Installation Manual

WITH ONE SUBMERSIBLE PUMP

Automated Fuel Maintenance System

FTI-5A

FM APPROVED

FUEL TECHNOLOGIES INTERNATIONAL LLC

Replacement Manuals Available on Website: www.fueltechnologiesinternational.com

03/01/2011 Rev C—Fuel Technologies—FTI-5A

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. Should vertical suction lift exceed 15 ft., the circulation pump in the FTI cabinet will be removed.

   D. The installer will provide & install a submersible pump. The pump voltage must match the FTI control panel voltage as ordered.

   E. Submersible pump will be wired to the FTI control panel

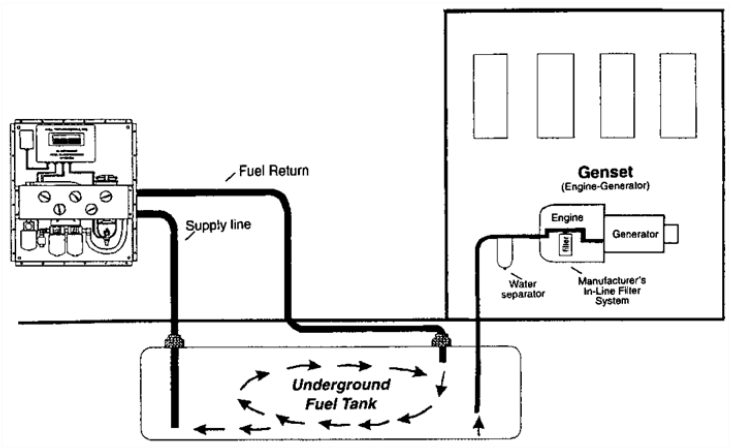
   F. A flow control valve and a flow meter will be installed in the FTI cabinet to adjust the flow to 5 GPM.
   (Low Flow will be monitored by the low set point on the pressure switch gauge)

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: 1.0" NPT
5. System Outlet Connection: 1.0" NPT

HOW IT WORKS



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. 115V AC, Single Phase, 20 Amp. Power supply must 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.

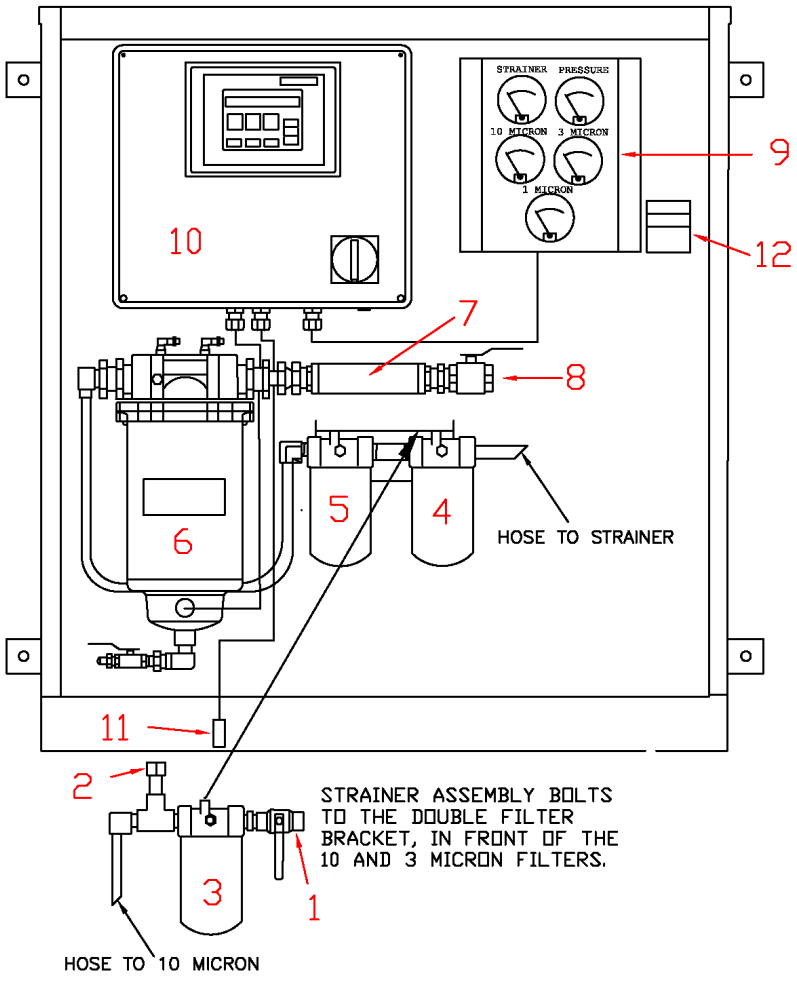
INSTALLATION PRECAUTIONS:

MODEL FTI-5A 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-5A SYSTEM IN THE MIDDLE.

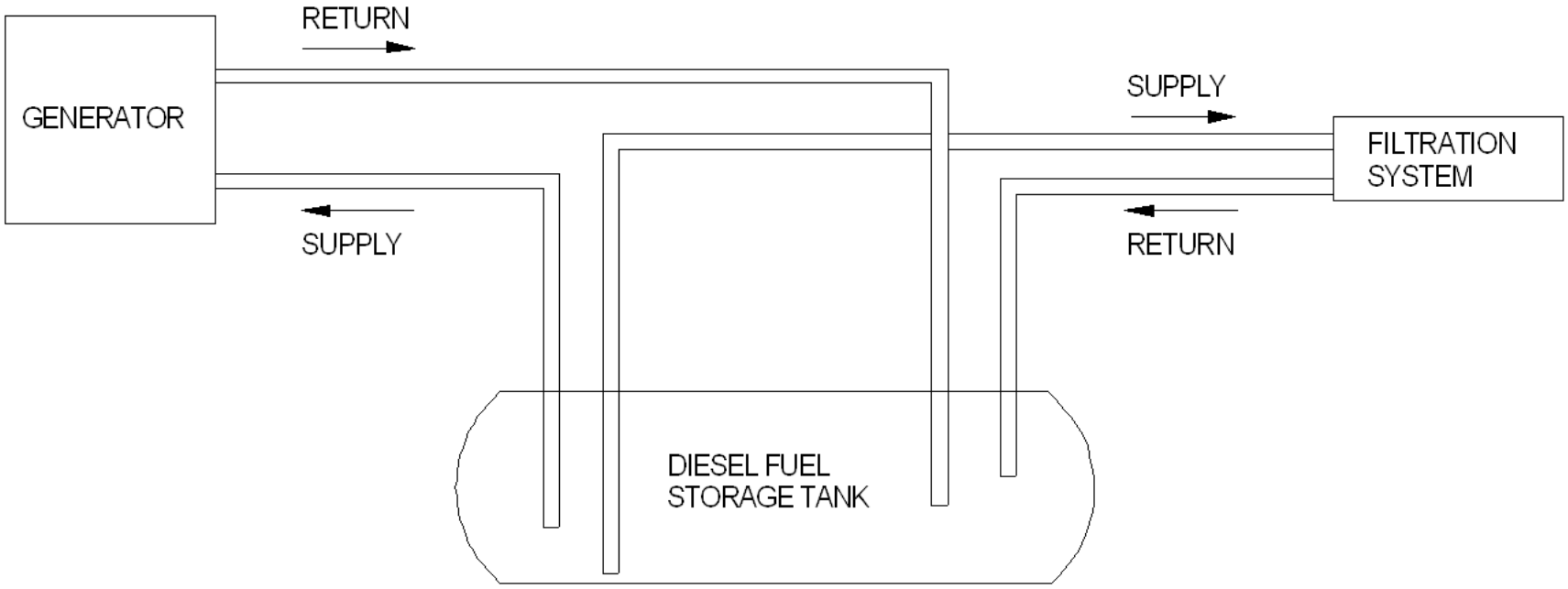
FTI WILL NOT BE RESPONSIBLE FOR ANY DAMAGE DUE TO EXCESSIVE LINE PRESSURE CAUSED BY THERMAL EXPANSION

IDENTIFYING PARTS
FTI-5A



1) Supply Line Connection, SS Ball Valve, 1.0" NPT
2) Flow Control Valve
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) Inline Flow Meter
8) Return Line Connection, SS Ball Valve, 1.0" NPT
9) Switch Gauge Panel
10) UL Listed Control Panel
11) Leak Detector
12) Serial Number, Model Number, FM Approved Tags

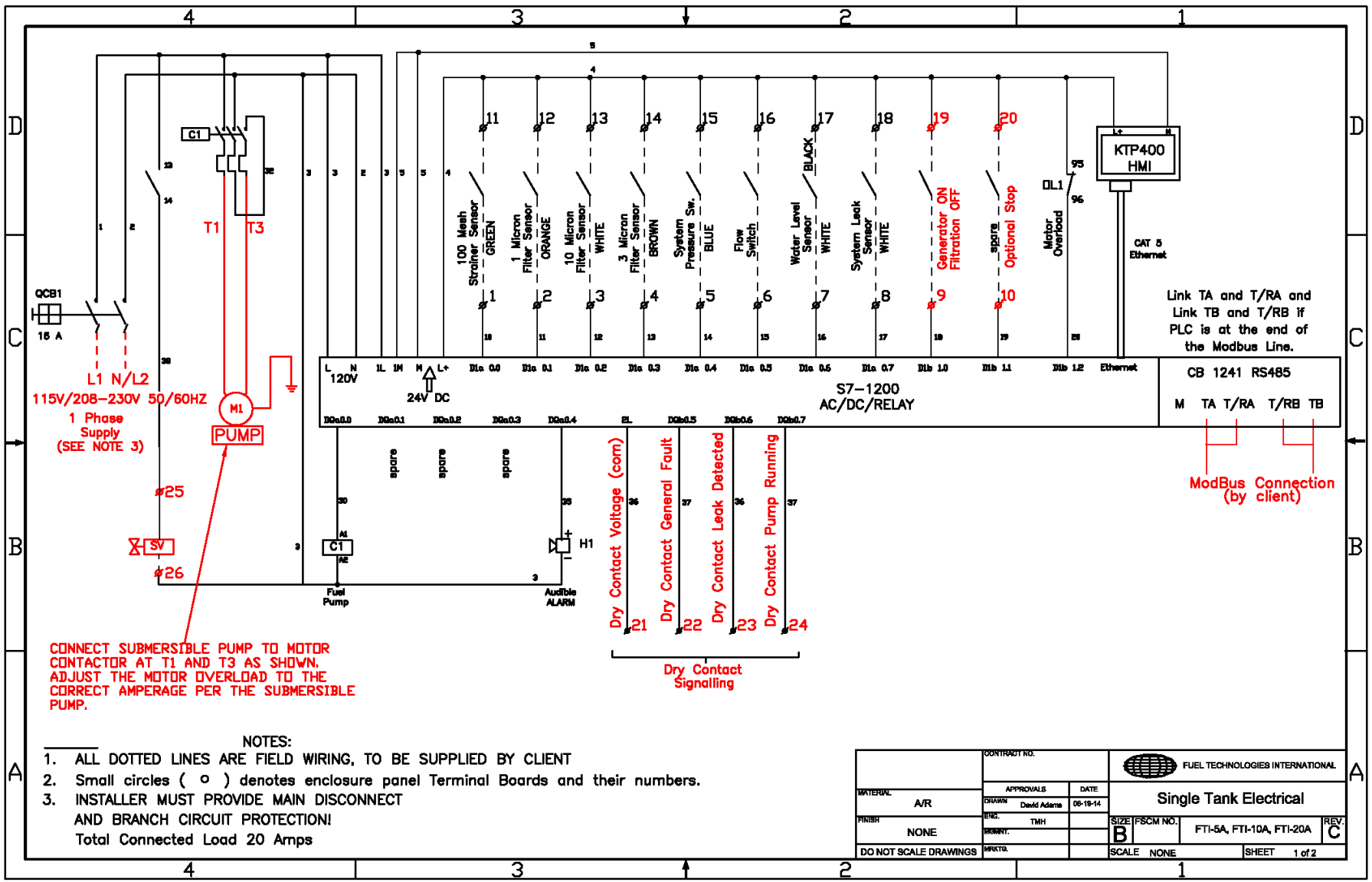
PREFERRED STAND ALONE INSTALLATION



Notes:

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

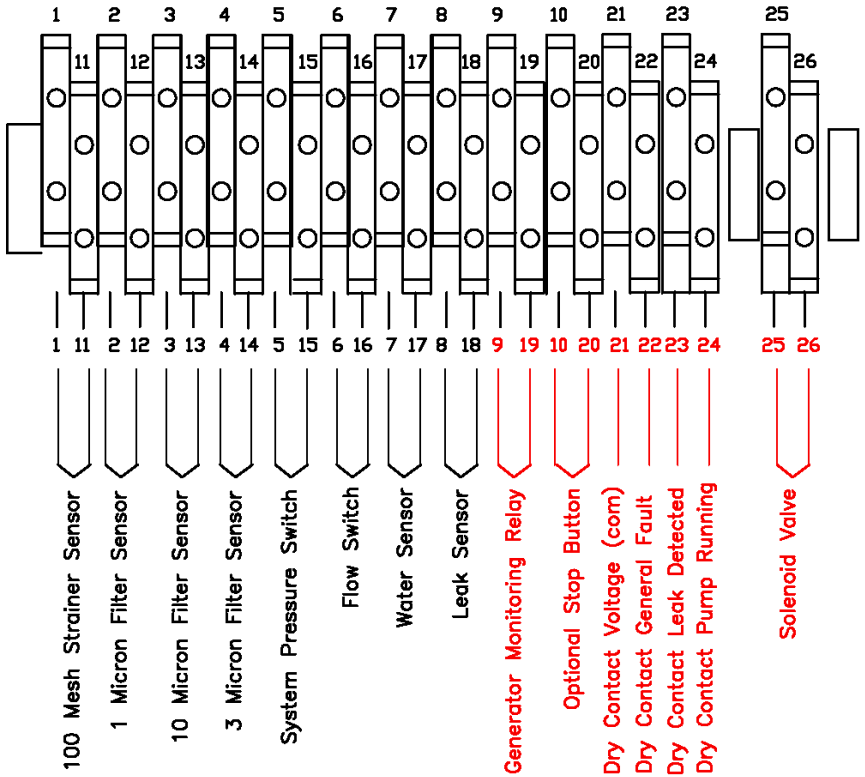
A foot valve must be installed on supply line to keep system primed.

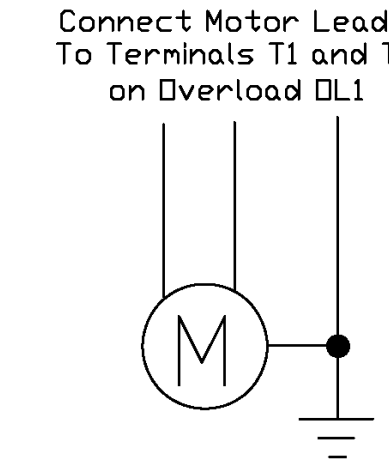


NOTES:

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

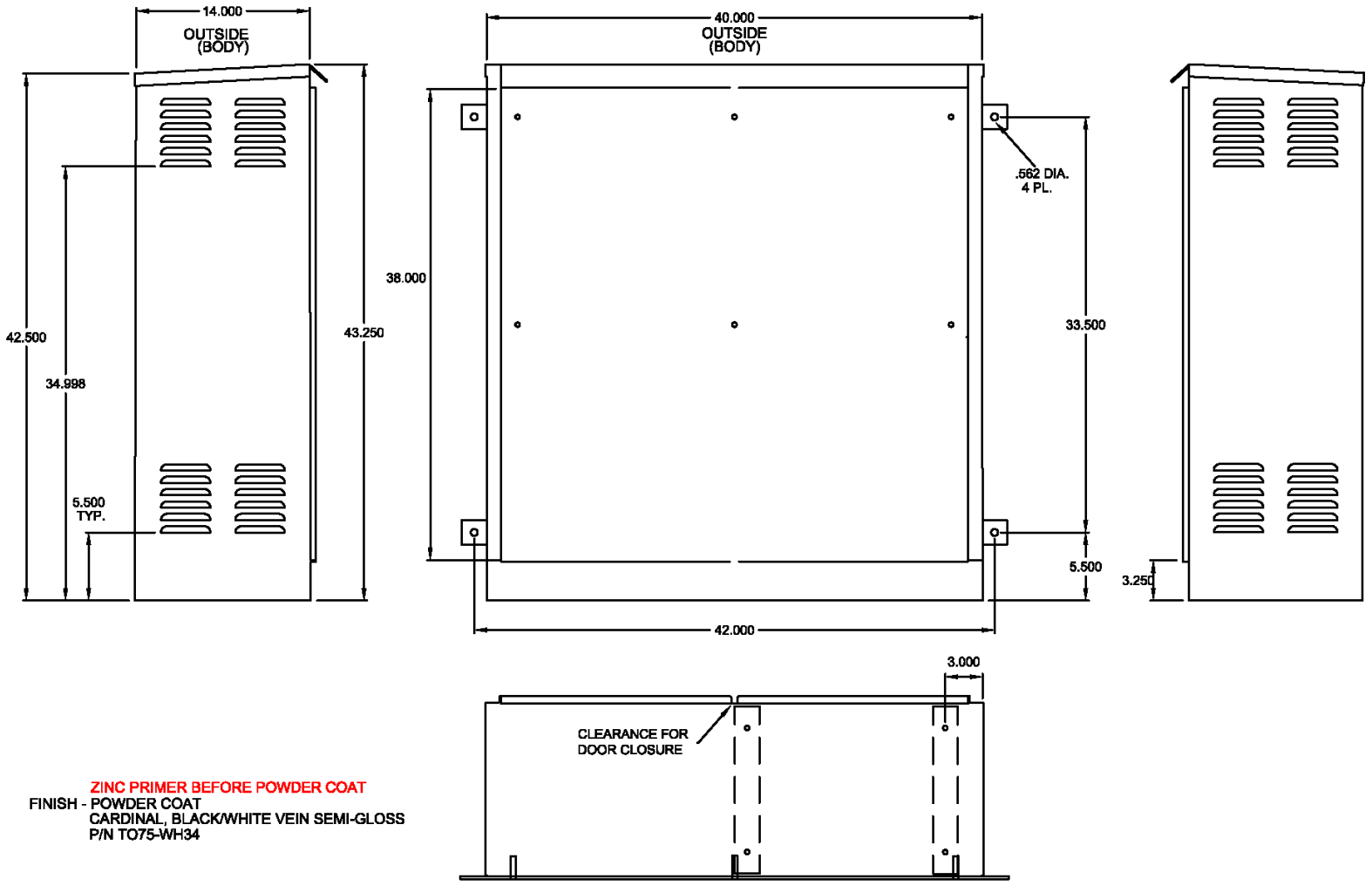
MATERIAL: A/R	CONTRACT NO.	FUEL TECHNOLOGIES INTERNATIONAL
FINISH: NONE	APPROVALS / DATE	Single Tank Electrical
DO NOT SCALE DRAWINGS	DRAWN: David Adams 06-19-14	SIZE: B
	ENG.: TMH	FSCM NO.
	MGMNT.	FTI-5A, FTI-10A, FTI-20A
	MRKTG.	REV.: C
		SCALE: NONE
		SHEET: 1 of 2





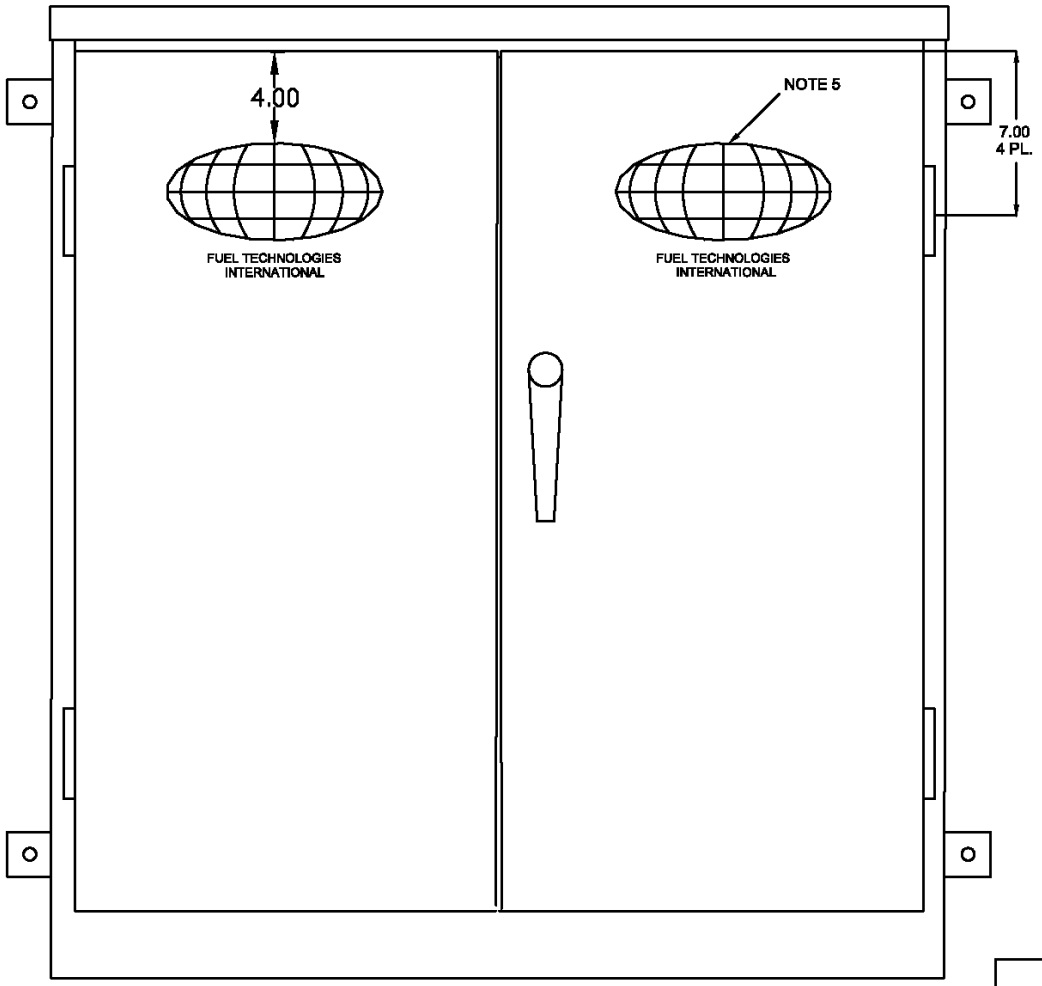
PUMP
115V/208-230V 50/60HZ
SINGLE PHASE

	CONTRACT NO.	FUEL TECHNOLOGIES INTERNATIONAL	
MATERIAL A/R	APPROVALS / DRAWN David Adams	DATE 06-19-14	Single Tank Electrical
FINISH NONE	ENG. TMH	SIZE B	FSCM NO. FTI-5A, FTI-10A, FTI-20A REV. C
DO NOT SCALE DRAWINGS	MFG. / MGMT. / MKTG.	SCALE NONE	SHEET 2 of 4

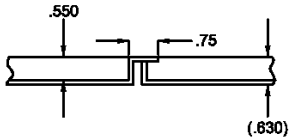


ZINC PRIMER BEFORE POWDER COAT
FINISH - POWDER COAT
CARDINAL, BLACK/WHITE VEIN SEMI-GLOSS
P/N TO75-WH34

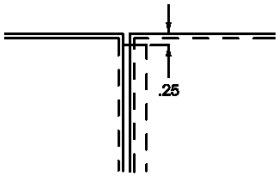
DIMENSIONS ARE IN INCHES DECIMALS: .XX ±.030 .XXX ±.015	FUEL TECHNOLOGIES INT.				
DRAWN TOM HAASE	CABINET FTI–5A				
MATERIAL 14 GA. CRS	SIZE B	DATE 3/15/2010	DWG NO. 6601900	REV A
FINISH POWDER COAT	SCALE		SHEET 1 OF 2	



VIEW B-B
2X



DETAIL C
2X



NOTES:

1 FABRICATE 14 GA. CRS DOORS PER DETAILS.
INSIDE DIMS. TO CLEAR CAB. LIP .06/SIDE.
APPLY NBR (OIL RESISTANT) WEATHERSRTIP AFTER FINISH

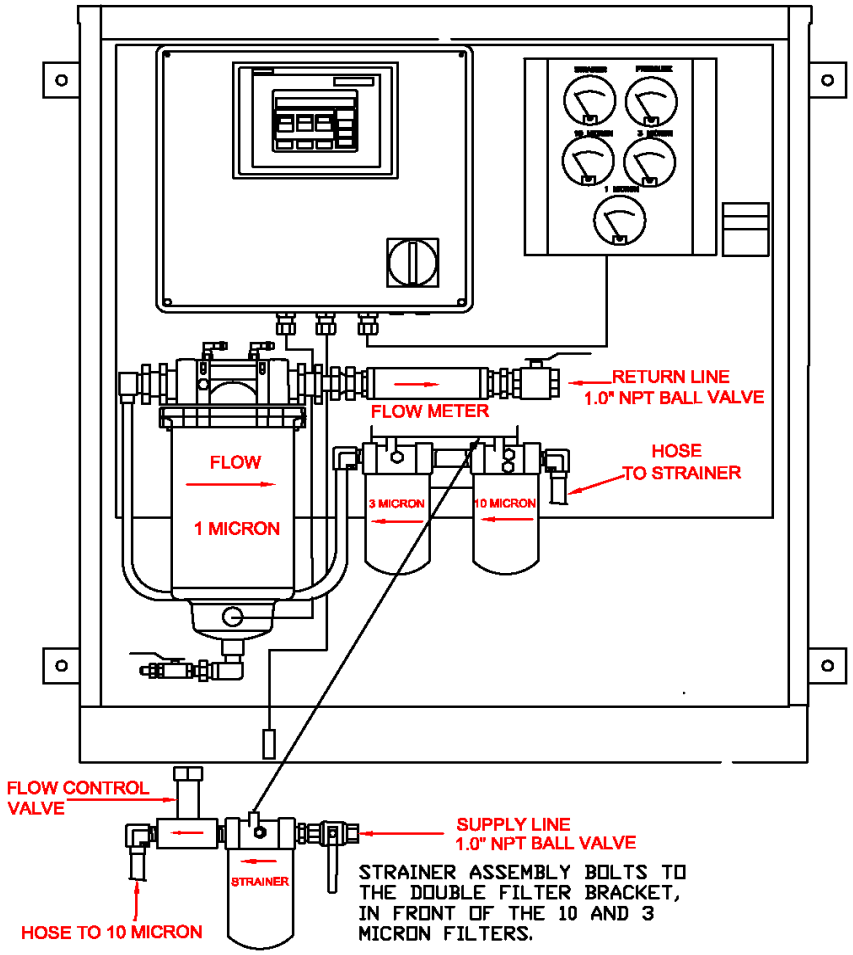
2 HANDLE - ZINC PLATED, 3 POINT LATCH, PADDLE LOCKABLE.

3 HINGES - ZINC PLATED, BOLT ON, LIFT OFF

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

5 SILKSCREEN 2 PL.

	FUEL TECHNOLOGIES INT.				
DRAWN TOM HAASE	CABINET FTI–5A				
MATERIAL 14GA	SIZE B	DATE 3/15/2010	DWG NO. 6601900		REV A
FINISH POWDER COAT	SCALE NTS			SHEET 2 OF 2	



MODEL FTI - 5A SINGLE TANK

PUMP REMOVED INSTRUCTIONS

1. THE FTI-5A FUEL MANTENANCE SYSTEM IS DESIGNED TO OPERATE AT 5 GPM.
2. WHEN A SUBMERSABLE PUMP REPLACES THE FTI PUMP AND MOTOR, IT IS SOMETIMES NECESSARY TO ADJUST THE FLOW TO 5 GPM.
3. TO ADJUST THE SYSTEM TO THE REQUIRED 5 GPM, USE THE FLOW CONTROL VALVE. IT IS LOCATED ON THE TANK SUPPLY LINE NEXT TO THE STRAINER.
4. TURN THE FLOW CONTROL VALVE KNOB CLOCK WISE TO REDUCE THE FLOW TO 5 GPM.
5. OBSERVE THE GPM RATE AT THE FLOW METER LOCATED ON THE TANK RETURN LINE.

DIMENSIONS ARE IN INCHES DECIMALS: .XX ±.030 .XXX ±.015	FUEL TECHNOLOGIES INT.			
DRAWN TOM HAASE	FTI–5A – PUMP REMOVED			
MATERIAL	SIZE B	DATE 02/25/2010	DWG NO. 8202045	REV A
FINISH N/A	SCALE NTS		SHEET 1 OF 1	

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:_____
_____
_____

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:_____
_____
_____

TEST COMPLETE