Installation Manual

Automated Fuel Maintenance System

FTI-10A & FTI-20A
SINGLE TANK

FUEL TECHNOLOGIES INTERNATIONAL

Installation Manual

Contents

OVERVIEW

1. The complete automated diesel fuel maintenance system with cabinet shall be designed for wall or pedestal mounting

   A. The **supply** or suction line shall be installed at the **sump**, or low end of the Diesel Fuel storage tank, with a **Foot Valve**, 1" from the bottom. (not supplied)

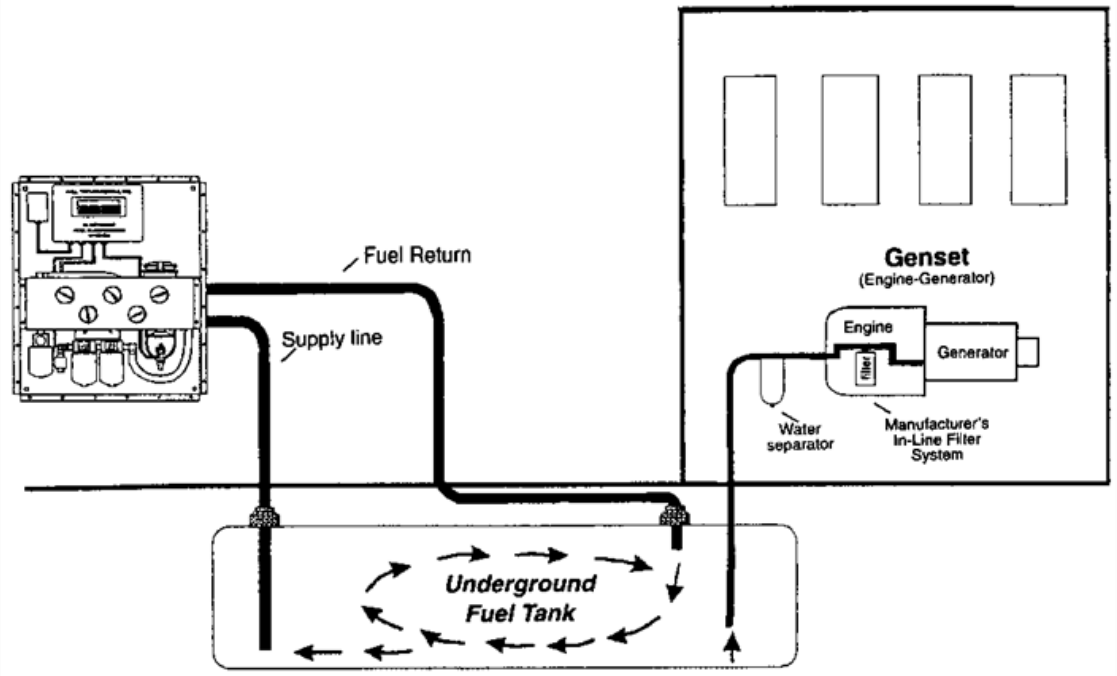
   B. The return line to be installed to the opposite end of the storage tank.

   C. Caution should be taken **not to exceed the 15-ft. lift** capability of the fuel circulation pump.

2. Stabilizer to be added to the existing fuel tank, and proportionally when additional fuel is added to the storage tank.

3. Biocide to be added to stored diesel fuel annually.

4. System Inlet Connection - (Model FTI-10A, 1 1/2" NPT) – (Model FTI-20A, 2.0" NPT)
5. System Outlet Connection –(Model FTI-10A, 1 1/2" NPT) – (Model FTI-20A, 1 1/2" NPT)



INSTALLATION NOTES

1. FTI systems operate on either above ground or underground tanks. Any installation should be completed by a qualified plumbing contractor and qualified electrician.
2. Wall mount or pedestal mount should be bolted into place.
3. 115/230V AC, Single Phase, 20 Amp. Power supply shall be available at system location.
4. A lockable disconnect switch is provided on the FTI Control Panel for power shut off.
5. Pipe plugs were installed in the supply and return line for shipping purposes only, and must be removed prior to installation.
6. Holes will need to be added in cabinet for Electrical, Fuel supply line and Fuel return line.
7. 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 equipment.
8. On initial start up, if the system does not fill with fluid, the pump may require priming. (see priming tee location on next page)

INSTALLATION PRECAUTIONS:

MODEL FTI-10A & FTI-20A SINGLE TANK SYSTEM 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 FILTERS.

INSTALLER SHOULD PREVENT ANY CLOSED LOOP WITH THE FTI-10A OR FTI-20A SYSTEM IN THE MIDDLE.

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

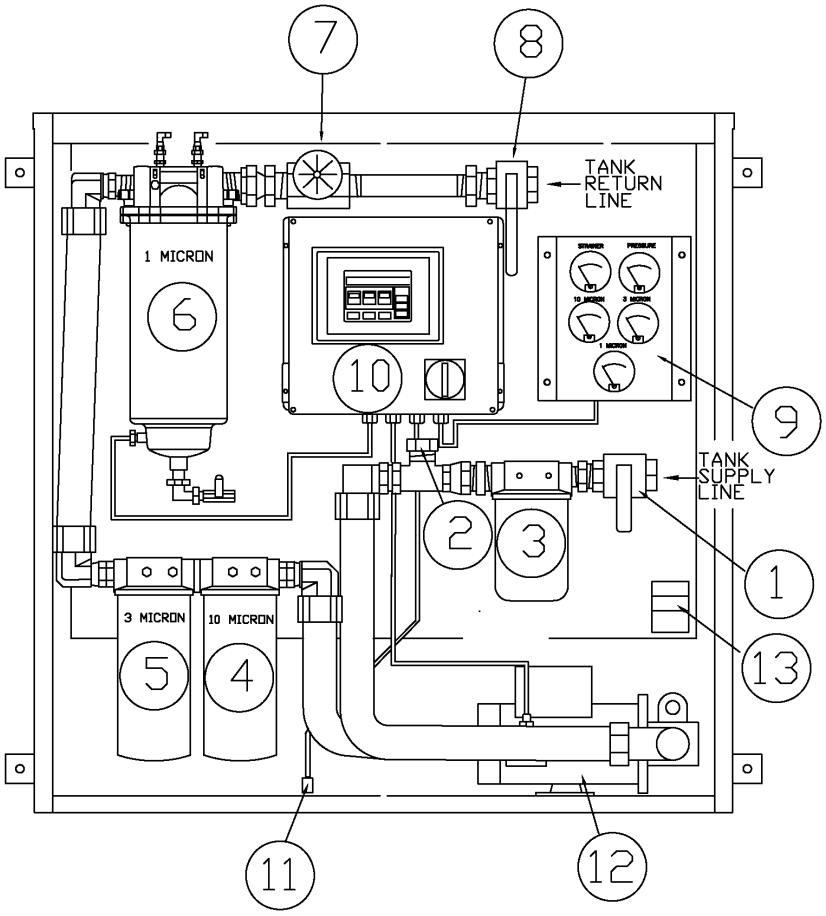
DO NOT RUN LONGER THAN THREE MINUTES WITHOUT FLUIDS

To prime the pump, close the supply line ball valve and fill supply line with fuel at priming tee.

Restart the system.

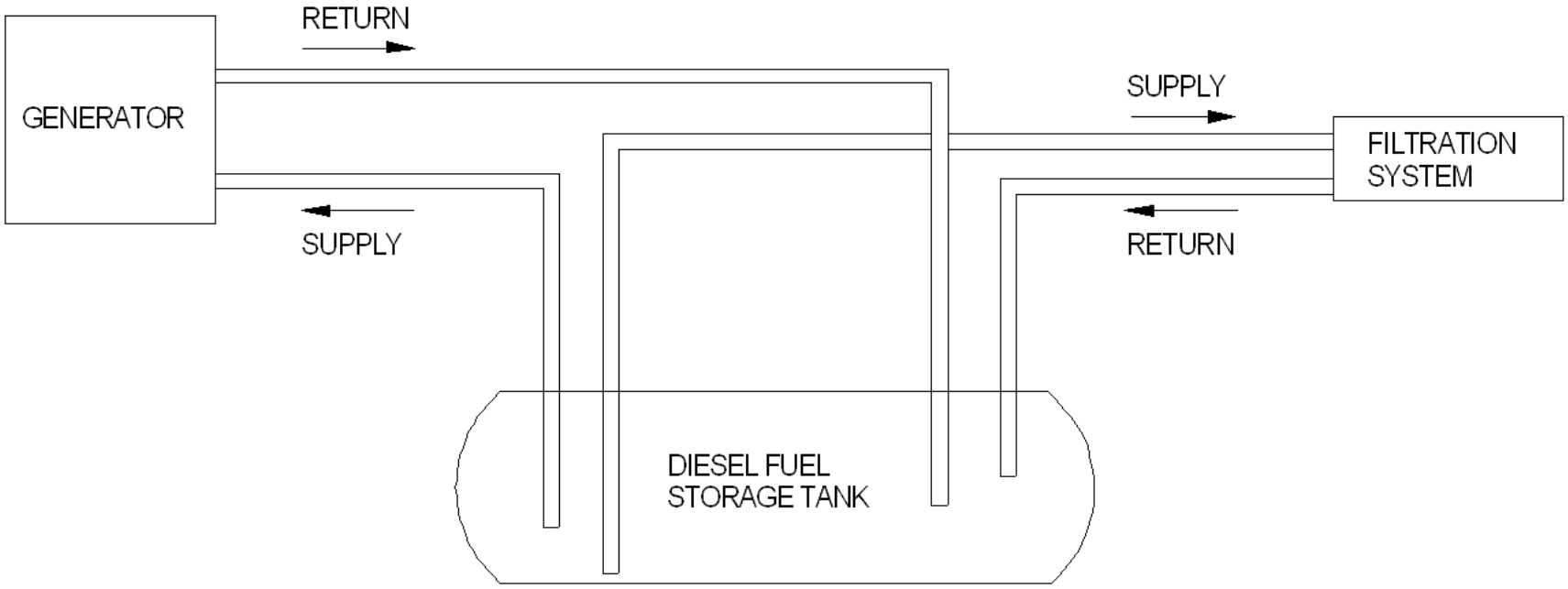
For starting system see operations manual.

IDENTIFYING PARTS
FTI-10A & FTI-20A—Single Tank



1) Supply Line Connection, SS Ball Valve: (FTI-10A -1 1/2" NPT) (FTI-20A -2.0" NPT)
2) Priming Tee (Remove Cap and fill with Fuel to prime pump)
3) Strainer – Spin on Type with 100 Mesh, 149 Micron
4) 10 Micron Pre Filter, Spin On Type
5) 3 Micron Pre Filter, Spin On Type
6) 1 Micron element and Water Separator
7) Site Glass
8) Return Line Connection, SS Ball Valve: 1 1/2" NPT (FTI-10A & FTI-20A)
9) Switch Gauge Panel
10) UL Listed Control Panel
11) Leak Detector
12) Pump / Motor Assembly
13) Serial Number, Model Number, FM Approved Tags

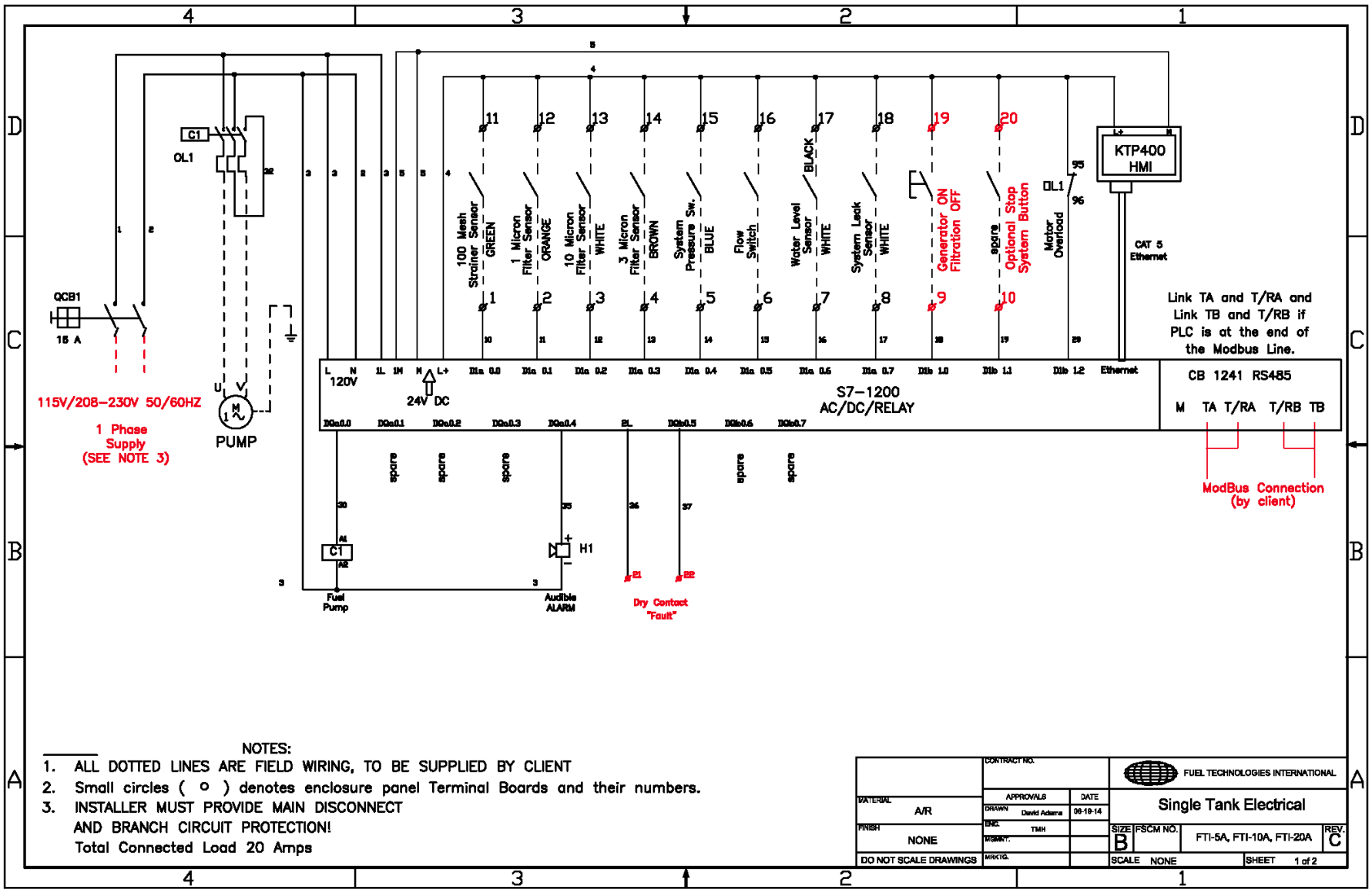
PREFERRED STAND ALONE INSTALLATION



Notes:

FTI supply line should be installed 1” from bottom of storage tank, at sump end.

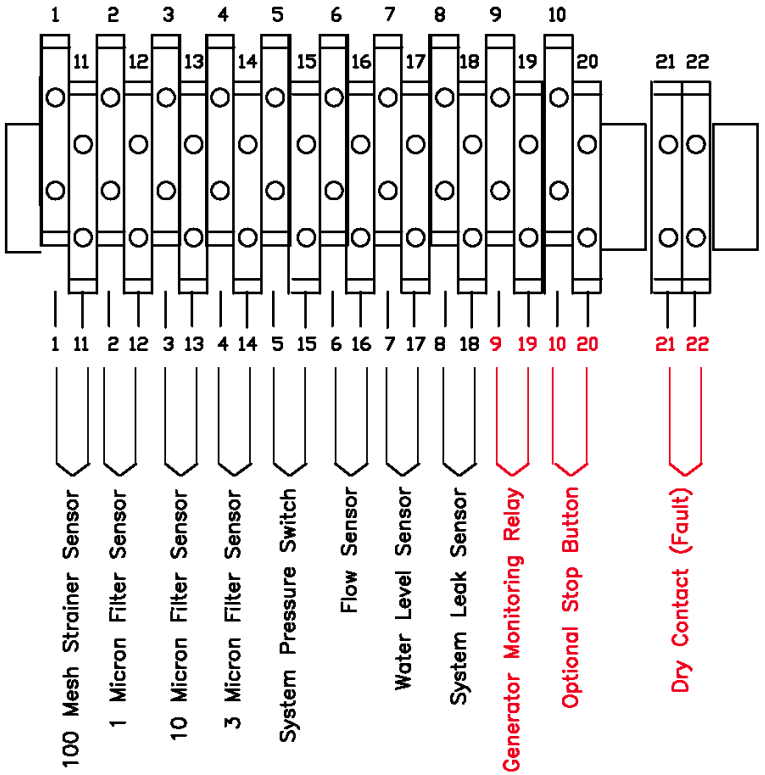
A foot valve must be installed on supply line to keep system primed.



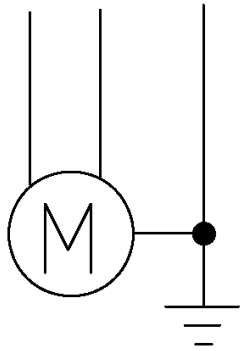
NOTES:

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	Single Tank Electrical
	DRAWN David Adams	06-19-14	
FINISH NONE	ENG. TMH		SIZE B / FSCM NO. / FTI-5A, FTI-10A, FTI-20A / REV. C
DO NOT SCALE DRAWINGS	MFG/MKTG.		SCALE NONE / SHEET 1 of 2



Connect Motor Leads
To Terminals T1 and T3
on Overload OL1



PUMP
115V/208-230V 50/60HZ
Single Phase

NOTES:
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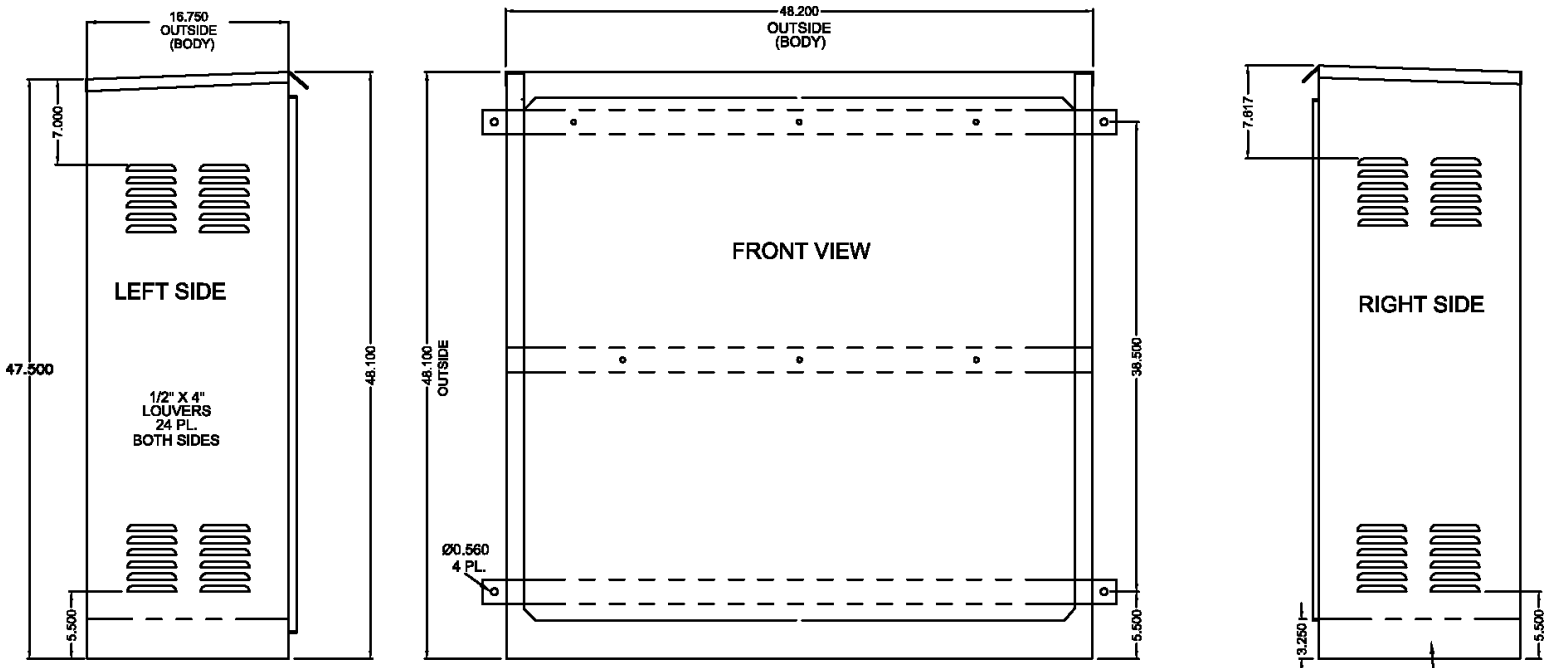
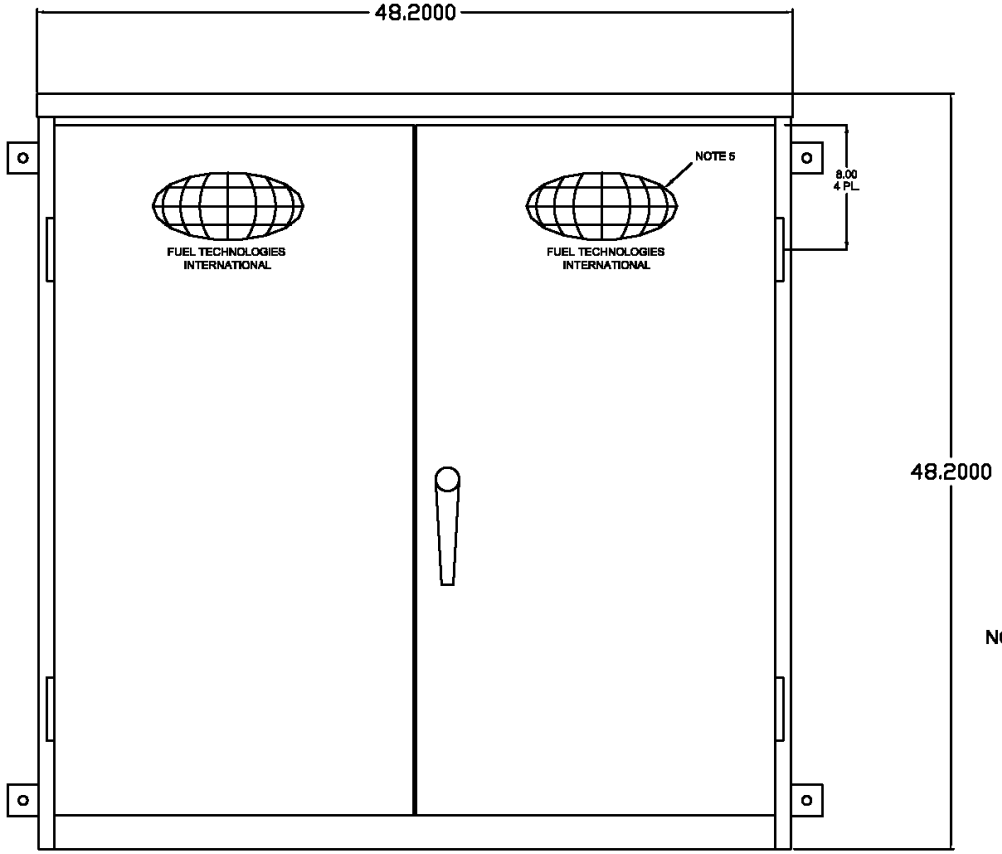
DO NOT SCALE DRAWINGS	MGMNT.		SCALE NONE | SHEET 2 of 2
	MRKTG.		

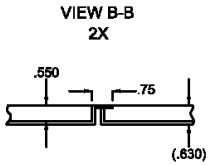


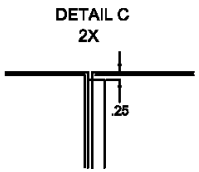
NOTES:
1. CABINET TOP & BOTTOM ARE WELDED TO BODY. FINISH ALL EXTERNAL SEAMS. TOP OVER BODY. BOTTOM INSIDE BODY
2. FINISHED CABINET TO BE WATER RESISTANT. (WELD SEAMS TOP & BOTTOM, BOTTOM TO HOLD LIQUIDS)
3. BREAK ALL SHARP EDGES.
4. .375 DIA. THRU CABINET & FLAT STOCK. WELD THREADED ROD TO FLAT STK. & GRIND FLUSH.
5. ASSEMBLED UNIT WEIGHT IS APPROX. 200 LBS.

ZINC PRIMER BEFORE POWDER COAT
FINISH - POWDER COAT
CARDINAL BLACK / WHITE VEIN
P/N T075-WH34

	FUEL TECHNOLOGIES INT.				
DRAWN TOM HAASE	FTI–10A & 20A CABINET				
MATERIAL 14 GA CRS	SIZE B	DATE 02/01/2016	DWG NO. 6602002	REV I
FINISH POWDER COAT	SCALE NTS		SHEET 1 OF 2	







NOTES: 1 FABRICATE 14 GA. CRS DOORS PER DETAILS.
INSIDE DIMS. TO CLEAR CAB. LIP .06/SIDE.
APPLY WEATHERSRTIP 7 PL.
AFTER FINISH.

2 HANDLE - STAINLESS, 3 POINT LATCH, PADDLE LOCKABLE

3 HINGES - STAINLESS, SCREW ON, LIFT OFF

4 FINISH -POWDER COAT
CARDINAL, GRAY HAMMERTONE
P/N T064-GR05
ZINC PRIMER BEFORE POWDERCOAT

5 SILKSCREEN 2 PL.

DIMENSIONS ARE IN INCHES DECIMALS: XX .030 XXX .015	FUEL TECHNOLOGIES INT.			
DRAWN TOM HAASE	FTI–10 & 20 CABINET			
MATERIAL 14 GA CRS	SIZE B	DATE 03/14/2011	DWG NO. 6602002 PG2	REV C
FINISH POWDER COAT	SCALE NTS		SHEET 2 OF 2	

FTI AUTOMATED FILTRATION SYSTEM START-UP PROCEDURE

Technician _____Observer_____

1. System to be tested

A. FTI Automated Filtration System – Model **(FTI-5A) (FTI-10A) (FTI-20A) (circle one)**

2. FTI Filtration System Start-up 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 Control Panel in AUTO mode. Wait for filtration to start.*

1.) ☐ *Check MOTOR / PUMP RUNNING status.*
2.) ☐ *Check SOLENOID VALVES open status. (Multi-Tank System)*
3.) ☐ *Check ELECTRIC BALL VALVES open status (Multi-Tank System)*

Notes:_____

B. *Place the control panel in MANUAL mode. Start manual filtration. (See Operations Manual for Instructions)*

1.) ☐ *Check MOTOR / PUMP RUNNING status.*
2.) ☐ *Check SOLENOID VALVE open status. (Multi-Tank System)*
3.) ☐ *Check ELECTRIC BALL VALVE open status. (Multi-Tank System)*

Notes:_____

C. *Simulate a strainer HIGH VACUUM ALARM at the strainer ball valve. Slowly close supply line ball valve until the needle at Strainer/Vacuum Gauge contacts set point and alarm sounds.*

1.) ☐ *Check strainer high vacuum alarm. (16-18 in hg)*

Notes:_____

D. *Simulate a 10 MICRON HIGH DIFFERENTIAL pressure at the Switch Gauge Panel. With system running in manual mode, use a 1/16" hex wrench and move the 10 Micron Switch Gauge contact to the left until needle contacts it, alarm will sound. Replace contact set point where it was. (16-18 psi.)*

1.) ☐ *Check 10 micron high differential pressure alarm.*

Notes:_____

E. *Simulate a 3 MICRON HIGH DIFFERENTIAL pressure at the Switch Gauge Panel. With system running in manual mode, use a 1/16" hex wrench and move the 3 Micron Switch Gauge contact to the left until needle contacts it, alarm will sound. Replace contact set point where it was. (16-18 psi.)*

1.) ☐ *Check 3 micron high differential pressure alarm.*

Notes:_____
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F. *Simulate a 1 MICRON & COALESCER HIGH DIFFERENTIAL pressure at the Switch Gauge Panel. With system running in manual mode, use a 1/16" hex wrench and move the 1 Micron Switch Gauge contact to the left until needle contacts it, alarm will sound.*
Replace contact set point where it was. (16-18 psi.)

1.) ☐ *Check 1 micron & Coalescer high differential pressure alarm.*

Notes:_____

G. *Simulate a HIGH PRESSURE ALARM at the outlet ball valve. With system running in manual mode, slowly close tank return line ball valve to simulate blockage.*
When the Pressure Switch Gauge needle touches contact @ 45 psi, alarm will sound.

1.) ☐ *Check high pressure alarm.*

Notes:_____

H. *Simulate a LEAK in cabinet. Lift leak detector. Alarm will sound.*
Reset control panel.

1.) ☐ *Check leak alarm.*

Notes:_____

I. *Simulate a GENERATOR RUNNING action. With system running short across terminals #9 & #19 inside control panel with a jumper wire. This will turn off pump and read Generator running on the screen.*

1.) ☐ *Check pump shut off and proper description on the touch screen.*

Notes:_____

J. *Simulate MOTOR OVERLOAD. With system running push the red test button on the motor overload inside control panel.*

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

Notes:_____

K. *Simulate LOSS OF PRIME (low flow). Change low flow delay to 1 minute (see Operations Manual). With system running short across terminals #6 & #16 inside Control Panel with a jumper wire for 1 minute. Alarm will sound with loss of prime shown on the screen.*

1.) ☐ *Check low flow alarm.*

Notes:_____

L. *Simulate WATER FULL in the collection bowl. Remove water sensor cable from 1 Micron Filter Housing. Short with wire between the 2 pins.*

1.) ☐ *Check Water alarm*

Notes:_____
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TEST COMPLETE