

# **INSTALLATION, OPERATION AND MAINTENANCE MANUAL**



Automated  
Fuel Maintenance  
System

**FTI-2.8**



**FUEL TECHNOLOGIES INTERNATIONAL**

REPLACEMENT MANUALS AVAILABLE ON WEBSITE: [www.dieselnow.com.au](http://www.dieselnow.com.au)

# **INSTALLATION, OPERATION & MAINTENANCE**

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# INSTALLATION NOTES

1. FTI filtration system should operate on all fuel storage tanks. A qualified plumbing contractor and a qualified electrical contractor should complete all installations
2. Wall mount or pedestal mount should be bolted into place
3. **240 volt, 15 Amp.** Single-phase power source must be available at system location
4. Pipe plugs are installed in the supply and return line for shipping purposes only, and must be removed prior to installation.
5. **Holes** need to be added in cabinet for electrical, fuel supply and return lines
6. All FTI models are factory tested using lightweight oil. Some of this fluid may remain in the system. It will not interfere with the performance of the system
7. **Ball valves** must be installed on the fuel **supply line** and **return line** to isolate the system for any required filter maintenance
8. A supply line shall be installed at the sump end of the storage tank **25mm** from the bottom and plumbed to the fuel maintenance system. A **foot valve** must be installed on **supply line** to keep system primed
9. A return line shall be installed to return fuel to the opposite end of the storage tank. A **check valve** may be required on return line, on some installations to prevent back flow pressure
10. Caution should be taken not to exceed the **4.5m** vertical suction lift capability of the fuel circulation pump
11. Stabilizer and Biocide to be added to the existing fuel, and when additional fuel is added to storage tank
12. A **priming tee** or other means of filling fuel supply line with fuel should be installed.(For priming pump)

## **DO NOT RUN LONGER THAN THREE MINUTES WITHOUT FLUIDS**

1. On initial startup, if the system does not fill with fluid the pump may require priming
2. To prime the pump, remove the filter. Fill filter with diesel fuel or light oil and replace. Restart the system
3. If filling filter fails to prime pump, fill entire fuel line with fuel and restart
4. For starting system, see operating system page 5

## **INSTALLATION PRECAUTIONS:**

THE MODEL FTI-2.8 HAS NO PROTECTION AGAINST THERMAL EXPANSION OF THE FUEL LINES. IF THE FUEL LINES ARE INSTALLED WITHOUT PRESSURE RELIEF, DAMAGE MAY OCCUR TO THE PUMP, MOTOR OR FILTER. INSTALLER SHOULD PREVENT ANY CLOSED LOOP WITH THE FTI-2.8 SYSTEM IN THE MIDDLE.

FTI WILL NOT BE RESPONSIBLE FOR ANY DAMAGE DUE TO EXCESSIVE LINE PRESSURE CAUSED BY FUEL THERMAL EXPANSION.

# OVERVIEW

FTI-2.8 Fuel Maintenance System is designed for ease of operation. Due to its relatively small size and weight it can be installed in most locations easily.

How often you need to clean stored fuel will vary upon tank conditions and current fuel condition.

Your FTI system uses a two-stage, filtering and water removal process. It has a 7-day programmable PLC with EPROM memory backup, (memory backup will last approximately 80 hours without power)

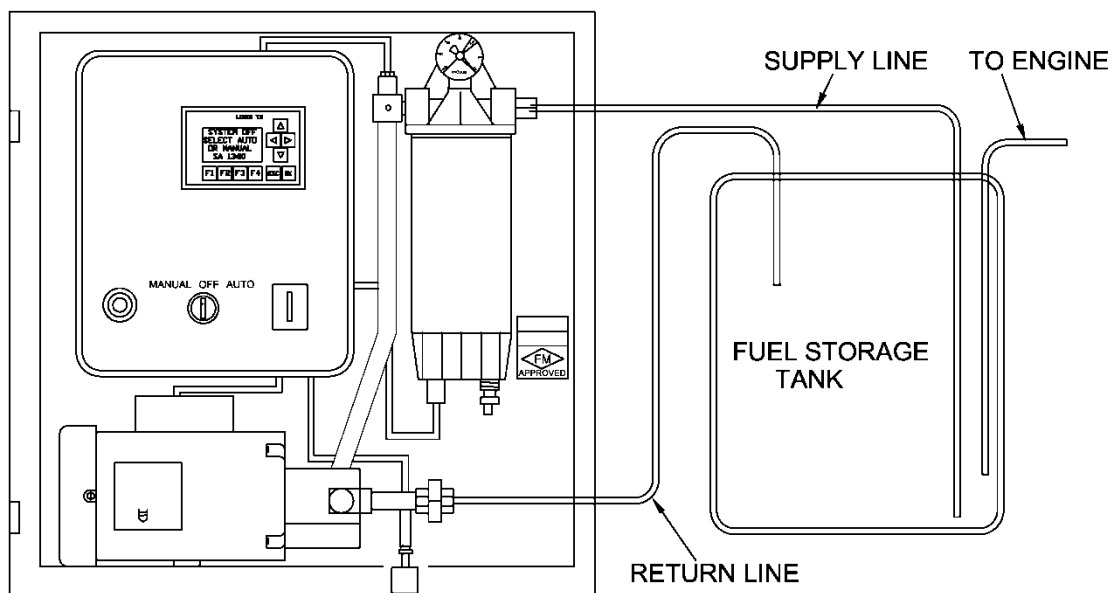
A vacuum sensor, leak detector sensor, motor over load, and a filter water sensor will automatically turn system off, and sound an audible alarm. A brief alarm description will appear on the LOGO! TD screen. The alarm description will tell maintenance what needs service.

A dry contact for general alarm notification (NO) is available in the control panel. The contact can be used for remote alarm status. The alarm description can be read on the Logo TD screen.

Depending on the condition of the fuel to be maintained, you may initially be changing filters more frequently than expected. By monitoring the vacuum gauge the operator can determine when it is time to change filters, (filter plugged alarm set at 16 - 18 in.hg.).

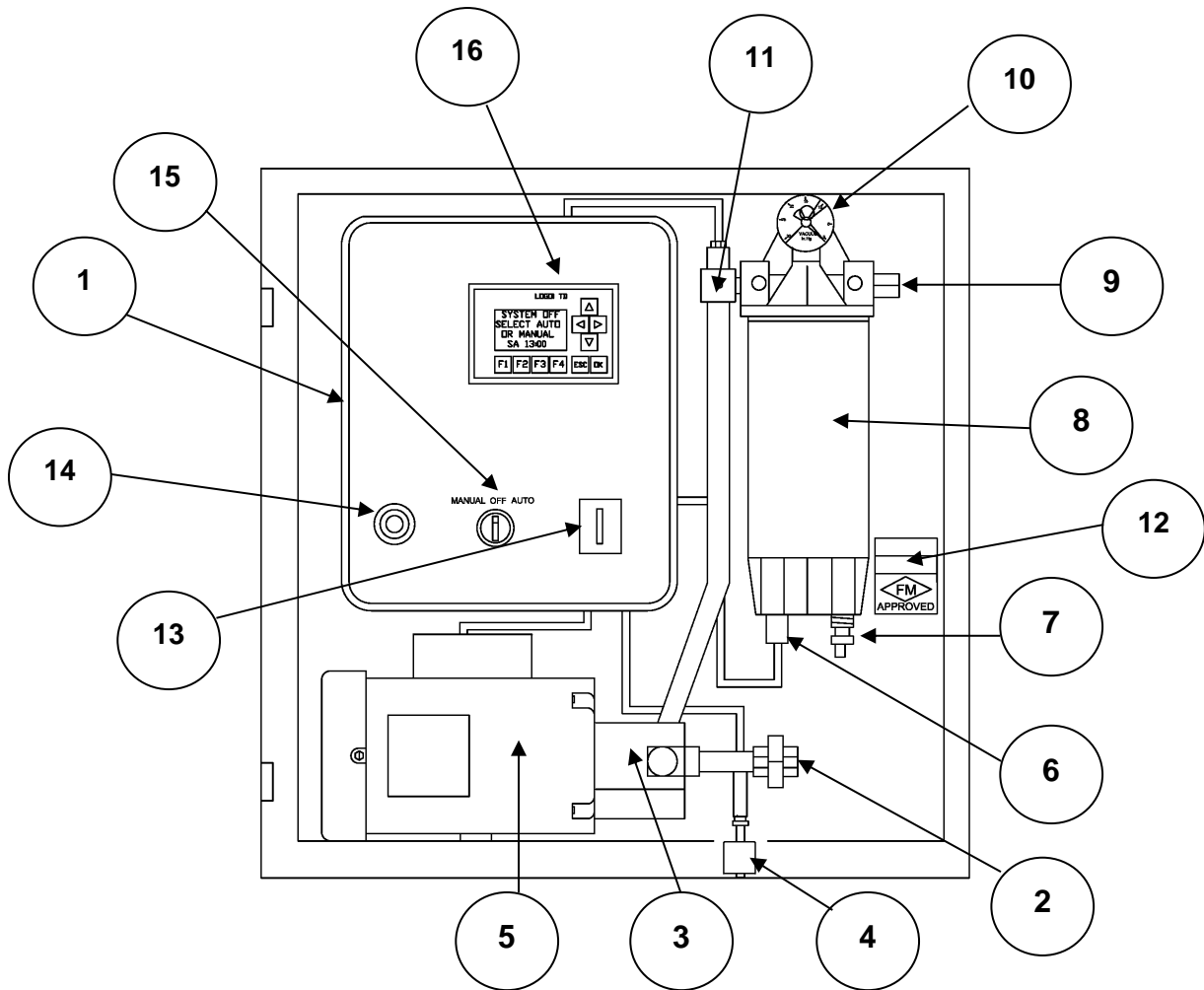
As the fuel quality progressively improves, you will notice a dramatic drop in filter usage. In cases of extreme contamination, it is recommended that you have your fuel polished prior to initial use of your FTI system. The FTI system is designed to keep clean fuel clean. Continued use prevents the fuel from deteriorating again and maintains a healthier environment to protect the engine, the fuel, and the storage tank.

## HOW IT WORKS



**FTI-2.8**

# IDENTIFYING PARTS



- |   |   |
|---|---|
| 1. Control Box, Electrical Hook Up 240V AC  | 9. Fuel Supply Hook up 19mm NPT           |
| 2. Fuel Return Connection 19mm NPT SS Union | 10. Vacuum Gauge (Alarm sounds @16-18 in) |
| 3. Pump 640 L/HR                            | 11. Vacuum Sensor Switch                  |
| 4. Leak Detector                            | 12. Model No., Serial No., FM Approved    |
| 5. 0.3 KW Motor                             | 13. Lockable Disconnect Switch            |
| 6. Water Sensor Probe                       | 14. Alarm Horn                            |
| 7. Water Drain                              | 15. Manual ON - OFF - AUTO mode Switch    |
| 8. Water Separator and 2 Micron Particulate | 16. LOGO! TD Screen                       |

# OPERATING SYSTEM

To **start** or **stop** system **manually** turn (**manual on - off - auto switch**) to **manual on** or to **off**.

To operate FTI Fuel Maintenance System **automatically**, set the clock, then set the “on “and “off “ times, per the programming and operating instructions in this manual. Turn the **manual on- off - auto switch** to **auto**. System will run for the specified programmed time unless in alarm mode.

When alarm mode occurs, (horn starts beeping intermittently and the **manual on - off - auto switch** Lights up intermittently). There also will be a brief description on the LOGO TD screen. The alarm description will tell the operator which alarm it is.

Check for one of 4 alarms on LOGO TD screen:

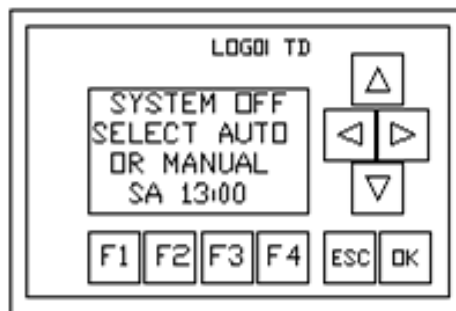
1. LEAK DETECTED REPAIR LEAK. (Turn knob to off, then push F1 to reset)
2. DRAIN WATER IN FILTER BOWL. (Turn knob to off, then push F1 to reset)
3. FILTER PLUGGED CHANGE FILTER. (Turn knob to off, then push F1 to reset)
4. MOTOR OVER LOAD. (Turn knob to off and Push F1 to reset. Then, push reset button inside control panel located on motor overload marked F2)

To cancel alarm status, turn knob to off, then push the F1 button to reset.

This will disable motor / pump. Then do one of the following:

1. Repair leak, remove fuel from bottom of cabinet, and then turn system on. (Check for leaks.)
2. Drain water in filter bowl, and then turn system on. (Check for leaks)
3. Replace the filter (see changing filter page 9), and then turn system on. (Check for leaks)
4. Push reset button on motor overload (labeled F2) inside of control panel. Then restart system

## CONTROL PANEL LOGO TD DEFAULT SCREEN



1. The F2, F3, and F4 buttons are not used at this time
2. The arrow buttons are used to navigate up, down, left or right
3. The ESC key moves between screens
4. The OK button accepts programming changes

# SETTING THE TIME CLOCK

1. Push the down arrow and the date and time screen will appear

Tu 10:28  
2009-09-12

2. Push **ESC** button until the screen is the same as below:

>Stop  
Set Param  
Msg Config  
Set...

3. Push the ▼ down arrow to put the cursor > to **set**, and then push **OK** button

*The screen at right appears:*

> Clock  
LCD  
Menu Lang

4. Then push **OK**

*The screen at right appears:*

> Set Clock  
S/W Time..  
Sync

5. Then push **OK**

*The Set Clock screen appears:*

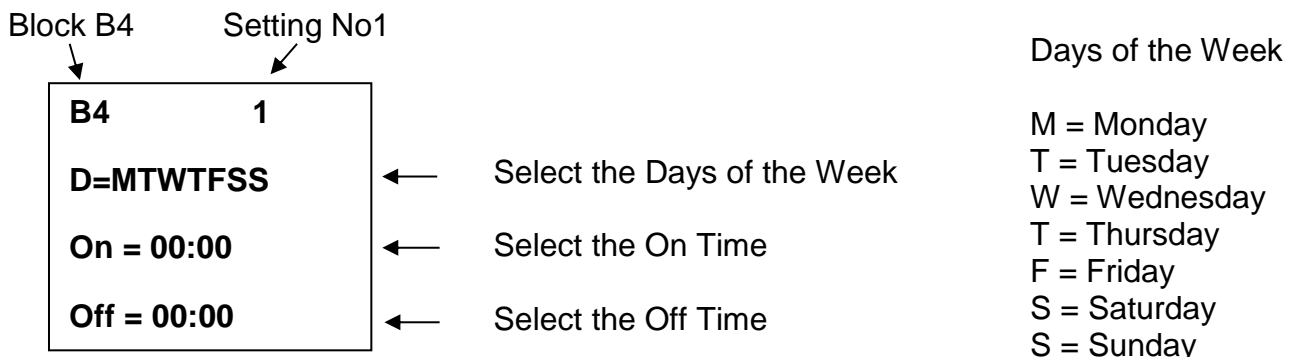
Blinking Cursor

Set Clock  
■ Sa 13:29  
YYYY-MM-DD  
2009 - 09 -12

6. To change the Day Push up arrow ▲ or down arrow ▼ to scroll to the correct Day
7. Push the right arrow ► to move the blinking cursor to the first number to set the correct time. Push the up arrow ▲ or the down arrow ▼ to change the numbers for the correct time. Do this for the four numbers
8. After changing the last number in the time slot, push the right arrow ► to move the cursor to the first position to set the current **Year (YYYY)**, **Month (MM)** and **Day (DD)**. Follow step 4 above to set the correct **Year**, **Month**, and **Day**
9. Press the **OK** button when finished; make sure the cursor is blinking on the last number for the **Day (DD)**
10. Press the **ESC** button 3 times to return to the default screen

## SEVEN DAY TIME SWITCH SCREEN

The seven-day time switch has three settings (**B4 1**), (**B4 2**), and (**B4 3**). Each can be used to configure up to 3 time settings. The (**B4 1**), (**B4 2**), and (**B4 3**), are used to select the days of the week to run, and the on and off times for each day.



## SETTING THE SEVEN-DAY TIME SWITCH

1. Push the down arrow ▼ and the date and time will appear
2. Press the **ESC** button
3. Push the down arrow ▼ to move cursor (>) to the **Set Param**
4. Press the **OK** button. This screen will appear:

<b>B4</b>	<b>1</b>
<b>D=</b>	<b>-----</b>
<b>On =</b>	<b>--:--</b>
<b>Off =</b>	<b>--:--</b>

(D = M T W T F S S)

5. Press **OK** button, the blinking cursor is now on the first dash mark (D=■-----)
6. Push the up arrow ▲ To change the dash to **M** if you want the system to run on Mondays
7. Push the right arrow ► to move cursor to other days of the week. Choose only the days you want your system to run. Dash (-) means it will not run
8. With blinking cursor on the last day selection push the right arrow ► to move cursor to the first number for the **On** (run time) selection. (On =■--:--)
9. Push the up arrow ▲ or the down arrow ▼ to set the correct start time for the system to run. Continue with other numbers to set the **ON** time and the **OFF** time
10. You can set any time between 00:00 and 23:59
11. With blinking cursor on last number of the **OFF** time press the **OK** button
12. Press the down arrow ▼ to add 2 other on off run times if needed (**B4: 2**, or **B4: 3**)
13. If at any time you want to exit the setup screen keep pushing the **ESC** button until the default screen appears



## Examples

1. In example 1, the system will run on every day from 5:30 AM to 7:40 AM. (B4 1)
2. In example 2, the system will run every Tuesday from 3:10 PM to 6:15 PM. (B4 2)
3. In example 3, the system will run every Saturday and Sunday from 8:30 PM to 11:45 PM (B4 3)

### Example 1

B4 1  
D= MTWTFSS  
On = 05:30  
Off = 07:40

### Example 2

B4 2  
D= -T- - - - -  
On = 15:10  
Off = 18:15

### Example 3

B4 3  
D= - - - - - SS  
On = 20:30  
Off = 23:45

## CHANGING THE FILTER

1. To remove filter close ball valves at fuel supply and return lines, open drain valve on bottom of Filter and drain fuel. Turn counter clockwise and remove
2. To install new water separator filter
  - A. Remove sight bowl from old filter by turning counter clockwise
  - B. Clean sight bowl, and water sensor probe. Lubricate and install new gasket onto sight bowl
  - C. Turn sight bowl clockwise on new filter and hand tighten
  - D. Lubricate rubber seal on top of new filter and turn clockwise until contact is made, Then tighten 1/2 to 3/4 of a turn more. ***Do not over tighten***
  - E. Restart system, check for leaks

EVERY TIME SYSTEM IS STARTED CHECK VACUUM GAUGE.  
VACUUM SHOULD NOT EXCEED 16- 18 IN HG

## DRAINING WATER FROM WATER SEPARATOR

To remove water, open drain valve on bottom of sight bowl and allow collected water to drain. Close drain valve tightly as soon as fuel appears. The water separator should be drained on a regular basis, even if water is not present every time.

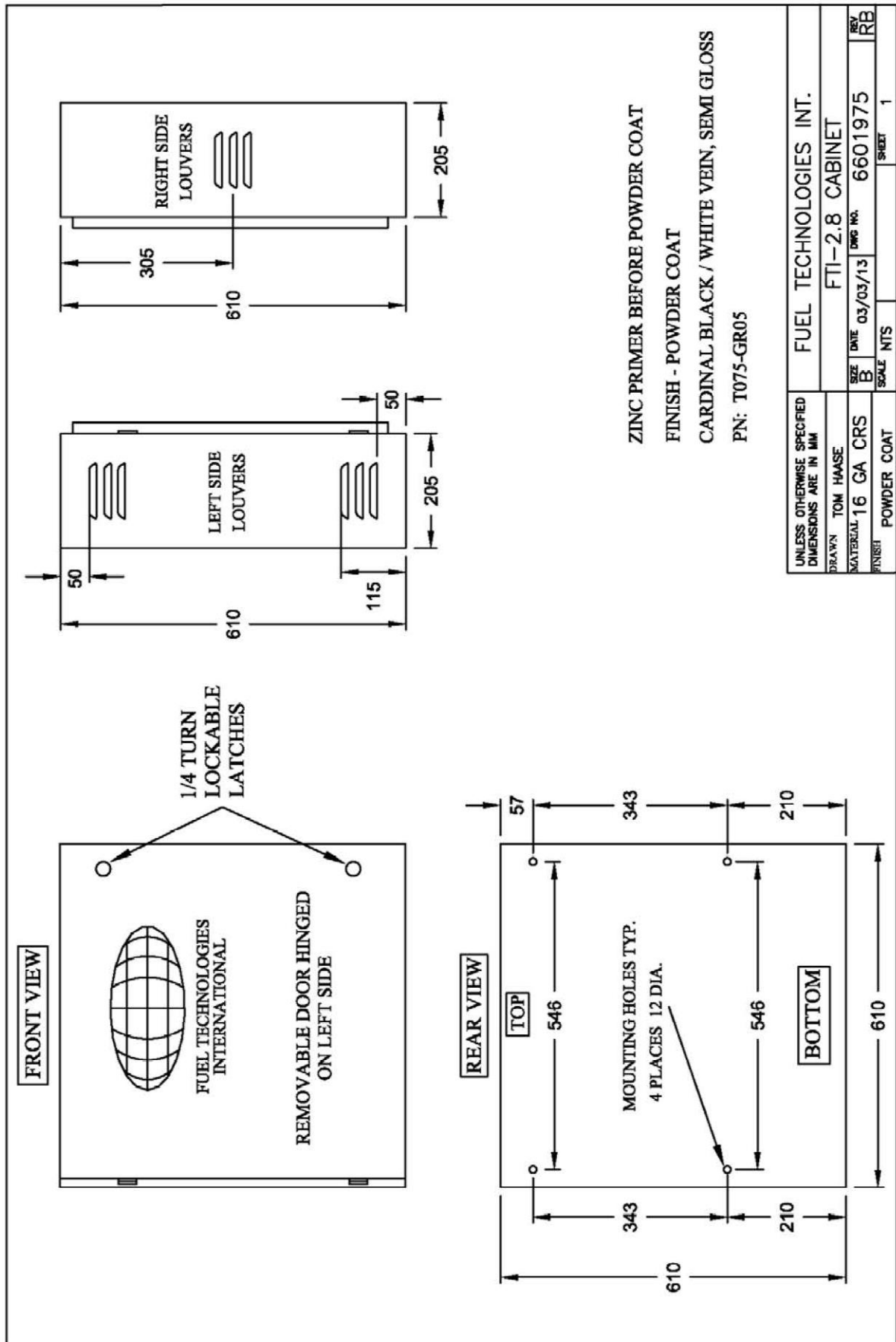
## REPLACEMENT FILTER LIST

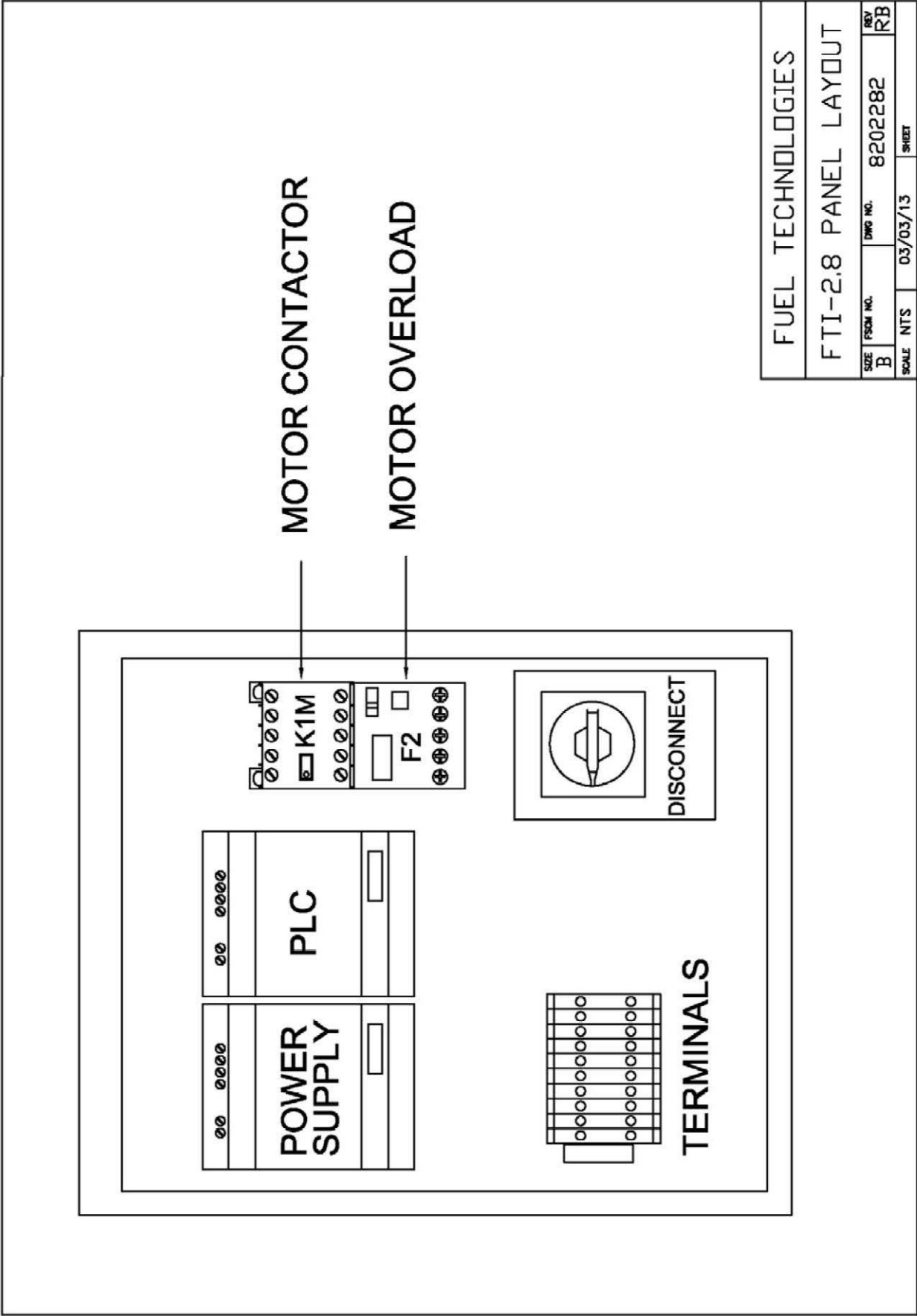
### ORDER NO

FL-S3207S

### DESCRIPTION

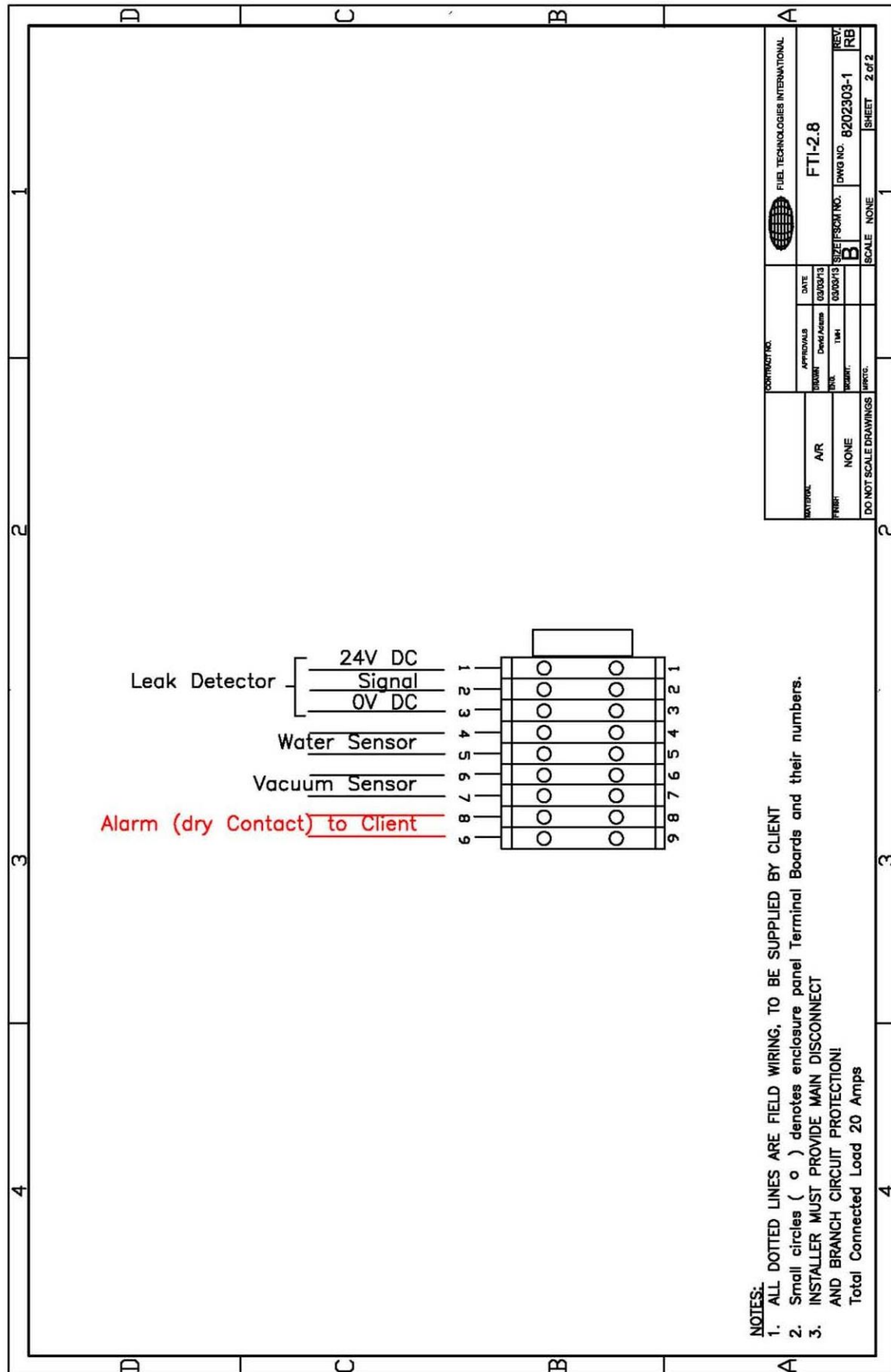
2 Micron Particulate  
and Water separation





FUEL TECHNOLOGIES			
FTI-2.8 PANEL LAYOUT			
SIZE	FROM NO.	DWG NO.	REV
B		8202282	RB
SCALE	NTS	03/03/13	SHEET





## LIMITED WARRANTY

FUEL TECHNOLOGIES INTERNATIONAL LLC (FTI) makes every effort to assure that its products meet high quality and durability standards, and we expressly warrant the original consumer/purchaser of our products that each product is free from defects in materials and workmanship. Our expressed warranty is subject to the following terms and conditions:

1. The term of our warranty is one year from the date of purchase. A warranty claim received by us after one year from the date of purchase will not be honored even if it is claimed that the defect occurred prior to one year from the date of purchase
2. Our warranty does not cover defects due, directly or indirectly, to misuse, abuse, negligence of others, repairs or alterations done outside of our facilities, or lack of maintenance
3. Our liability for breach of our express warranty is limited to the repair or replacement of the product , at our cost
4. We are not liable for general, special, consequential, incidental or contingent damages resulting, directly or indirectly, from the purchase or use of our products

WE DISCLAIM ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PURPOSE OF OUR PRODUCTS.

To make a claim under this warranty, call our Customer Service Representative at 1-805-925-0531. We will ask you to advise us of our Distributor's name and address, the date of purchase, model number, and a detailed explanation of the problem you are experiencing. The Customer Service Representative will arrange for a Field Engineer to inspect your system. If our inspection discloses a defect covered by our limited warranty, we will either repair or replace the defective parts of products at our election, and at our cost. If upon inspection, our Engineer determines there is not defect or that the damage to the system resulted from causes not within the scope of our limited warranty, then you must bear the cost of repair or replacement of damaged parts. For service, please contact your local Distributor.

*For your records*

Model No. \_\_\_\_\_ Date of Purchase: \_\_\_\_\_

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