

Installation and Maintenance Manual



Automated
Fuel Maintenance
System



FTI-2.8

FUEL TECHNOLOGIES INTERNATIONAL

OPERATIONS & MAINTENANCE

CONTENTS

Installation Notes.....	Page 3
Overview.....	Page 4
Identifying Parts.....	Page 5
Change the Filter.....	Page 6
Drain Water Separator.....	Page 6
Replacement Filter.....	Page 6
Cabinet Drawing.....	Page 7
Electrical Diagrams.....	Pages 8-9
Start-up Check List.....	Page 10
Limited Warranty.....	Page 11

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. 115/230V AC, 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** shall be installed on the fuel **supply line** and **return line** to isolate the system for any required filter maintenance. (ball valves not included)
8. Supply line shall be installed at the sump end of the storage tank 1" from the bottom and plumbed to the fuel maintenance system. A **foot valve** shall be installed on **supply line** to keep system primed.
9. 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 15-ft. vertical suction lift capability of the fuel circulation pump.
11. Fuel Technologies 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 shall be installed.

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.

INSTALLATION PRECAUTIONS:

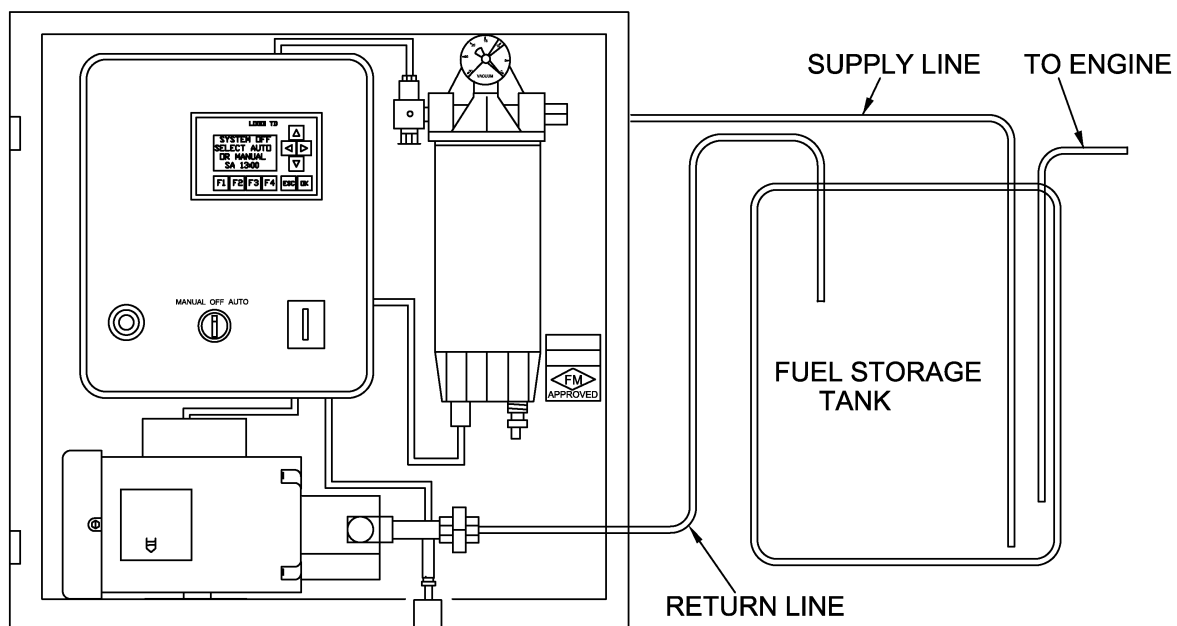
THE MODEL FTI-2.8 HAS NO PROTECTION AGAINST THERMAL EXPANSION OF THE FUEL LINES. IF THE FUEL LINES ARE INSTALLED WITHOUT PRESSURE RELIEF, DAMAGE MAY OCCUR TO THE PUMP, MOTOR OR FILTER. INSTALLER SHOULD PREVENT ANY CLOSED LOOP WITH THE FTI-2.8 SYSTEM IN THE MIDDLE.

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

Overview

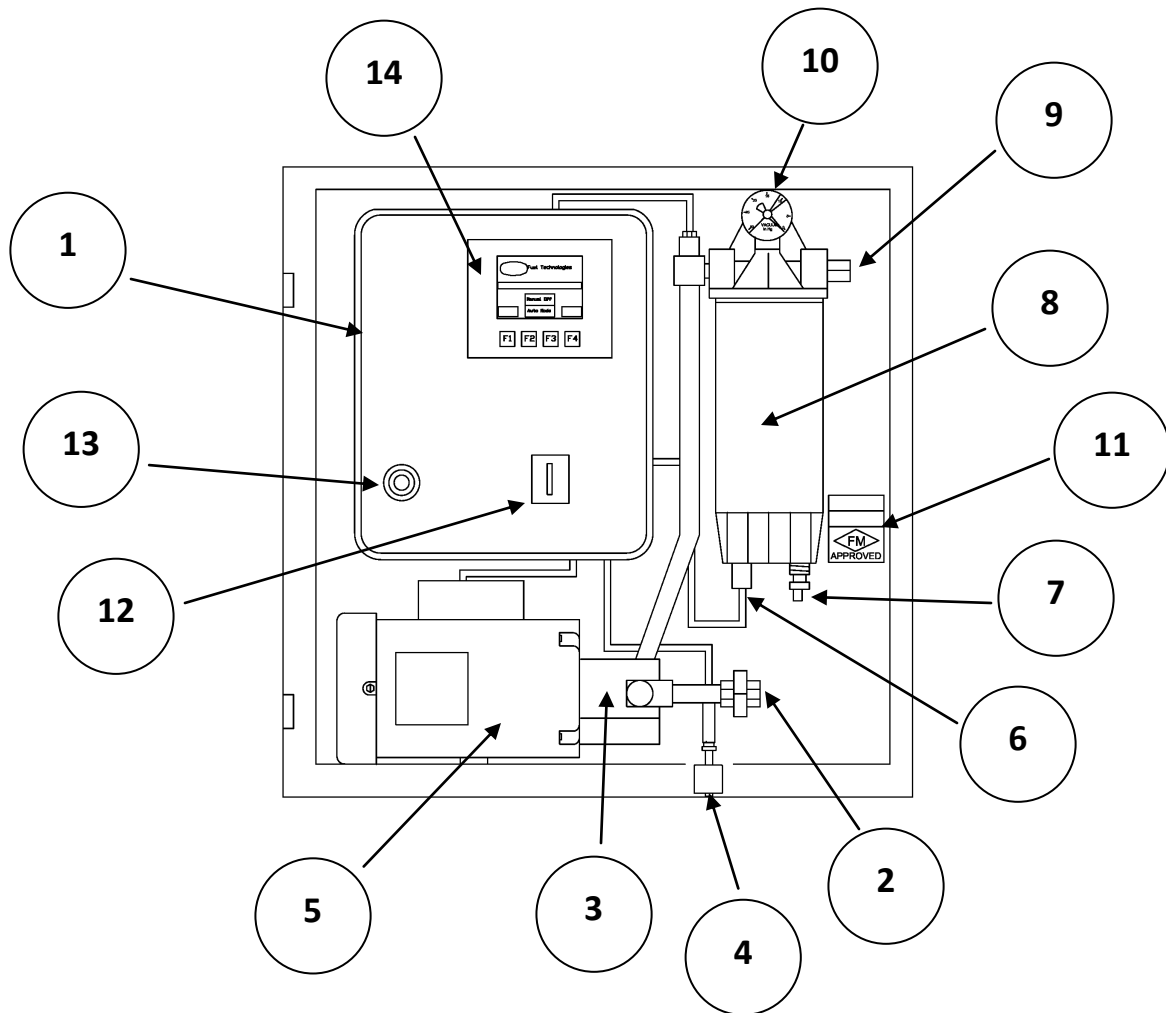
1. FTI-2.8 Fuel Maintenance System is designed for ease of operation. Due to its relatively small size and weight it can be installed in most locations easily.
2. How often you need to clean stored fuel will vary upon tank conditions and current fuel condition.
3. Your FTI system uses a two-stage, filtering and water removal process. It has a 7-day programmable PLC with memory backup. (memory backup will last approximately 80 hours without power.)
4. A vacuum Sensor alarm, leak detector alarm, motor overload alarm, and a filter water sensor alarm will automatically turn system off, and sound an audible alarm. A brief alarm description will appear on the touch screen.
5. A dry contact for general alarm notification (NO) is available in the control panel. The contact can be used for remote alarm status.
6. 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 the filter. (filter plugged factory set at 16 - 18 in.hg.).
7. 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 Panel (UL Listed)

2. Fuel Return Line Connection (SS Union)

3. Pump 2.8 GPM

4. Leak Detector

5. 1/3 HP Motor

6. Water Sensor Probe

7. Water Drain

8. Water Separator and 2 Micron Filter

9. Fuel Supply Line Connection

10. Vacuum Switch Gauge

11. Model No., Serial No., FM Approved

12. Lockable Disconnect Switch

13. Alarm Horn

14. Touch Screen

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 filter counter clockwise and remove.
2. To install new filter/water separator:
 - 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 THE VACUUM GAUGE.

VACUUM SHOULD NOT EXCEED 18 IN HG

DRAINING WATER FROM WATER SEPARATOR

To remove water, open the 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.

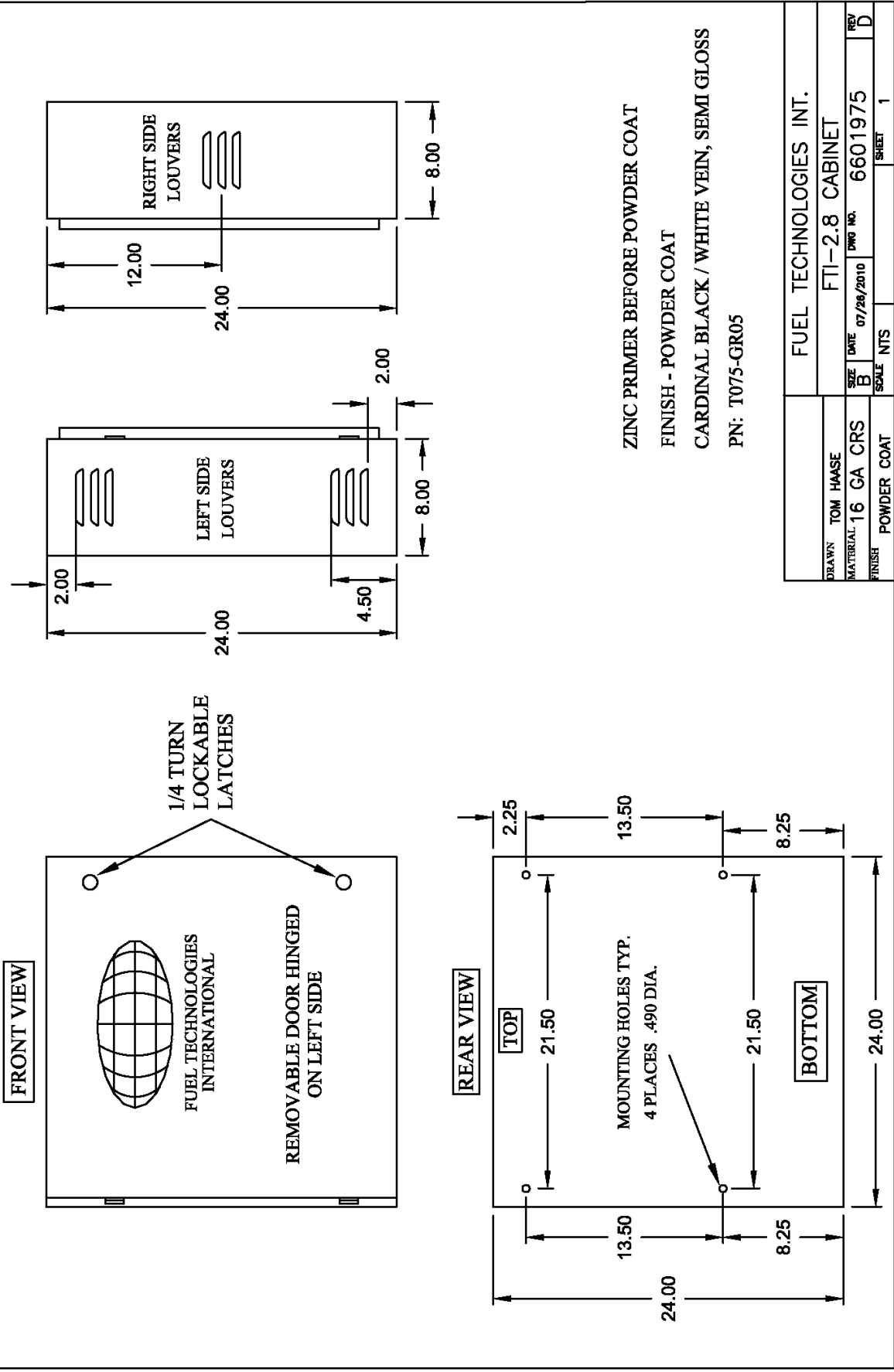
REPLACEMENT FILTER LIST

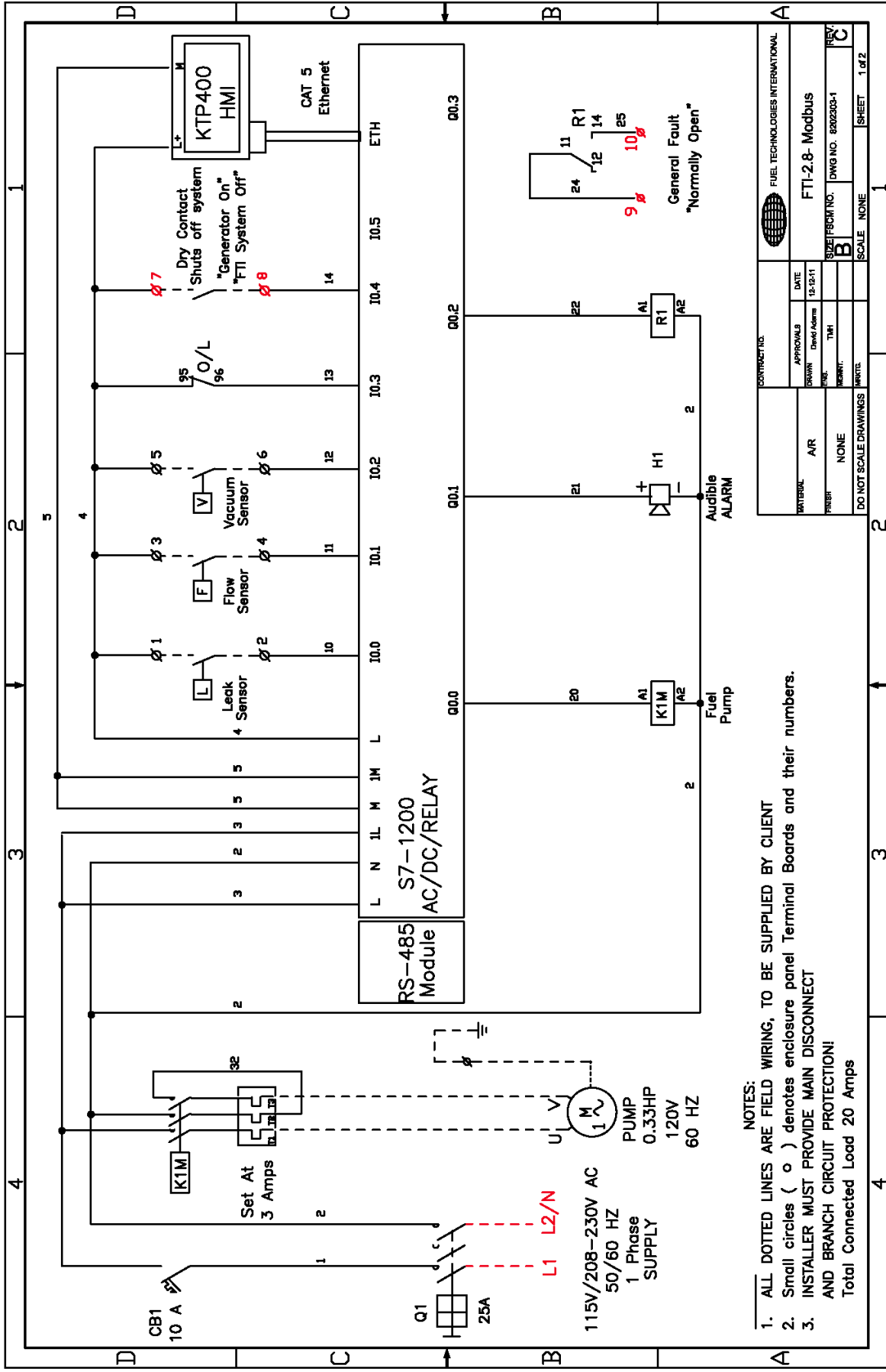
ORDER NO

DESCRIPTION

FL-S3207S

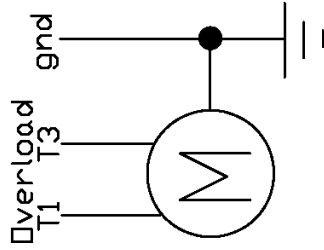
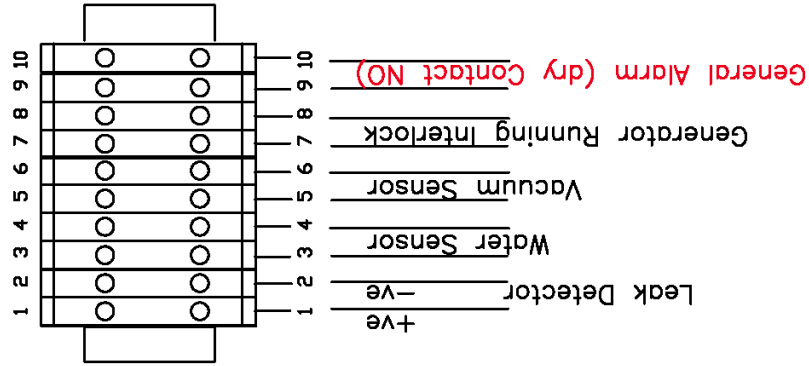
2 Micron Water Separator





CONTRACT NO.		FUEL TECHNOLOGIES INTERNATIONAL	
APPROVALS	DATE	FTI-2.8- Modbus	
DESIGN	Drawn/Adapted	DRAWING NO. 8202303-1	
DATE	TIME	SHEET/FIGURE NO. 1/1	
REVISION	BY	SCALE NONE	
DO NOT SCALE DRAWINGS		SHEET 1 of 2	

- NOTES:
- ALL DOTTED LINES ARE FIELD WIRING, TO BE SUPPLIED BY CLIENT
 - Small circles (o) denotes enclosure panel Terminal Boards and their numbers.
 - INSTALLER MUST PROVIDE MAIN DISCONNECT AND BRANCH CIRCUIT PROTECTION!
Total Connected Load 20 Amps



Pump 0.33HP
115/208-230V AC Single Phase

NOTES:

1. ALL DOTTED LINES ARE FIELD WIRING, TO BE SUPPLIED BY CLIENT
2. Small circles (o) denotes enclosure panel Terminal Boards and their numbers.
3. INSTALLER MUST PROVIDE MAIN DISCONNECT AND BRANCH CIRCUIT PROTECTION!
Total Connected Load 20 Amps

CONTRACT NO.		FUEL TECHNOLOGIES INTERNATIONAL	
MATERIAL	A/R	APPROVALS	DATE
FRUIT	NONE	DRAWN	08-04-07
DO NOT SCALE DRAWINGS		DESIGN	THH
		ISSUE	
		REVISION	
		SCALE	NONE
		SHEET	2 of 2
		FTI-2-B- Modbus	
		SIZE/FSCCH NO. DWG NO. 6202303-1	
		REV C	

FTI AUTOMATED FILTRATION SYSTEM START-UP CHECK LIST

Technician _____ Observer _____

1. System to be tested: FTI Automated Filtration System – Model FTI-2.8

2. FTI Filtration System Test Procedure

A. Program system to automatically filter for 1 hour. Reset clock to within 1-5 minutes of start time.
(see operations manual for instructions) Place the panel in the AUTO mode
Wait for filtration to start.

- 1.) Check FILTER PUMP RUNNING status.

Notes: _____

B. Place the panel in the MANUAL mode.
Start manual filtration.

- 1.) Check FILTER PUMP RUNNING status.

Notes: _____

C. Simulate a filter high vacuum alarm at the inlet ball valve. (not included from factory) Slowly close inlet ball valve until the vacuum alarm sounds. Check gauge needle position (16-18Hg.)

- 1.) Check filter high vacuum alarm. (16-18 in hg)

Notes: _____

D. Simulate a leak in cabinet. Lift leak detector. Alarm will sound.
Reset control panel.

- 1.) Check leak alarm.

Notes: _____

E. Simulate motor overload. With control panel door open and the system is running push the test button on the motor overload inside panel.

- 1.) Check motor is stopped and correct alarm description on the touch screen.

Notes: _____

L. Simulate water full in the collection bowl. Remove water sensor cable and short with wire between the two pins.

- 1.) Check Water alarm.

Notes: _____

TEST COMPLETE

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: _____