates system, turns on system pump, and re-sets register. Closing and latching door ends transaction.
- Prepay/preset/Non-resettable totalizer
- Delivers a flow rate of 8-10 gpm (30-38 lpm), depending on pump, nozzle, and hose length used.
- Operating Temperature: -22°F / -30°C to 130°F / 54°C
- Supply Inlet: 1-inch female NPT.
- Redundant dual heaters in liquid area: 800 Watts each (total of 1600 Watts) at 120VAC. Built in thermostat on heaters. Factory set for 55°F (13°C)
- CSA Certificate of Compliance #2524925, CSA C22.2 No.14-13, UL 508 17th Ed.

Options:

- Pulse output option
- DEF SS Automatic Nozzle options (mis-fill protection, non mis-fill protection).
- SS 3/4" NPT Breakaway Swivel
- SS 3/4" NPT 45° Swivel
- Protocol option for Wayne, Bennett, Tokheim, Gilbarco.

KB-1010@ Series Retail Dispenser-Specific Specifications

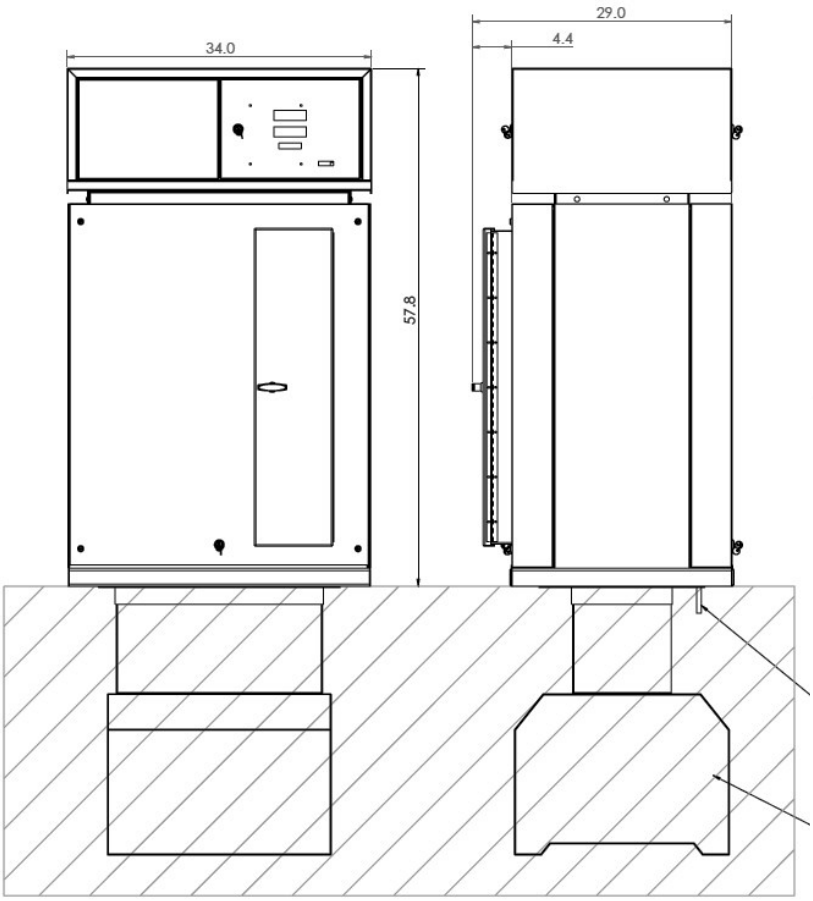
- Field Proven, stainless steel, Total Control Systems™ 682 positive displacement retail piston meter.
- Weights and Measures approved NTEP Certificate of Conformance #09-082.
- Backlit digital LCD displays sales, volume (gallons or liters), and price. Volume only displays also available.

KB-1040@ Series Fleet Dispenser-Specific Specifications

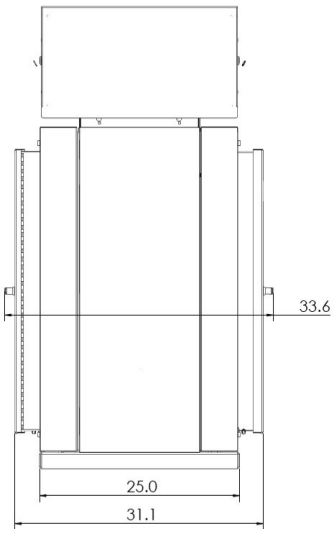
- Durable, stainless steel, Oval Gear fleet meter.
- Backlit digital LCD displays volume (gallons or liters) only.

Apex Series KB-1010A & 1040A Dispenser Dimensions

All dimensions are in inches.

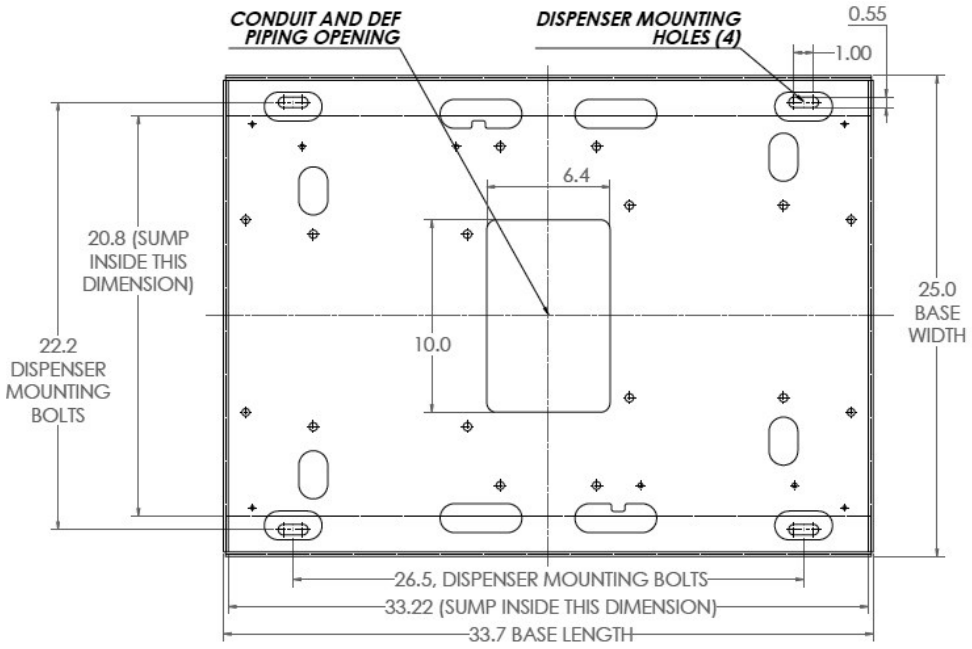


For 'Dual' dispenser models only:



Remove dispenser anchor bolts from sump before pouring concrete. APEX dispenser mounts directly to the supporting concrete.

OPW DS-1123B , Bravo 1257-E30 or similar sump



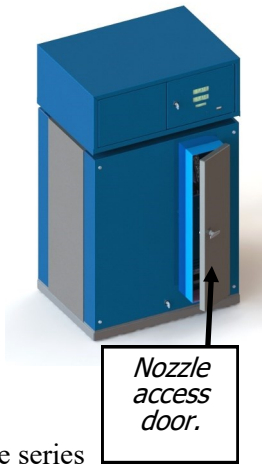
Shipping Weights:

1. SBD 1010A1 Apex Single Retail Dispenser = 535 lbs
2. SBD 1010A2 Apex Dual Retail Dispenser = 745 lbs
3. SBD 1040A1 Apex Single Fleet Dispenser = 475 lbs
4. SBD 1040A2 Apex Dual Fleet Dispenser = 635 lbs

General System Operating Instructions

NOTE: see "**Startup**" instructions on page 16 of this manual prior to operating dispenser for the first time.

DO NOT *dispense DEF into the vehicle diesel tank! DEF is held in a separate tank.*



1) Locate the DEF fill cap on the vehicle to be filled. It usually is a blue cap, and should be labeled as the DEF reservoir. Remove this fill cap.

2) Open the nozzle door by twisting the handle to the left (counter clockwise). Pump will automatically turn on, and the display will reset to zero.

3) Pull out the nozzle and hose. You will hear a series of clicks each time the hose reel rotates. Stop in between these clicks, and the hose reel will lock in place.

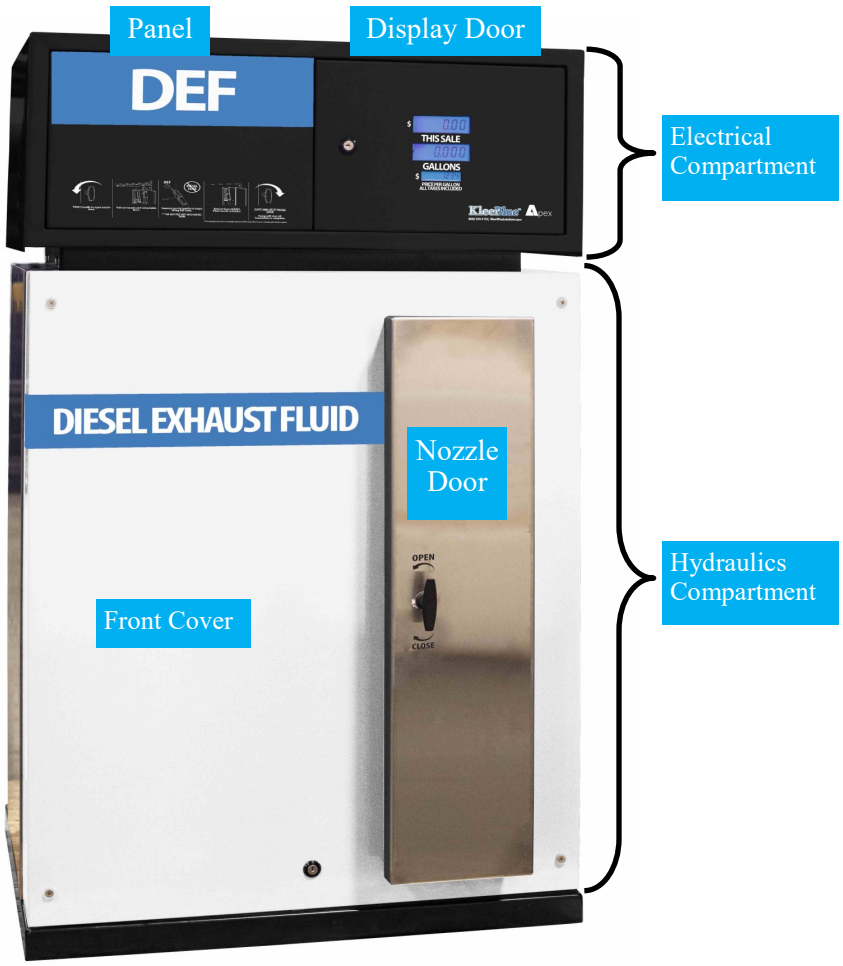
DO NOT yank hard on the hose! The hose reel could over-travel, or the hose could jump off the reel if yanked. Both of these conditions require access to the large locked cabinet door to repair.

4) Place nozzle in DEF reservoir on vehicle. Squeeze handle to dispense.

5) When filling is complete, unlock the hose reel by pulling the hose out a little more, past the series of clicks, then allow the hose to retract gently back into the dispenser. Place the nozzle back in the nozzle holder in the dispenser lower cabinet.

6) **Close and latch dispenser door**! Pump will shut off automatically when the door is latched.

Apex Dispenser Overview and Disassembly:



Apex Dispenser Overview and Disassembly - continued

Removing Dispenser Components for Piping & Conduit Access:

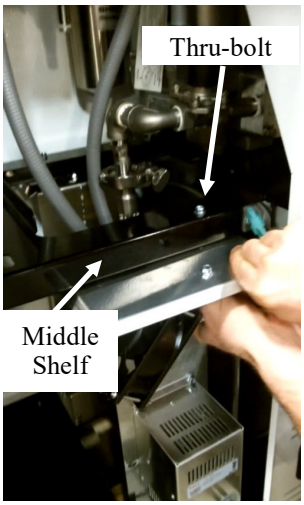
1) Unlock top and bottom locks on dispenser covers: insert keys and turn counter-clockwise to open.

NOTE: keys must be left in locks until re-locked.

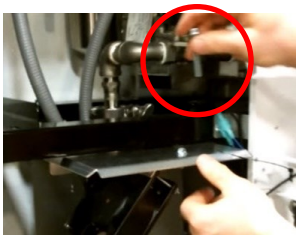
2) Remove four cover mounting screws from dispenser cover.

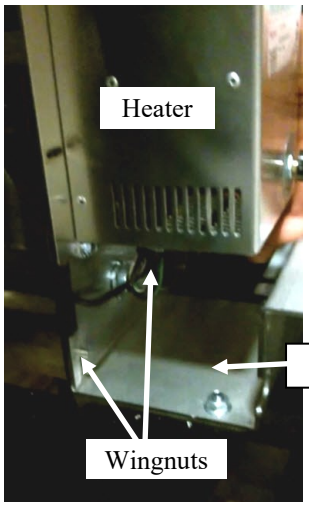
3) Remove covers, lifting cover top edge over lip and carefully set aside so as to avoid tipping cover over and scratching.

Perform steps 4-16 as needed to remove components in order to access inlet piping and conduit.



4) Remove Heaters: remove nut at bottom of thru-bolt holding heater bracket to middle shelf, then remove thru-bolt.





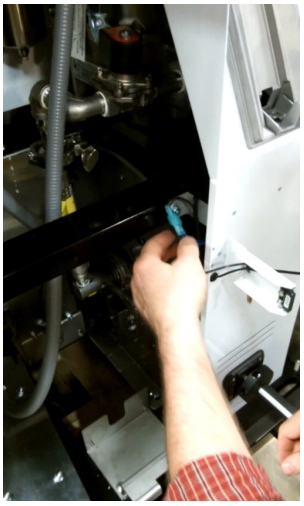
5) Remove the two wingnuts holding heater bracket to bottom lock bracket.

6) Pushing down slightly on top flange and pulling bracket forward, carefully remove and set aside heater assembly.

NOTE: it is not necessary to disconnect conduit from heater.

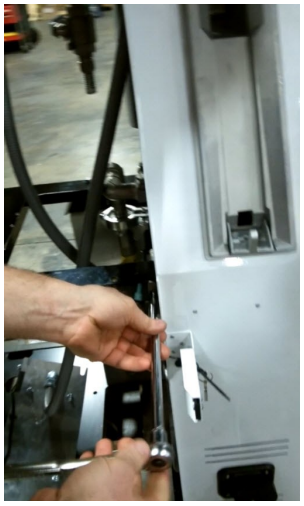
Apex Dispenser Overview and Disassembly - continued

Removing Dispenser Componentsfor Piping & Conduit Access (continued)



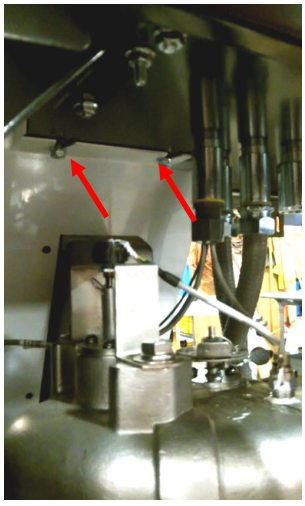
7) Remove nozzle bracket assembly: disconnect door switch wire connectors located behind nozzle bracket assembly.

NOTE: switch wires run along back of nozzle bracket assembly and are held in place by clips. Remove wire from clips.



8) Remove bolt from left and right sides of nozzle bracket panel.

9) Loosen nut on studs located on either side at bottom of nozzle bracket panel.

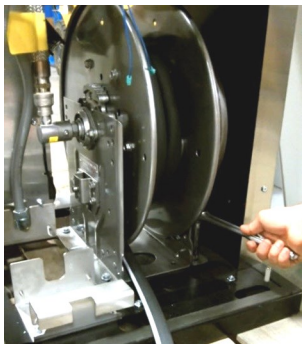


10) From opposite side of dispenser, loosen nuts located at top of nozzle bracket panel.

11) Pull out 3-4 ft. of dispenser hose.

Remove nozzle bracket panel, being careful to reach behind edge of panel to remove switch wire from retainer clip. Carefully set aside nozzle bracket panel

12) Remove Hose Reel: remove left and right hose reel mounting bolts from both front and back of dispenser base, being careful not to drop nut or bolt into sump!



Apex Dispenser Overview and Disassembly - continued

Removing Dispenser Components for Piping & Conduit Access (continued)

13) Loosen nut on sanitary fitting connecting stainless flex hose to piping below elbow. Carefully remove and set aside sanitary fitting.

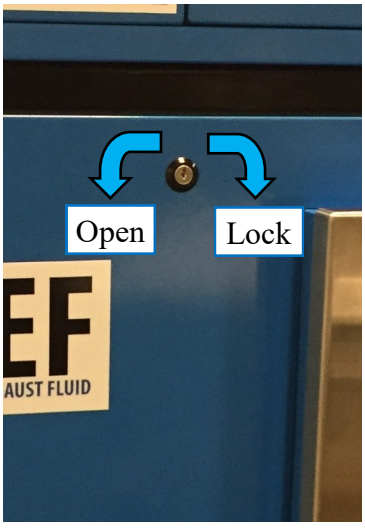
14) Gently separate stainless flanged connector halves, making sure to save rubber gasket.

15.) Push flex hose downward for clearance to remove hose reel.

16) Hose reel can now be safely removed for convenient access to piping and conduit emerging through dispenser base.

Re-install in reverse order. Be sure to re-install gaskets, tighten all nuts, bolts, and connectors, and perform the following tasks when applicable:

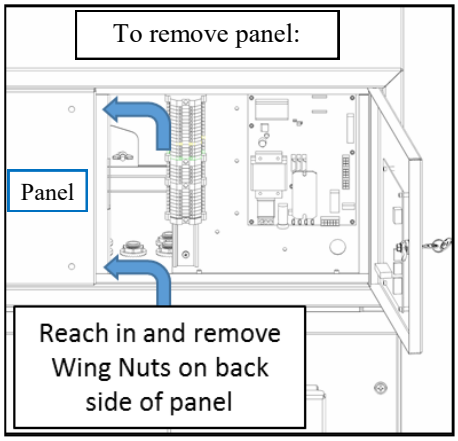
A. Protect the door switch wires by slipping them in the clips behind the Nozzle Bracket Assembly.
B. Both keys should be left in the Front Covers and turned to the left before re-installing covers.
C. Lock the two Front Cover locks by turning to the right. Push the Front Covers in to allow the keys to be turned easily. Key can be removed once lock is in the locked position.
D. Tighten the long Front Cover screws with a HAND SCREWDRIVER ONLY. Do NOT over tighten!

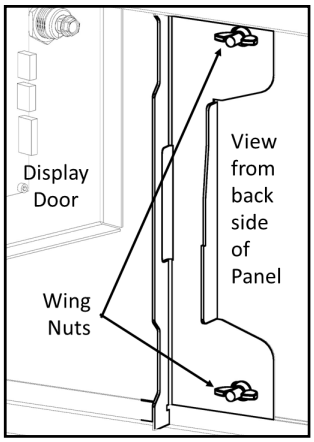


Apex Dispenser Overview and Disassembly - continued

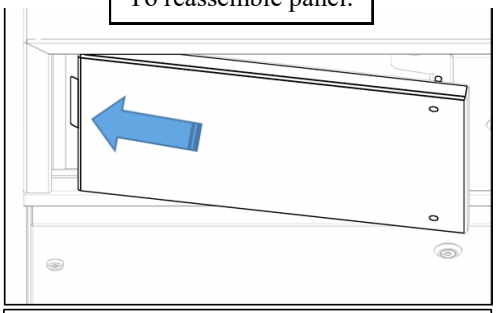
Electrical Compartment Access.

To remove panel:

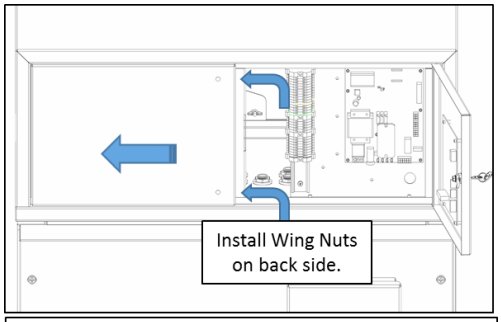




To reassemble panel:



Insert panel catch and push to left



Push to left until studs enter holes. Install wing nuts and tighten to 53 in*lbs. DO NOT overtighten.

Mechanical Installation Instructions:

WARNING: ELECTRICAL HAZARD

SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.
ONLY CERTIFIED CONTRACTORS SHOULD INSTALL SYSTEM

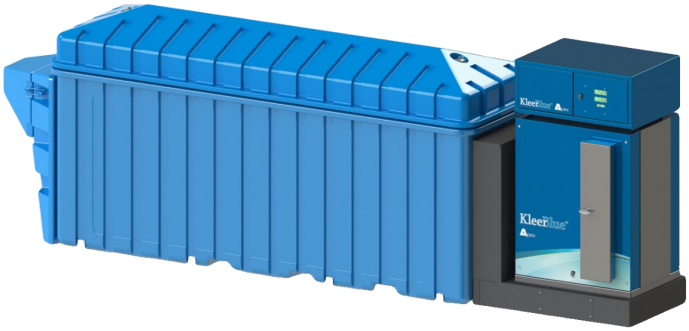
Installation near "DIESEL ONLY" dispensers is allowed.

Do not install within twenty (20) feet of a gasoline dispenser or gasoline storage tank.

A. When Dispenser is coupled to a KleerBlue™ insulated/heated DEF tank (400 or 1000 gallons):

- See the Installation Instructions section of the KleerBlue™ Tank Owners Manual for detailed instructions for setting and anchoring the tank and dispenser system.
- Tank and Dispenser can sit directly on the concrete pad.
- All electrical and plumbing connections between the tank and dispenser are done at the factory.

SBD KB2010A1: 400 gal + Apex on "P" (parallel) frame.



SBD KB2020A1, 1000 gal tank + Apex on "T" (island) frame.

Mechanical Installation Instructions - continued

WARNING: ELECTRICAL HAZARD

SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.
ONLY CERTIFIED CONTRACTORS SHOULD INSTALL SYSTEM.

B. When mounting Dispenser on an Island or Remote location:

1) Dispenser must be permanently mounted to concrete or a durable, noncombustible structure. See page 5 for dispenser mounting dimensions, including location of the opening in the bottom of the dispenser for incoming electrical conduit and fluid piping.

NOTE: For instructions on removing components for easier access to piping and electrical connections installed through base of dispenser, see pp. 8 - 10 in this manual.

2) The DEF fluid inlet is located to the right of the filter, and is a 1" female NPT Ball Valve (Figure11a).

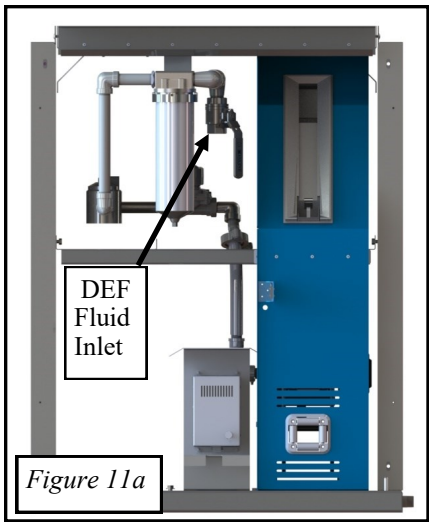


Figure 11a

3) When joining NPT fittings, use the following procedure for best results with DEF.

- Coat the male threads with Loctite® 7649 Activator/primer. Allow to dry for at least 2 minutes.
- Apply a liberal amount of Loctite® 567 thread sealant (or equivalent) to the MALE threads only. Assemble and tighten well.
- Allow to cure for 6-24 hours before dispensing DEF.

4) **In cold climates:**

- All exposed piping must be insulated and heated.
- All holes made into the dispenser must be sealed to insure the cabinet heating system is able to prevent DEF from freezing in the internal plumbing.
- The bottom of the dispenser should be sealed to the concrete with clear silicone caulk to retain heat.

6) In ALL climates, holes made into the cabinet and the base of the cabinet should be sealed to prevent rodents and insects from getting into the dispenser.

NOTE: Always place bollards or similar features around dispenser installations to prevent accidental impact from vehicles.

All Apex key locks open to left, and lock to right

C. When Mounting Dispenser on an Island using a Dispenser Sump:

- Dispenser is centered over sump.
- Dispenser attaches directly to concrete via anchor bolts, not to sump.
- See dimensional illustrations on p.5 of this manual for additional sump mounting information.
- See page 7 for directions on how to dis-assemble dispenser components to make it easier to access piping and conduit coming up from the sump.

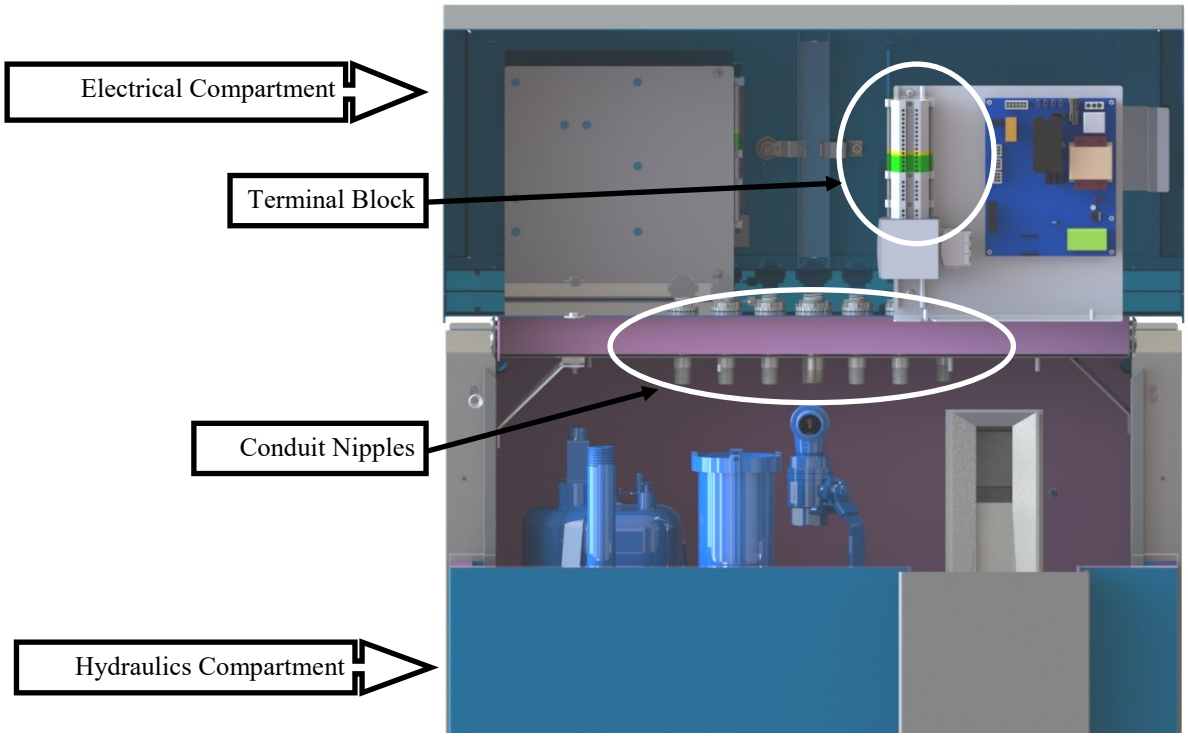
This concludes Mechanical Installation Instructions.

Electrical Installation Instructions

WARNING: ELECTRICAL HAZARD

SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.
ONLY A LICENSED ELECTRICIAN SHOULD CONNECT POWER TO SYSTEM.

- See Page #10 for instructions on how to access electrical cabinet
- **Power to Dispenser must be housed in conduit. All electrical connections outside of dispenser are in made in approved electrical junction boxes.**
- **Power wires inside the dispenser below the Electrical Compartment must be housed in conduit or liquid-tight flexible conduit.** Wires pass up through conduit nipples from the Hydraulics (lower) Compartment into the Electrical (upper) Compartment.
- All electrical connections are made in the Electrical Compartment.
- Use 75C rated copper conductors only for power wiring. Select the proper wire size according to NEC and all applicable local codes and standards.
- Protect the contents of the cabinet from metal chips and other debris while drilling the conduit openings. Failure to observe this precaution could result in damage to the equipment.

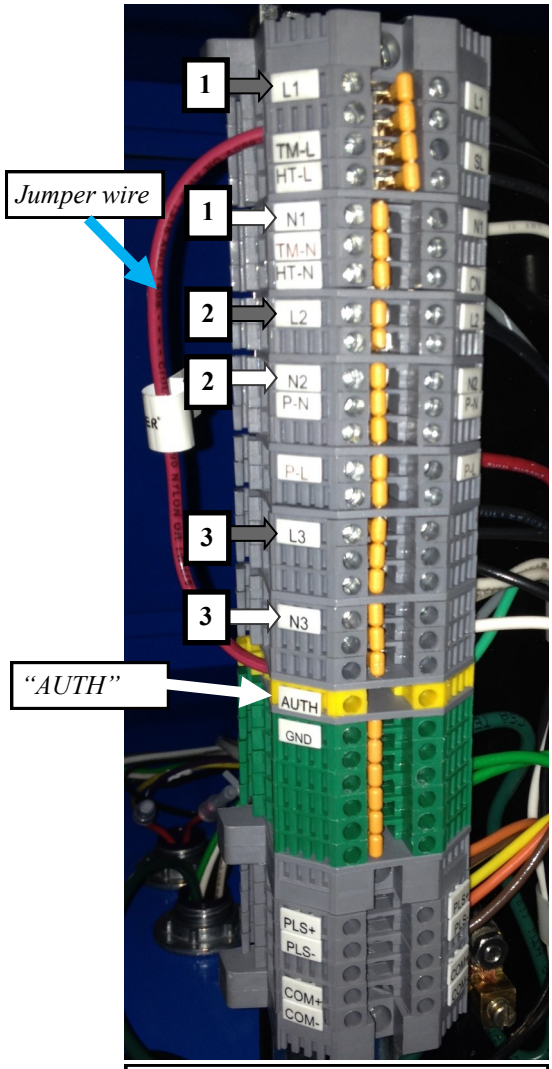


Electrical Installation Instructions - continued

WARNING: ELECTRICAL HAZARD

SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.
ONLY A LICENSED ELECTRICIAN SHOULD CONNECT POWER TO SYSTEM.

A. When Coupling the APEX Dispenser to a KleerBlue™ insulated/heated DEF 400 or 1000 gallon Mini-Bulk tank (e.g. model SBD KB2020A1)



Apex Terminal Block.

- Power Requirement is three dedicated 115VAC, 60 Hz, 20-amp circuits. Power is connected to the left side of the terminal block.

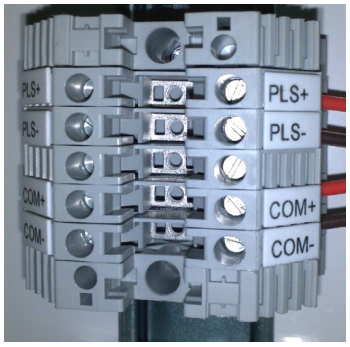
(1) Connect first circuit to L1 (Line voltage), N1 (common), and a ground. This is used to power the dispenser electronics, the solenoid valve, and the tank heat.

(2) Connect the second circuit to L2 (Line voltage), N2 (common), and ground. This is used to power the pump.

(3) Connect the third circuit to L3 (line voltage), N3 (common), and ground. This is used to power the two heaters in the dispenser (total of 1600 Watts).

A.1. When Connecting a Card Reader to the APEX Dispenser:

1. The terminal marked "AUTH" is designed to accept a 120VAC signal from the card reader, indicating the customer's card has been authorized. The APEX dispenser is shipped in the "stand alone" mode, with a red jumper power wire on the AUTH terminal. Remove the red jumper wire, and attach the 120 VAC card reader signal wire here. *Note:* There is no "load" from the dispenser on this voltage. The 120VAC signal from the card reader simply tells the dispenser to authorize the transaction.
2. If your card reader requires "current-sense" (like the Petro Vend K800 Hybrid Fuel Control System), you will need to connect the 120VAC signal to both the "AUTH" terminal and 1 small 120VAC load. Contact KleerBlue Solutions at 1-(800) -320-2122 for recommendation.
3. The communication terminals are located at the bottom of the terminal block . Contact KleerBlue Solutions for information on how to use this feature.



Communication Terminals.

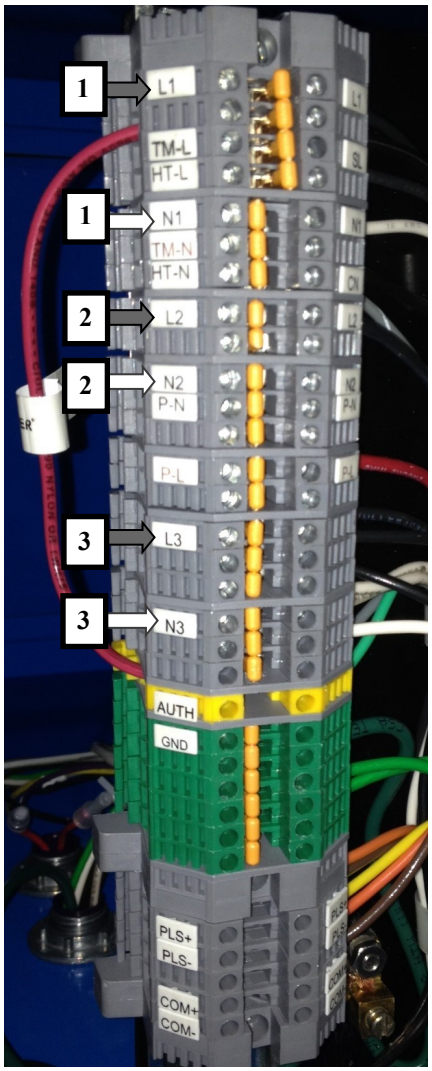
Electrical Installation Instructions - continued

⚠ WARNING: ELECTRICAL HAZARD

SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.
ONLY A LICENSED ELECTRICIAN SHOULD CONNECT POWER TO SYSTEM.

B. When APEX Dispenser is remote from the tank, or when coupled to a 3rd-party DEF Minibulk Storage Unit:

NOTE: *Power requirement is generally three (3) dedicated 120VAC, 60 Hz, 20-amp circuits. If pump power is supplied from another source, two circuits are required.*



Apex Terminal Block.

(1) Connect the first circuit to L1 (Line voltage), N1 (common), and a ground. This is used to power the dispenser electronics, the solenoid valve, and the remote tank heat (if needed, max 10 amps).

(2) Connect the second circuit to L2 (Line voltage), N2 (common), and ground. This is used to power the pump. If power is supplied to the pump from another source, a jumper can be installed from L1 to L2, and from N1 to N2.

(3) Connect the third circuit to L3 (line voltage), N3 (common), and ground. Used to power the two heaters in the dispenser (1600 Watts).

For Power Out

(4) **If powering the DEF pump directly**, connect the pump power (line voltage) to the terminal marked "P-L". Attach the pump neutral to the "P-N" terminal. Attach the pump ground to a ground terminal.
- Rated voltage for Pump = 120VAC
- Rated Full Load Amps not to exceed = 10 amps

NOTE: *See the next page for directions on configuring the CPU board for powering the DEF pump directly from the APEX dispenser, or for activating a remote pump relay.*

(5) When using a 3rd party tank monitor system for level indication, you can power it with the terminals marked "TM-L" and "TM-N", along with one of the terminals marked "GND".
- Rated voltage for Tank Monitor = 120VAC
- Rated Tank Monitor current draw = 2 amps

(6) If desired, connect the tank heater power (line voltage) to the terminal marked "HT-L", the heater neutral to the terminal marked "HT-N", and the ground wire to one of the terminals marked "GND".
- Rated voltage for Heater = 120 VAC
- Rated heater wattage = 900 watts maximum.

B.1. Connecting a Card Reader to the KleerBlue™ Dispenser:

See the section on page 13, entitled: "**A.1. Connecting a Card Reader to the APEX Dispenser:**"

Electrical Installation Instructions - continued

C. When powering a pump directly from the KleerBlue™ Dispenser:

When the KleerBlueTM Dispenser is used to directly power a pump, the two top terminals next to the pump relay on the CPU board are used. See Figure CPU-1 below.

- Max 10 amps at 120VAC.

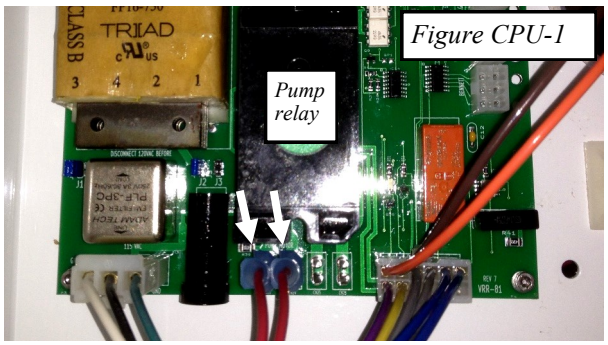


Figure CPU-1

Power Direct to Pump Version:
Red, insulated wires are on the top two spots, noted as CN33 and CN24, indicated by two arrows (above).

D. When activating a low amperage pump relay with the KleerBlue™ Dispenser:

When the KleerBlue™ Dispenser is used to activate a relay, rather than the pump directly, the two bottom terminals on the CPU board are used. See Figure CPU-2.

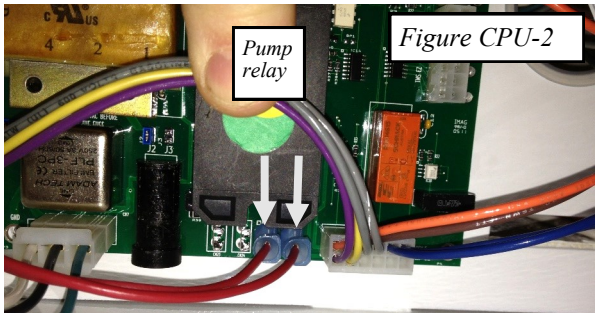
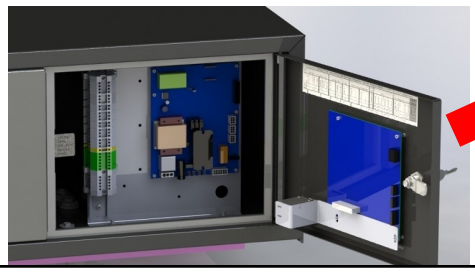
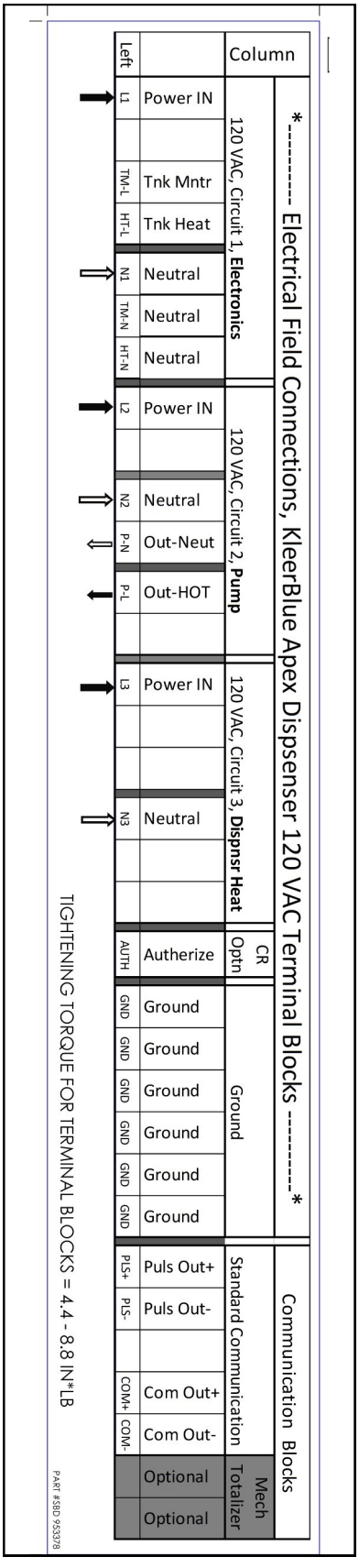


Figure CPU-2

Power to Low Amperage Relay Version:
Red, insulated wires are on the bottom 2 spots , noted as CN25 and CN26, indicated by two arrows (above).



Typical APEX Dispenser Electrical Connections. Black and white arrows show were the hot and neutral wires are connected for the up to three circuits required.



This concludes Electrical Installation Instructions.

Startup (Initial Operation)

It is important to ensure that all dispenser components operate correctly by performing the following procedures when operating the dispenser for the very first time:

A. Connect the 9V Backup Battery

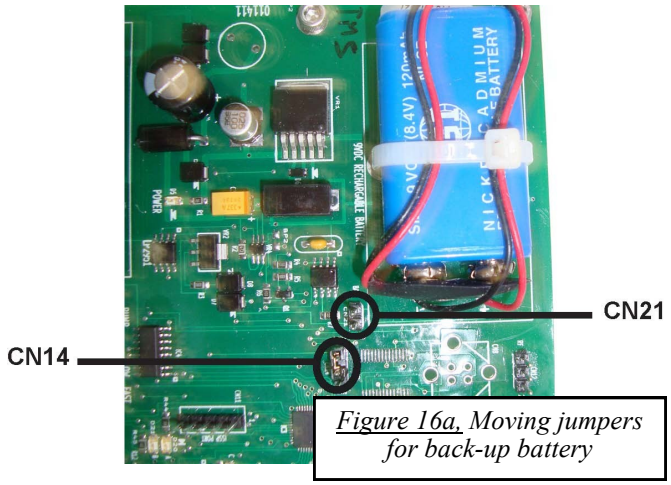


Figure 16a, Moving jumpers for back-up battery

FAILURE TO PERFORM THIS STEP MAY DAMAGE CPU BOARD AND VOIDS SYSTEM WARRANTY!!

1) Ensure that all wiring has been completed on the dispenser.
2) Open the display door of the electrical compartment.
3) On the CPU board, locate the jumper labeled **CN14.**
4) Hook up the back-up 9-V battery by removing jumper from **CN14** and replacing it on **CN21** (see Figure 15a).
5) Close and latch display door of the electrical compartment.
6) Turn on power to the system.
7) Tank monitor on fill-end of tank (if present) will turn on.

B. Test Heater Operation

1) **NOTE**: Dispenser heater fans turn on immediately when power is applied to the dispenser.
2) Open the dispenser's hydraulic (lower) compartment and locate the heaters. Heater thermostat is factory pre-set at 55°F. Ensure that each heater operates by rotating thermostat knob clockwise to a higher setting until you hear a "click." You should feel heat being generated in about 1 minute.
3) After testing, reset thermostat knob back down (counterclockwise) to 55°F.

Figure 15b, Dispenser Heater Thermostat

Setting the Thermostat below* 55° F *may cause cabinet temperature to fall below recommended minimums and VOIDS EQUIPMENT WARRANTY!!

C. Purge the Dispenser

1) Make sure there is DEF in the DEF Storage Tank. Activate the pump following General Operating Instructions on page 6 of this manual.
2) If using a nozzle with "mis-fill prevention," (OPW®, Husky® nozzles) you will need a special magnet on the spout to operate the nozzle.
3) The OPW and Husky nozzles are sensitive to air in the system when priming. "Feather" the nozzle handle to bleed all the air out of the system.
4) The OPW & Husky nozzles may require flow to be reduced for proper operation. If necessary, reduce flow by closing the ball valve on the inlet to the dispenser about ½ way. Adjust as needed.
5) Upon completion of start-up procedure, you should observe DEF flow of 6-10 gpm under normal operating conditions.
6) There may be residue of De-ionized water in the dispenser from testing at the factory. Therefore, when using for the first time, ***dispose of the first 2 gallons*** dispensed to ensure that the dispenser is purged of DI water.

D. Dispenser Calibration: Dispenser is pre-calibrated at the factory and ready for use upon completion of on-site installation and start-up procedure.

Maintenance and Repair

⚠ WARNING
ELECTRICAL HAZARD

SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.

SHUT OFF ALL POWER TO SYSTEM BEFORE PERFORMING MAINTENANCE OR REPAIR.

⚠ WARNING
PRESSURIZED FLUID HAZARD

SERIOUS INJURY OR DEATH MAY RESULT FROM PRESSURE IN SYSTEM.

RELIEVE SYSTEM PRESSURE TO ZERO BEFORE PERFORMING MAINTENANCE OR REPAIR.

WARNING

Maintenance and repair must be performed by a licensed electrician or certified contractor.

DEF ONLY
DIESEL EXHAUST FLUID

ONLY DEF SHOULD BE DISPENSED THROUGH THIS EQUIPMENT !

- *Keeping accurate maintenance records can be an excellent tool in determining the frequency of inspection or maintenance for a system.*
- *Personal safety protection, environmental hazards, and government regulations need to be the foremost priority. Only fully trained personnel should be involved in maintenance.*
- *Refer to the Tank owners manual for maintenance/repair instructions for the Tank System (if present).*

The following is a list of maintenance recommendations to keep the KleerBlue™ Dispenser in optimal condition:

1. Periodically inspect the dispensing hose for cracks or tears. Replace damaged hose. You must remove the hose reel to replace the hose. Use only DEF compatible hose and fittings. See the appendix for a compatible materials list.
2. Inspect door seal integrity. Damaged seals should be replaced. Damaged doors should be repaired or replaced.
3. Before cold weather begins, inspect cabinet heaters and circulation fan. (See Figure 17a).
   - Clean off any dust accumulation using a vacuum.
   - Set the temperature above the air temperature to insure the heater coils turn on. Then reset to 55°F.
   - Note that the fan in the heater is always on, weather the heater coils are on or not.
   - The circulation fan mounted above the heater is also always on, whether the heater coils are on or not.
4. Change the DEF filter element annually (item 9, next page).
5. Wipe up any spilled DEF that might be inside the cabinet. DEF fumes can be hard on the electrical equipment over time.
6. Clean out the DEF hose and nozzle cabinet by wiping with a soft cloth using water and mild soap. Clean up any spills caused by maintenance or repairs.

DO NOT power-wash the dispenser. To keep the dispenser looking nice, wipe with a clean, soft cloth using mild soap.

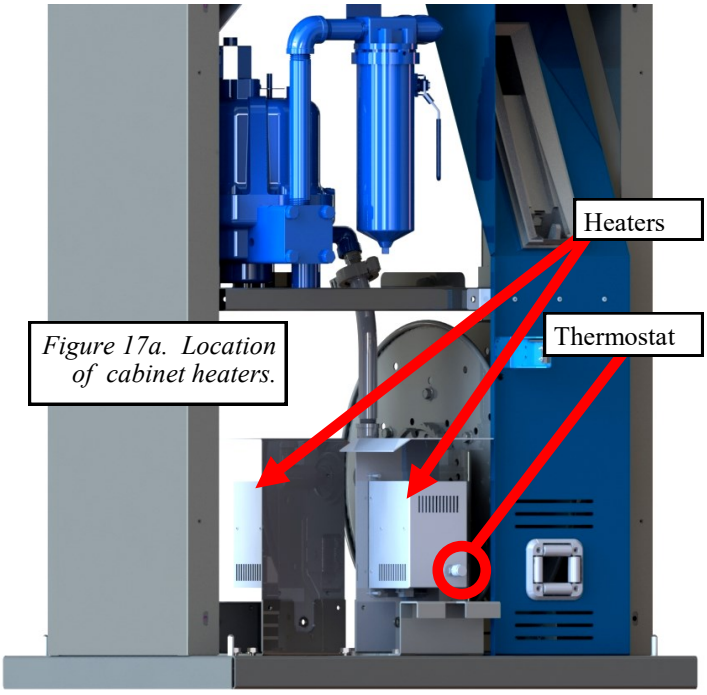


Figure 17a. Location of cabinet heaters.

Maintenance and Repair, continued:

⚠ WARNING
ELECTRICAL HAZARD

SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.
SHUT OFF ALL POWER TO SYSTEM BEFORE PERFORMING MAINTENANCE OR REPAIR.

⚠ WARNING
PRESSURIZED FLUID HAZARD

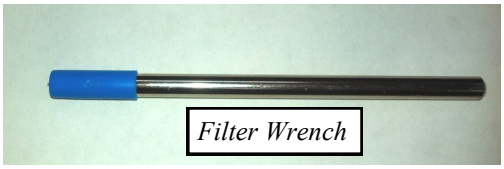
SERIOUS INJURY OR DEATH MAY RESULT FROM PRESSURE IN SYSTEM.
RELIEVE SYSTEM PRESSURE TO ZERO BEFORE PERFORMING MAINTENANCE OR REPAIR.

WARNING

Maintenance and repair must be performed by a licensed electrician or certified contractor.

8. Tighten or replace any leaking joints. NPT threaded joints should made as follows:
   - Clean the threads well
   - Coat the male threads with Loctite® 7649 Activator. Allow to dry for 2-5 minutes
   - Apply a liberal amount of Loctite® 567 thread sealant (or equivalent) to the MALE threads only. Assemble and tighten well.
   - Allow to cure for 6-24 hours before dispensing DEF.

9. To change the filter element (refer to Figure 18a):
   - Open the dispensing nozzle and dispense into an approved container to relieve pressure downstream.
   - Relieve system pressure if a pressure relief valve is present - catch the fluid in an approved container.
   - If no pressure relief valve is present, place an approved container below the filter and slowly loosen the filter ring using the supplied filter wrench.
   - Remove the old filter cartridge and install a new one.
   - Place the filter housing back in position and thread the filter ring in place. Tighten well with the filter wrench.


Filter Wrench

10. ***NOTE:*** If the dispenser is powered down for more than 2 hours, the back up battery should be disconnected after powering down the system to prolong the battery life. Before powering up the system, the battery should be reconnected, as follows:
   - After powering down the dispenser, disconnect the back-up, 9-V battery by removing jumper on **CN21** and placing it on **CN14 .**
   - Before powering up the dispenser, remove the jumper from **CN14** and replacing it on **CN21** (see Figure 18b, below).

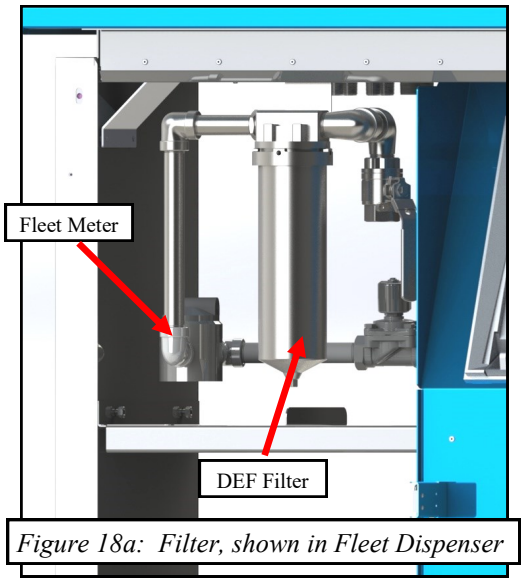


Figure 18a: Filter, shown in Fleet Dispenser

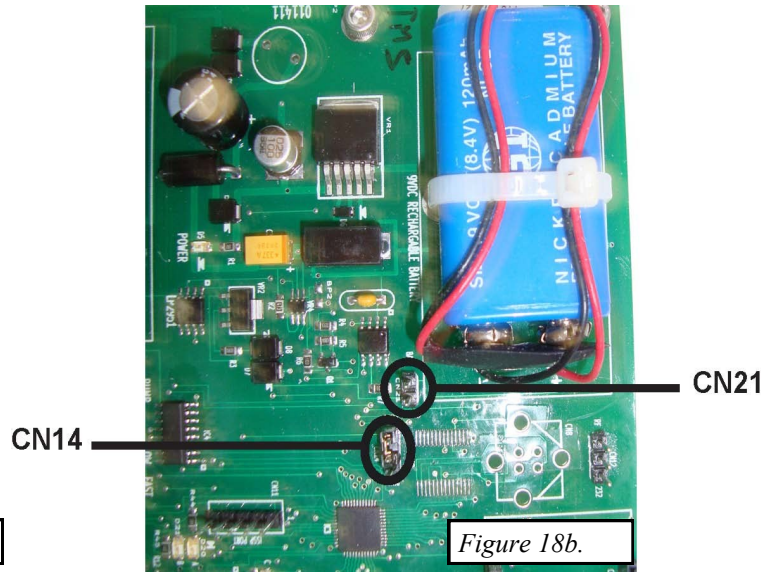


Figure 18b.

Troubleshooting Guide

⚠ WARNING: ELECTRICAL HAZARD
SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.
SHUT OFF ALL POWER TO SYSTEM BEFORE PERFORMING MAINTENANCE OR REPAIR.

⚠ WARNING: PRESSURIZED FLUID HAZARD
SERIOUS INJURY OR DEATH MAY RESULT FROM PRESSURE IN SYSTEM. RELIEVE SYSTEM PRESSURE TO ZERO BEFORE PERFORMING MAINTENANCE OR REPAIR.

⚠ WARNING
Maintenance and repair must be performed by a licensed electrician or certified contractor.

* See the DEF Storage Tank Owners Manual for additional information.

Problem	Possible Cause	Solution
DEF won't dispense.	Pump not getting power.	Power to pump comes from the dispenser. Check dispenser power, pump circuit breaker in dispenser, and circuit to pump.
	Pump overheated and pump thermal protector shut off power (KleerBlue Minibulk systems).	The pump in the KleerBlue Minibulk system is thermally protected from damage due to overheating. The thermal protector will reset after ~20 minutes.
	Tank is empty.	Add DEF fluid to tank.
	Hose in dispenser is kinked	Check hose and hose reels for proper hose alignment.
	Filter in dispenser is plugged.	Replace dispenser filter element.
	Meter in dispenser is jammed.	Dried DEF crystallizes and becomes hard, and might jam the meter. Fresh DEF should re-dissolve crystals. See Meter Owners Manual.
	DEF fluid is frozen in the piping coming from the tank, or in the dispenser hose/nozzle.	Make sure DEF piping is insulated and heated. Make sure all dispenser doors are closed tight in cold weather.
	Pump in the DEF storage tank is not working.	If it is confirmed that power is getting to the pump, then the pump may need to be replaced.
Slow DEF fluid dispensing.	Hose in dispenser is kinked or pinched.	Inspect hose and hose reel. Replace worn hoses and nozzles.
	Tank is nearly empty.	Add DEF fluid to tank.
	Filter in dispenser is plugged.	Replace dispenser filter element.
	Meter or valve in dispenser is plugged or worn.	Inspect meter and valve for proper performance. See meter owners manual for details.
	Pump inlet screen is plugged with debris.	Only clean DEF should be placed in tank. Clean pump inlet screen.
Hose reel becomes locked when the hose is fully extended.	Hose reel can "over-travel" if the hose is yanked too hard when fully extended.	⚠ **Warning: The Hose Reel is under spring tension and can be dangerous! Keep hands and clothing clear of the hose retraction path.** Open large dispenser cabinet door and CAREFULLY rotate hose reel counter-clockwise about 1/4 turn, then gently allow the hose reel to retract the hose.

Troubleshooting Guide - continued

⚠ WARNING: ELECTRICAL HAZARD
SERIOUS INJURY OR DEATH MAY RESULT FROM ELECTRICAL SHOCK.
SHUT OFF ALL POWER TO SYSTEM BEFORE PERFORMING MAINTENANCE OR REPAIR.

⚠ WARNING: PRESSURIZED FLUID HAZARD
SERIOUS INJURY OR DEATH MAY RESULT FROM PRESSURE IN SYSTEM. RELIEVE SYSTEM PRESSURE TO ZERO BEFORE PERFORMING MAINTENANCE OR REPAIR.

⚠ WARNING
Maintenance and repair must be performed by a licensed electrician or certified contractor.

* See the DEF Storage Tank Owners Manual for additional information.

Problem	Possible Cause	Solution
During the calibration procedure, the display shows "FAIL" after entering the number of cubic inches over 5.00 gal, indicating that the number of pulses from the meter is not within the acceptable "range" for the total gallons entered.	Air in the hose or pump line.	Prime the system first before starting the calibration procedure.
	Proving can is not accurate.	Use only stainless steel calibrated proving can with graduation in cubic inches.
	Pulser on meter not connected properly.	Make sure wires are properly connected.
	Retail Version - pulser collar on shaft is loose.	Tighten pulser collar set screw on top of TCS 682SS meter.
	Pulser not functioning properly.	Contact SBD Technical Support at number shown on back of this manual.
	Calculated pulse count is out of range of acceptable tolerance of Factory Ratio	Contact SBD Technical Support at number shown on back of this manual.
	Incorrect Factory Ratio	Check System Information to be sure "Pr" matches the expected pulses per unit of measure.
Product will dispense without counting on the display.	Pulser wire is loose or disconnected at meter.	Connect pulser wire on meter. Keep large door locked.
Display shows only a single 0 (REV7 units only)	PCB has reset to "blank-board" settings due to a voltage spike, or an improper shut-down due to battery backup not being connected, or battery is dead.	Hook-up or replace 9 volt battery (must be identical, rechargeable battery). Set features to recommended defaults shown under **Section A** of "**Display Settings & Programming Functions**," page 22. Note that password may now be "0000". Recalibrate meter per instructions in "**Calibration**," page 21.
Display stuck at SBD100 after power up	Handle Switch is activated or Calibration Switch is engaged	Be sure Nozzle door is closed and latched and that Calibration Switch is in "RUN" position.
Pump stays on, will not shut off when door is closed.	Door switch on cabinet or mating part on door have been jarred and need adjustment. Switch components must line up and come within 0.20" of each other when the door is closed.	If bracket has been bent, carefully bend it back to the original position. Adjust switch component location.
	Door switch is bad.	Replace door switch.

Revision 8 and Higher Calibration Procedure

KleerBlue™ Dispensers are pre-calibrated at the factory for DEF, and will remain accurate for many thousands of gallons of dispensed DEF.

I) **RETAIL Dispenser:** The calibration switch is sealed and can only be legally modified by a certified Weights and Measures Technician.

II) **FLEET Dispenser:** In the event that the calibration needs to be adjusted, the procedure should be done by a technician familiar with KleerBlue electronics or similar systems.

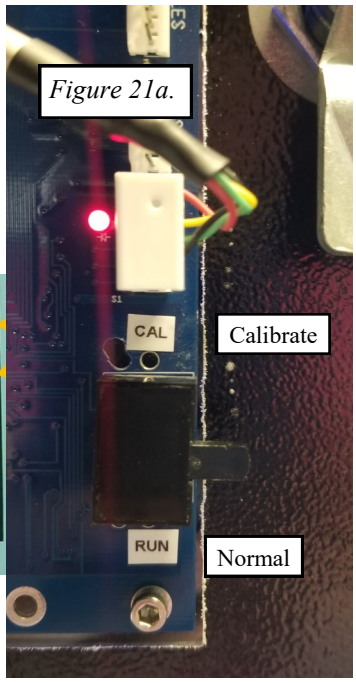


Figure 21a.

Key Pad

1. Use a certified 5-gallon stainless steel proving can. The can should be "wetted" before use with DEF, then drained for 1 minute.
2. Purge system of air by dispensing a couple of gallons of DEF into a vehicle DEF tank or an approved container. Also for retal dispensers with the TCS 682SS meter, open vent on top to purge all air from the area while pump is running. Replace the hose and nozzle and close and latch the hose/nozzle door.
3. Open the upper side panel access door. Remove the lock (if present), then switch the calibrate switch UP to "calibrate" (see Figure 21a).
4. Install the key pad onto the display board and press "PROG"
5. The Display will say "PASS". Enter system password (Default 1239) and then "ENTER"
6. Display will show "5 GAL" (Figure 21b) Press "ENTER" (other prover sizes can be selected by repeatedly pressing "F3". Other sizes are 20 Liter*, 50 GAL and 100GAL) Press "ENTER"
7. Display will show "FILCAn" (Figure 21c). Open door and dispense 5 gallons (or preover volume selected in previous screen) into the test measure.
8. Replace nozzle and hose in cabinet, and close and latch the door.
9. On the key pad, press "ENTER". The display will read "F1 Abo" briefly then "F2 bEL"" (see Figure 21d)
10. Allow the DEF fluid to settle for 30 seconds in the proving can. Read the scale on the proving can, and note how many cubic inches over/under 5.00 gallons are in the can.
11. Press "F1" on the Keypad (F2 if the proving can is under 5.00 gallons), then enter the number of cubic inches rounded to nearest whole cu in then press "ENTER" to accept.
12. If the calibration was successful, the display will read "PASS" (Figure 21e) briefly then the new adjusted k-factor. If it was NOT successful then the display will briefly read "FAIL" (Figure 21f)then show the failed pulse count. Repeat the process beginning Step 1 if the process fails. Refer to "Troubleshooting Guide" section of this manual if this process repeatedly fails.
13. Disconnect the keypad, and move the switch DOWN to "RUN" for normal operation. Replace the washer and screw (if present).

Figure 21b.

Figure 21c

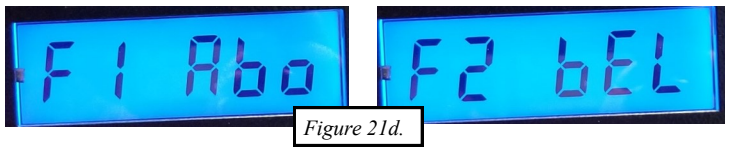


Figure 21d.

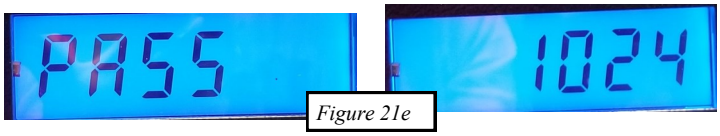


Figure 21e

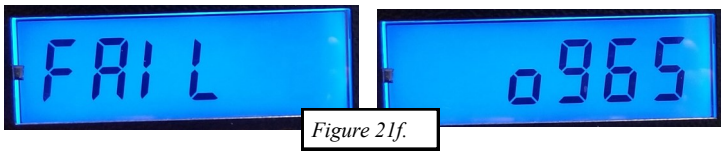


Figure 21f.

*For liter applications Contact Technical Support to be sure FRAM Variable 83 "plsunit" is set to 1.

Display Settings & Programming Functions

A. Functions Available through User Keypad:

1. **PrICE** Current Price
2. **StoPAt** Max Volume Delivery
3. **PASS** System Password (default = 1239)
4. **onLInE**
5. **Id** Pump Address
6. **tI oUt** No Pulse Timeout
7. **PrESS** Hose Pressurization Time in 1/10th Seconds
8. **SLo dn** Slow Down Amount Prior to End Of Preset
9. **dP PPU** PPU Decimal Position
10. **dP GAL** Volume Decimal Position
11. **dP doL** Money Decimal Position
12. **PLSoUt** Pulse Output

B. Programming Functions:

NOTE: The programming menu option will initially appear for one second, followed by the programmed value.

Press "PROG" key. The screen will ask for a password. Enter the password (Default is "1239") and press the "ENTER" button.

Input "1239" then press "ENTER"

"F1" key will advance forward through the user programmable options. "F2" key will move backward through the options. Pressing "CANCEL" will exit from these options.

1. **PrICE** This option allows changing of a displayed price per unit. Enter a new price and press "ENTER"

2. **StoPAt** This option sets the maximum volume for a delivery. This function can be overridden by a command from a console when online.

3. **PASS** This option sets the User Access Password. (Default is 1239) Contact factory if this password has been lost or forgotten or perform a factory reset. A one time access code can be granted to reset this password for a fee.

Display Settings & Programming Functions - continued

4. **online** This option sets the dispenser to be on line with a console or offline for standalone operation
   0 = Standalone
   1 = Online

Enter the desired number, then press “ENTER”. Press”F1” to advance to the next screen.

5. **Id** This option sets the protocol id (address) of the fueling position
Enter the desired number, then press “ENTER”. Press”F1” to advance to the next screen.

6. **tI oUt** This option sets the no pulse timeout.. The value is in minutes
Enter the desired number, then press “ENTER”. Press”F1” to advance to the next screen.

6. **PrESS** This option sets the amount of time to open the slov valve prior to reset. It is used to pressurize a long hose to prevent “run-up”. The value is in 1/10th seconds. (Example: 1/2 second would be 050)
Enter the desired number, then press “ENTER”. Press”F1” to advance to the next screen.

8. **SLo dn** This sets the first trip amount. The KB and SBD dispenser DOES NOT currently use this feature. The value is 1/10th the desired value. (Example: 1/4 gallon would be 025)
Enter the desired number, then press “ENTER”. Press”F1” to advance to the next screen.

3. **dP PPU** This option sets the desired PPU decimal position. (Default 3)

3. **dP GAL** This option sets the desired PPU decimal position. (Default 3)

Display Settings & Programming Functions - continued

dP doL This option sets the desired PPU decimal position. (Default 2)

5. **PLSoUt** This option sets the pulse output scale.. Below defaults assume default decimal point positions.

0= penny (lowest sale digit)	(Default = One pulse per penny)
1= lowest of volume	(Default = 1000 Pulses per unit)
2= 2nd lowest of volume	(Default = 100 Pulses per unit)
3= 3rd lowest of volume	(Default = 10 Pulses per unit)
4= 4th lowest of volume	(Default = 1 Pulses per unit)

Enter the desired number, then press “ENTER”. Press”F1” to advance to the next screen.

C. Viewing system Information

Certain information and totals can be accessed through the keypad by pressing “F3” or by swiping a magnet in to the left of the gallons display. Each “press” or “swipe” will advance through the available information listed below

Leading five digits of the non-resettable money totals

Example: 0000033.134 dollars

Last five digits of the non-resettable money totals

Leading five digits of the non-resettable volume totals

Example: 0000026.447 gallons

Last five digits of the non-resettable volume totals

Display Settings & Programming Functions - continued

CPU Firmware Version

Factory Programmed k-factor

Adjusted k-factor

Reason for last sale completion

0 sale in progress

1 handle lowered

2 preset reached

3 power fail

4 display communications timeout

5 console communications timeout

6 Sale timeout

7 dispenser too cold

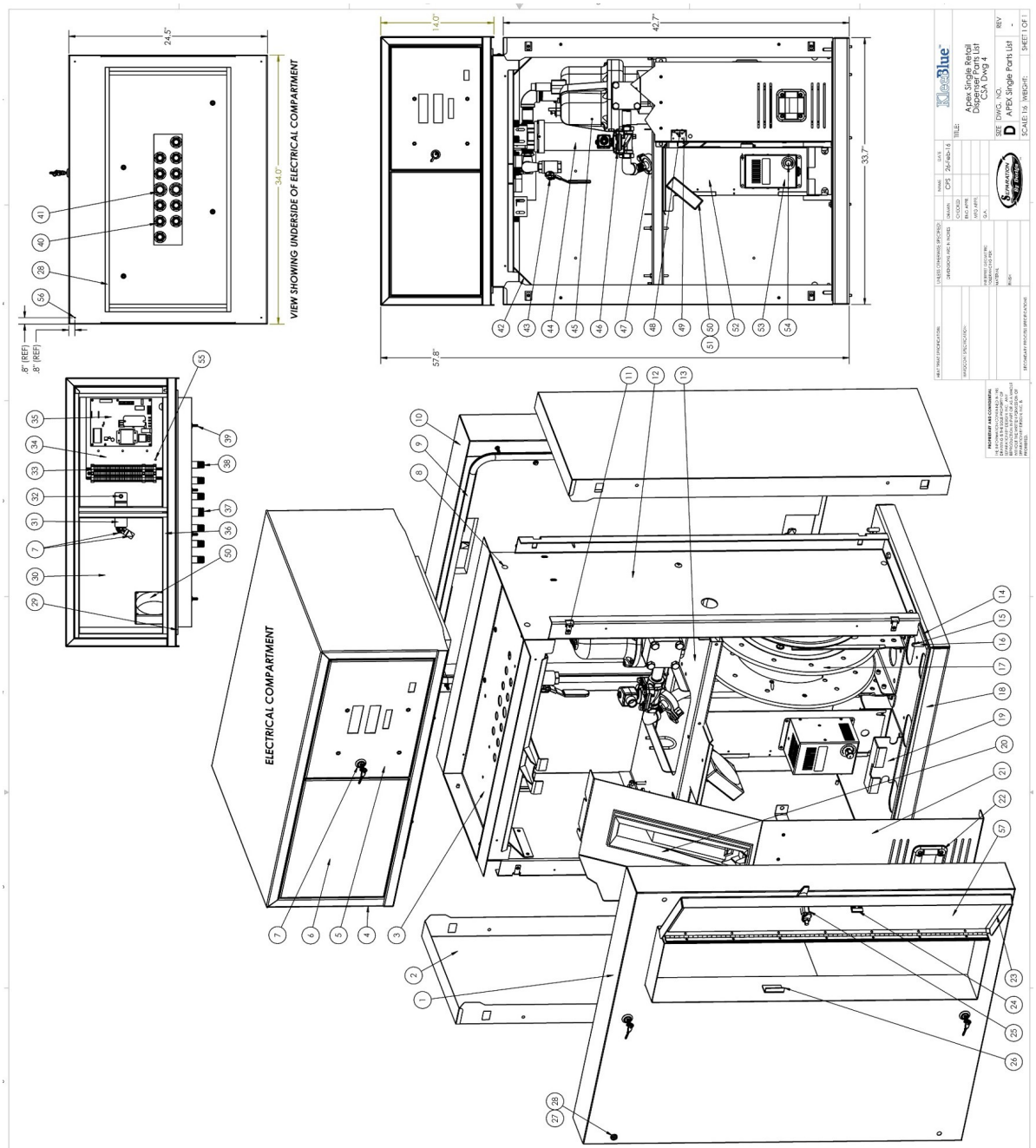
8 pulser security bit

9 pulser error from display bd

10 stopped by protocol command

11 authorization from POS removed “ pump stop command”

Parts Lists: KleerBlue™ REGAL, SBD 1010A1 Single Dispenser



#	PART #	DESCRIPTION	QTY	MATERIAL	REV
1	SBD 952710	Front Cover Assy w/nozzle Door	1	Galvanneal Steel	-
2	SBD 952729	SS Side Panel	2	Stainless Steel	C
3	SBD 952707	Top Shelf Assy	1	Galvanneal Steel	A
4	SBD 952732	Electrical Compartment Body	1	Galvanneal Steel	B
5	SBD 952723	Electrical Compartment Display Door	1	Galvanneal Steel	B
6	SBD 952741	Electrical Compartment Panel	2	Galvanneal Steel	-
7	SBD 952755	Lock, Key, & Latch	2	Steel	-
8	SBD 951783	Carriage Bolt, 1/4-20	4	Stainless Steel	-
9	SBD 952910	Bulb Gasket	18ft	Foam Rubber	-
10	SBD 952751	Front Cover Assy, No Nozzle Door	1	Galvanneal Steel	-
11	SBD 952924	Clip-on U-Nut, 1/4-20	8	Steel, P-Coated	-
12	SBD 952701	Side Column	2	Galvanneal Steel	C
13	SBD 952702	Middle Shelf	1	Galvanneal Steel	B2
14	SBD 952926	Gasket 1/8" x 1/2"	7ft	Foam Rubber	-
15	SBD 952794	Screw, #10	4		
16	SBD 952792	Spacer, #10 screw	4	Nylon	-
17	SBD 920142	Hose Reel	1	Stainless Steel	-
18	SBD 952700	Base for Apex Dual	1	Galvanneal Steel	B
19	SBD 952706	Lock Bracket, Bottom	2	Stainless Steel	C
20	SBD 920310	Nozzle Retainer	1	Aluminum	-
21	SBD 952715	Nozzle Retainer Brkt	2	Galvanneal Steel	E
22	SBD 920143	Hose Guide	1	Non-metalic	-
23	SBD 910554	Gasket 1/4" x 1/2"	11ft	Foam Rubber	-
24	SBD 920088	Magnet, Door Sensor	1	Non Metalic	-
25	SBD 952779	Handle, Nozzle Door	1	Plated Steel	-
26	SBD 952711	Catch, Nozzle Door	1	Galvanneal Steel	A
27	SBD 952777	Countersunk Washer	8	Nylon	-
28	SBD 952776	1/4-20 X 5.5 Screw	8	Stainless Steel	-
29	SBD 952927	Gasket 1/4" x 1"	8 ft	Foam Rubber	-
30	SBD 952750	Blank Disp-Door Assy	1	Galvanneal Steel	B
31	SBD 952738	Electrical Compartment Panel Latch	2	Galv. Steel	-
32	SBD 952930	Nut, Panel Latch	2	Steel, Zn plated	-
33	EUR O.25	Terminal Blocks	-	Non metallic	-
34	SBD 952728	Bracket, CPU	1	Galvanneal Steel	D
35	SBD 920241-R7	CPU Board Assy	1	-	-
36	SBD 952925	Gasket 3/16" x 1/2"	18ft	Foam Rubber	-
37	BIN 3/4X3	Nipple, 3/4" x 3"	10	Steel, Zn Plated	
38	BIN 1/2X3	Nipple, 1/2 x 3"	2	Steel, Zn Plated	
39	SSB 1/2X3	Bolt, 1/4-20 x 3	4	Stainless Steel	-
40	HUB 50D	Hub, water tight 1/2"	10	Aluminum/rubber	-
41	HUB 75D	Hub, watertight, 3/4"	2	Aluminum/rubber	-
42	SBD 952705	Bracket, Frame	2	Galvanneal Steel	B
43	INL 3/4 SSLL	Ball Valve	1	Stainless Steel	-
44	SBD SS FILTER	Filter	1	Stainless Steel	-
45	SBD RETAIL-682	TCS 682 Retail Meter	1	Stainless Steel	-
46	SBD 920125	Solenoid Valve	1	Stainless Steel	1
47	SBD 952768	Flex Tube Assy	1	Stainless Steel	-
48	SBD920089	Magnetic Sensor	1	Non Metallic	-
49	SBD 952744	Sensor Bracket	1	Galvanneal Steel	A
50	SBD 952912	Fan Bracket	2	Galvanneal Steel	A
51	SBD 920176	Fan	3	Steel, painted	-
52	SBD 952718	Heater Bracket	2	Aluminum	C
53	SBD 952900	Heater	2	Aluminum	-
54	Dial on Heater	Thermostat	2	Non Metallic	C
55	SBD 952935	Bonding Terminal	1	Brass	-
56	Drain Hole	1/8" Diameter hole	4	NA	-
57	SBD 952713	Nozzle Door Assy	1	Stainless Steel	C

KleerBlue™ Solutions

Exclusive Limited Warranty

Subject to the terms and limitations set forth in this limited warranty ("Warranty"), KleerBlue Solutions ("KleerBlue") warrants to the original purchaser ("Purchaser") of the **KleerBlue Apex™ Dispenser** ("Equipment"), Equipment to be free, under normal use and service, from defects in materials and workmanship **for a period of one (1) year** from date of original invoice. KleerBlue's entire liability under this Warranty is limited to either repairing or replacing, at KleerBlue's option; provided that Equipment is returned to KleerBlue transportation charges prepaid, and that upon KleerBlue's examination, Equipment or workmanship is determined to have been defective upon delivery to the Purchaser.

Labor and travel costs incurred by a KleerBlue-approved and qualified service provider, servicing only KleerBlue equipment, are covered under this warranty. Labor charges must not exceed "normal charges schedule" established by KleerBlue. Travel time must not exceed 4 hours total per incident. Service provider can charge their standard rates less a 25% discount to KleerBlue. All such labor to be performed must first be PRE-APPROVED by KleerBlue Solutions with a site-specific **Service Authorization Number**.

For this Limited Warranty to take effect, Purchaser must submit completed DEF Installation Checklist, supplied in the Installation and Operating Manual, to KleerBlue Solutions.

Claim Procedures

In order to obtain performance by KleerBlue of its obligations under this warranty, the Purchaser must first contact KleerBlue Solutions in order to report the problem. **Only KleerBlue Solutions Customer Service can approve or authorize warranty claims**. Purchaser must supply the following information:

1. Contact name, address, and telephone number for site where KleerBlue Equipment is located
2. Original invoice or model and serial number of the Equipment
3. A description of the problem and how it occurred.

KleerBlue reserves the right to request photos of the defect for which return authorization is being sought.

Limitations

There are no other warranties of any kind expressed or implied. KleerBlue specifically disclaims any warrant of merchantability or of fitness for any particular purpose. KleerBlue's sole obligation, which shall represent the buyer's sole and exclusive remedy, shall be to repair or at KleerBlue's option to replace any Equipment, or component thereof, determined to be defective. In no event shall KleerBlue be held liable for any special, direct, indirect, incidental, consequential or other damages of similar nature incurred, nor any liability to be assumed except as expressly provided herein; there is no other express or implied warranty.

Exclusions

This Warranty does not cover any equipment not manufactured by KleerBlue; such items are subject to warranties provided by their respective manufacturers. This warranty does not extend to Equipment which has been subjected to improper installation, misuse, negligence, or accident, or if installed and/or operated in any manner other than in accordance with KleerBlue's **Installation and Operating Instructions**, nor does it extend to Equipment which has been modified in any way without express authorization from KleerBlue Solutions. This warranty applies only to KleerBlue Equipment sold in the United States and Canada.

Design and Equipment

KleerBlue reserves the right to make changes in design or add any improvement to its Equipment at any time without incurring any obligations to install the same on Equipment previously sold or placed on order.

Returning Products to KleerBlue

Under the terms of the Limited Warranty, KleerBlue may ask for return of the Equipment that is the subject of the warranty claim. Such Equipment must be clearly labeled with a **Return Goods Authorization Number** ("RGA Number") prior to return shipment. Equipment returned to KleerBlue without a RGA Number will not be processed. All Equipment to be returned must be shipped freight prepaid by the Purchaser to KleerBlue at the address shown below.

KLEERBLUE SOLUTIONS
1601 Buchanan Road, Evansville, IN 47720
(800) 320-2122
sales@kleerbluesolutions.com

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Appendix: Revision 7 and lower Calibration Procedure

KleerBlue™ Dispensers are pre-calibrated at the factory for DEF, and will remain accurate for many thousands of gallons of dispensed DEF.

I) I) **RETAIL Dispenser:** The calibration switch is sealed and can only be legally modified by a certified Weights and Measures Technician.

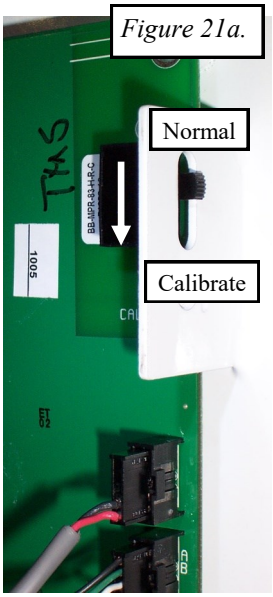


Figure 21a.

II) II) **FLEET Dispenser:** In the event that the calibration needs to be adjusted, the procedure should be done by a technician familiar with KleerBlue electronics or similar systems.

1. 1. Use a certified 5-gallon stainless steel proving can. The can should be "wetted" before use with DEF, then drained for 1 minute.
2. 2. Purge system of air by dispensing a couple of gallons of DEF into a vehicle DEF tank or an approved container. Replace the hose and nozzle and close and latch the hose/nozzle door.
3. 3. Open the upper side panel access door. Remove the lock (if present), then switch the calibrate switch down to "calibrate" (see Figure 21a).
4. 4. Install the key pad onto the display board.
5. 5. The Display will say "5 GAL" (Figure 21b).
6. 6. Open the nozzle/hose door and dispense 5.00 gallons into the proving can. It is best if you dispense slightly over 5 gallons, but not more than 9 cubic inches over.
7. 7. Replace nozzle and hose in cabinet, and close and latch the door.
8. 8. Allow the DEF fluid to settle for 30 seconds in the proving can. Read the scale on the proving can, and note how many cubic inches over 5.00 gallons are in the can.
9. 9. On the key pad, press "ENTER". The display will read "F1 F2" (see Figure 21c)
10. 10. Press "F1" on the Keypad (F2 if the proving can is under 5.00 gallons), then enter the number of cubic inches (Figure 21d & 21e) from task #8 above (this example shows 1.3 cubic inches over).
11. 11. On the Key Pad, press "ENTER" to accept.
12. 12. If the calibration was successful, the display will read "COMPLETE" (Figure 21f).
13. 13. Disconnect the key-pad, and move the switch up for normal operation. Replace the washer and screw (if present).
14. 14. If the calibration was NOT successful, the display will indicate "Range". Refer to "**Troubleshooting Guide"** section of this manual if this occurs.

Key Pad

Figure 21b.

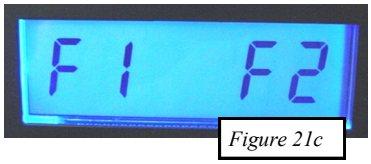


Figure 21c

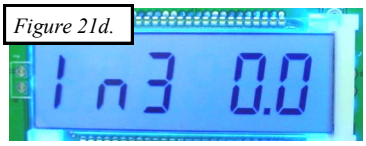


Figure 21d.

Figure 21e

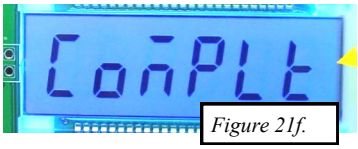


Figure 21f.

Display Settings & Programming Functions

A. Functions Available, and Default Settings from the Factory:

1. 1. **Password.** Default = 2716.
2. 2. **Timeout.** Default = 15
3. 3. **Gallon/Liter.** Default = 0 (Gallons)
4. 4. **Pulse Output.** Default setting = 2 (100 pulses/gallon).
5. 5. **Volume Decimal Point.** Default setting = 3 (x.xxx).
6. 6. **Slow Down.** (not applicable, default set to 0.120).
7. 7. **Maximum Volume Allowed.** Default = 999.000
8. 8. **5 Second.** Default = 0 (off)
9. 9. **Hose Pressurization.** Default = 1 (on).
10. 10. **Calibration.** Default calibration is for DEF.

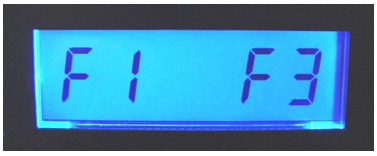
B. Programming Functions (for Volume Only/Single Window Versions):

NOTE: The programming menu option will initially appear for one second, followed by the programmed value.

1. Press the "PROG" key and hold for 3 seconds. F1 and F3 will be displayed.

"F1" Refers to the "F1" button on the keypad. Successive pressing of the "F1" button will scroll the programming forward.

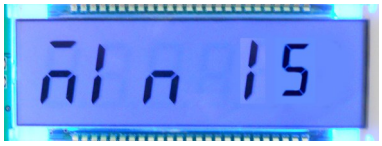
Pressing the "F3" button will display non-resettable volume totals.



2. Press "F1" key. The screen will ask for a password. Enter the password (Default is "2716") and press the "ENTER" button. Press"F1" to advance to the next screen.

Input "2716," then press "ENTER"

3. "TIMEOUT" is the amount of time after the last pulse that the motor and valve will receive power. The default is 15 (15 minutes). Continuous run is "00". The value can be set from 0-99 minutes. Set the value then press "ENTER". Press"F1" to advance to the next screen.

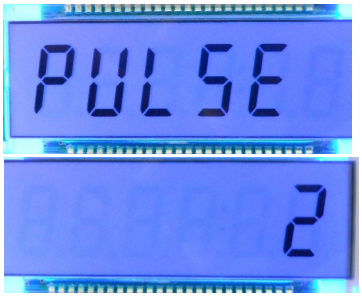


Display Settings & Programming Functions - continued

4. "GAL" "L" sets the volume display to read in Gallons or Liters.
   0 = Gallon
   1 = Liter

Enter the desired number, then press "ENTER". Press"F1" to advance to the next screen.

NOTE: FOR LITERS CUSTOMERS, CALIBRATION MUST BE PER FORMED IN GALLONS THEN CHANGED BACK TO LITERS .



5. If the dispenser is set up for Pulse Output, the next window will say "PULSE", then change to the number of pulses per unit (gallon). The default is 2, which indicates 100 pulses per unit. Other options are 0 = 100 pulses per unit, 1 = 1000 pulses per unit, 2 = 100 pulses per unit, 3 = 10 pulses per unit. Enter the desired number and press "ENTER". Press "F1" to advance.

6. The display will momentarily show "VOLUME". It will then change to the number of decimal points for the volume display. Enter the desired number of decimal points, and press "ENTER".

- 3 = X.XXX
- 2 = X.XX
- 1 = X.X
- 0 = X
- Press "F1" to advance to the next screen.

NOTE: When <u>calibrating</u>, the decimal places <u>MUST BE SET TO 3</u>! After calibrating, the decimal places can be changed to 1 or 2 if desired.

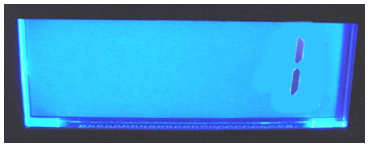
7. The display will momentarily show "SLOWDOWN". It will then change to allow entry of a "slow-down" amount. The KB dispenser DOES NOT use this feature. Press "F1" to advance to the next screen.

8. The display will momentarily show "MAXVOL". It will then change to allow entry of a "maximum volume allowed to be dispensed before cut-off". The example here shows the maximum volume allowed at one time to be 555 gallons. Press "F1" to go to the next screen.

Display Settings & Programming Functions - continued

9. The display will momentarily show “5 SEC”. It will then change to show “0”. This feature can activate a 5 second no-pulse timer, and is used for systems that dispense with a coupler on the hose that attaches to a vehicle, such as is found on New Flyer buses. If activated, the feature will shut off the pump after 5 seconds of no pulses from the meter.

- • If you are using a nozzle to dispense DEF, leave this feature on “0”.
- • If you have a coupler on the end of the hose and will be filling New Flyer Buses, change the display to “1” to activate the 5-second time out feature.



10. The display will momentarily show “PRESSURE”. It will then change to allow selection of Hose Pressurization or not.

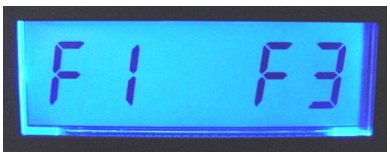
- • 0 = No hose pressurization. Use if hose is 15ft long or less
- • 1 = Pre-pressurization. Use if hose is longer than 15ft.

Enter the desired number and press “ENTER”. Press F1 to advance.

11. Press the “CANCEL” button 2 times, and the dispenser will exit the program mode.

The **Non-Resettable Total** maximum is 9,999,999 (10 million gallons). To access the Non-Resettable Totals, perform the following:

- • Attach the keypad.
- • Press the “PROG” key to enter the program mode. The display will show F1 and F3.
- • Press the “F3” button on the keypad.
- • The display will show the first 4 whole numbers of the non-resettable volume. Press “F3” a second time and the last 3 whole digits will be displayed, along with the decimals.
- • In the example shown, the total is 0,000,010.275, or 10.275 gallons.
- • Press the “CANCEL” button 2 times to exit the program mode. Unplug the keypad and put it in a safe place.



Press the “Cancel” button twice *to* get back to normal operating mode.

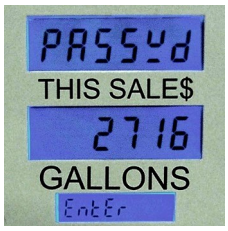
Display Settings & Programming Functions - continued

C. Retail Version with 3 Display Windows: Additional Features

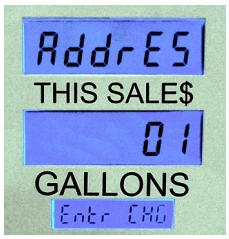
The program for the 3-window retail display is slightly different with some options not available on the "Fleet", non-retail version, as follows:

1. To enter the program mode, attach the small key pad to the display board. Press the "PROG" key and hold for 3 seconds. F1 and F3 will be displayed.

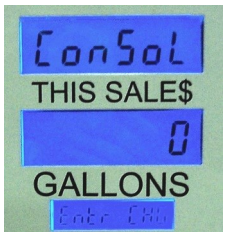
2. Press "F1" key. The screen will ask for a password. Enter the password (Default is 2716) and press the "ENTER" button. Press"F1" to advance to the next screen.



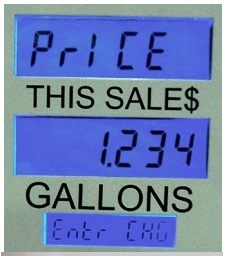
3. The screen will display "ADDRESS". This number represents the pump Identification (ID). The default is 01. Press "F1" twice to advance to the next screen.



4. The screen will display "CONSOL".
   0 = "Stand Alone" mode (default)
   1 = Console Mode.
   Press "F1" to advance to the next screen.



5. The screen will display "PRICE". Enter the DEF price per gallon here. Press "F1" to advance to the next screen.



6. The display will show "SLOWDOWN". The KB dispenser DOES NOT use this feature. Press "F1" to advance to the next screen (not shown on this page).

7. The display will show "PRESSURE".
   0 = Off. Set to 0 when the discharge hose is 15' long or shorter.
   1 = On. Set to 1 when the discharge hose is longer than 15 feet.
   Press "F1" to advance to the next screen.

8. The display will momentarily show "TIMEOUT". Set to 15. Press enter, then press "F1" to advance to the next screen.

9. Press the "CANCEL" button twice to exit the program mode.

DEF Dispenser Installation Checklist

Dispenser SN:	Installation Co:
Customer:	Technician:
Site Address:	Date:

Refer to the KleerBlue Dispenser Installation & Operating Manual (OM) for details.

- ☐ **REVIEW** KleerBlue DISPENSER INSTALLATION & OPERATION MANUAL (OM).
- ☐ **PERMITS:** Obtain all local and state permits as required.
- ☐ **Inspect DISENSER:** inspect for dents and scratches before signing shipping receipt. Notify delivery company of any observed damage, and refuse acceptance of shipment if damage is present.
- ☐ **SET DISPENSER:** Carefully unload unit with a forklift, picking up from the bottom of dispenser, and set into place on concrete pad.
- ☐ **ANCHOR DISPENSER:** Using concrete anchors, anchor the dispenser to the concrete surface being used.
- ☐ **POWER:** Install all required electrical power with emergency shutoff and sign per code if required. Conduits should be installed according to national and local codes. All penetrations into the dispenser must be sealed with sealing type conduit fittings to protect the dispenser interior from weather. Do not install conduit through the top of the dispenser; rather, route through the dispenser bottom or side.
- ☐ **EXTERNAL PIPING:** DEF must be kept PURE! Check piping materials (see OM for list of acceptable materials).
- ☐ **DISPENSER STARTUP (see operating manual for complete procedure):**
  - ◊ ◊ Fill the DEF storage tank with DEF.
  - ◊ ◊ Authorize the dispenser and dispense DEF into container. Initial 2 gallons of product dispensed must be disposed of.
  - ◊ ◊ Note that some nozzles require a magnetic interlock before they will dispenser. The magnet is found in the DEF Tank Fill Port on the diesel vehicle. Magnets for testing can be ordered from KleerBlue, part # SBD OPWMFPD.
  - ◊ ◊ For retail dispensers, bleed the air out of the top of the TCS 682 meter.
- ☐ **CLEAN UP:** Clean up all debris. Check junction / control box interiors. Sweep entire installation area.
- ☐ **TAKE PHOTOS:** Take digital photos of completed project. Submit photos with signed installation checklist. (Photos required from all four sides/angles, after all debris has been removed).
- ☐ **TRAINING:** Local Service Manager must be trained on the functionally of the system. Signature from the installer and the representative is required for warranty to be valid. Provide all keys to Service Manager

CONTRACTOR: DATE:_____/_____/_____

CUSTOMER: DATE::_____/_____/_____

THIS COMPLETED FORM & PHOTOS MUST BE SUBMITTED TO REGISTER EQUIPMENT FOR WARRANTY, SUBMIT TO:

sales@kleerbluesolutions.com

-or-

KleerBlue Solutions

2515 Charleston Place, Fort Wayne, IN 46808 • (800) 320-2122

KleerBlue™

DEF Storage & Dispensing Systems

KleerBlue Solutions

Evansville, Indiana

Fort Wayne, Indiana

Phone (800)320-2122

www.kleerbluesolutions.com