

# Installation Manual



## Automated Fuel Maintenance System

**FTI-10A & FTI-20A**



**FUEL TECHNOLOGIES INTERNATIONAL LLC**

Replacement Manuals Available on Website: [www.fueltechnologiesinternational.com](http://www.fueltechnologiesinternational.com)

# Installation Manual

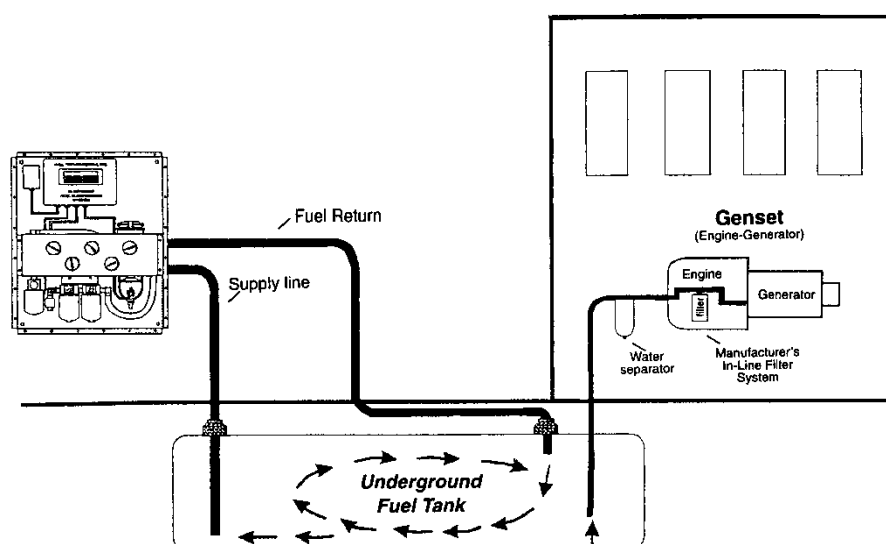
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## OVERVIEW

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.
  - 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.  
**(Optional multi-tank submersible pump panel required for more than one tank system)**
  - e. Submersible pump will be wired to the FTI control panel.  
**(Optional multi-tank submersible pump panel required for more than one tank system)**
  - f. A flow control valve and a flow meter will be installed in the FTI cabinet to adjust the flow to 10 or 20 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 - (Model FTI-10A, 1 1/4" NPT) – (Model FTI-20A, 1 1/2" NPT)
5. System Inlet Connection / Submersible Pump System – (Model FTI-10A, 1 1/4" NPT)  
(Model FTI-20A, 1 1/4" NPT)
6. System Outlet Connection –(Model FTI-10A, 1 1/4" NPT) – (Model FTI-20A, 1 1/4" NPT )
7. Minimum Suggested Inlet Pipe Size – (Model FTI-10A, 1 1/4" NPT) - (Model FTI-20A, 2" 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. 240V AC, Single Phase, 20 Amp. Power supply must be available at system location.
4. A 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:

IF POWER TO THE FTI CONTROL PANEL IS TO BE TURNED OFF AFTER IT IS INSTALLED, THEN THE INSTALLER SHALL PROVIDE FOR THERMAL EXPANSION PROTECTION.

ALL MANUAL BALL VALVES SHALL REMAIN OPEN. THIS WILL ALLOW FUEL THERMAL EXPANSION TO FLOW BACK TO THE FUEL TANK.

THE FTI CONTROL PANEL WILL AUTOMATICALLY OPEN ALL ELECTRICALLY CONNECTED VALVES WHEN THE FTI PRESSURE SWITCH GAUGE REACHES 45 PSI. THIS WILL OPEN AND CLOSE ALL TANK VALVES FOR 15 SECONDS ONE TANK AT A TIME.

THIS FEATURE OPERATES AUTOMATICALLY ONLY WHEN POWER IS ON AND THE CONTROL PANEL IS SET TO AUTO OR MANUAL OFF MODES.

THE OPENING AND CLOSING OF VALVES WILL ACTIVATE 6 TIMES IN 24 HOURS, AFTER 6 TIMES THE CONTROL PANEL WILL GO INTO OVER PRESSURE ALARM.

THIS IS A PRECAUTION TO ALERT MANAGEMENT THAT YOU HAVE A THERMAL EXPANSION PROBLEM AND IT SHOULD BE ADDRESSED.

FTI WILL NOT BE RESPONSIBLE FOR ANY THERMAL EXPANSION DAMAGE DUE TO EXCESSIVE PRESSURE.

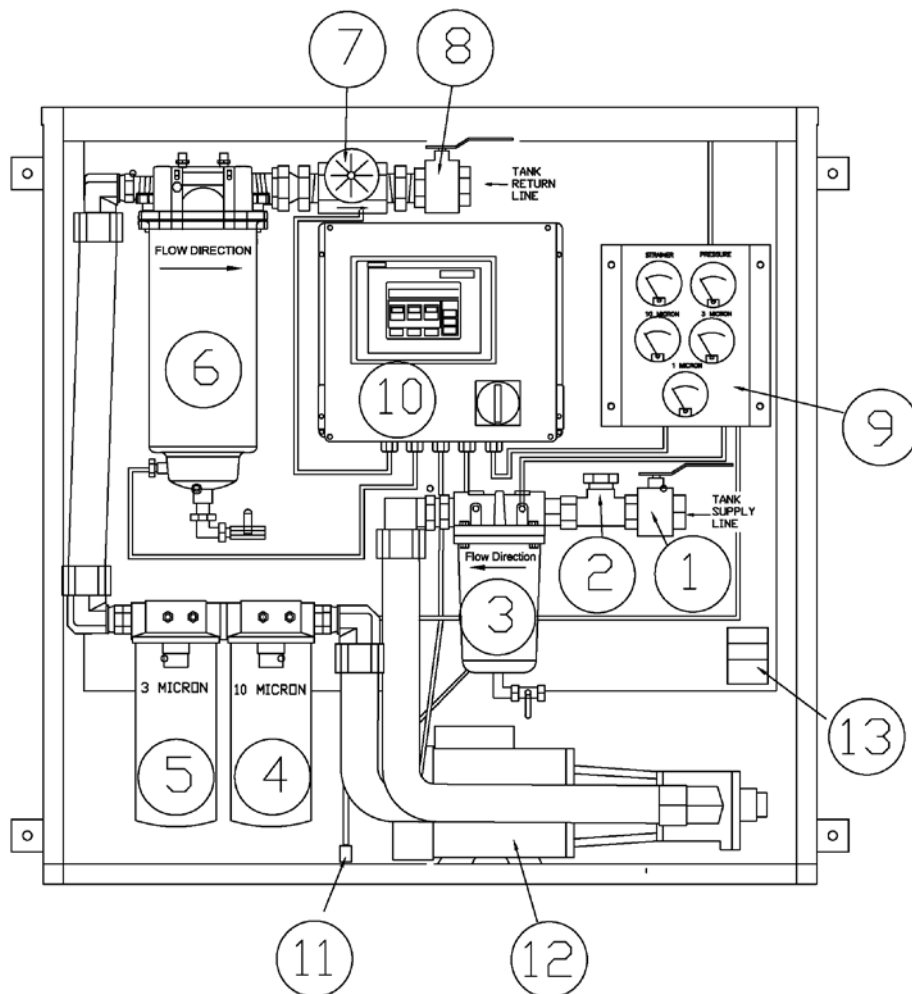
### **DO NOT RUN LONGER THAN THREE MINUTES WITHOUT FLUIDS**

To *prime the pump, close the supply line ball valve and fill with fuel at the priming tee.* Remove the Priming Tee Cap and fill. Restart the system.

For starting system see operations manual.

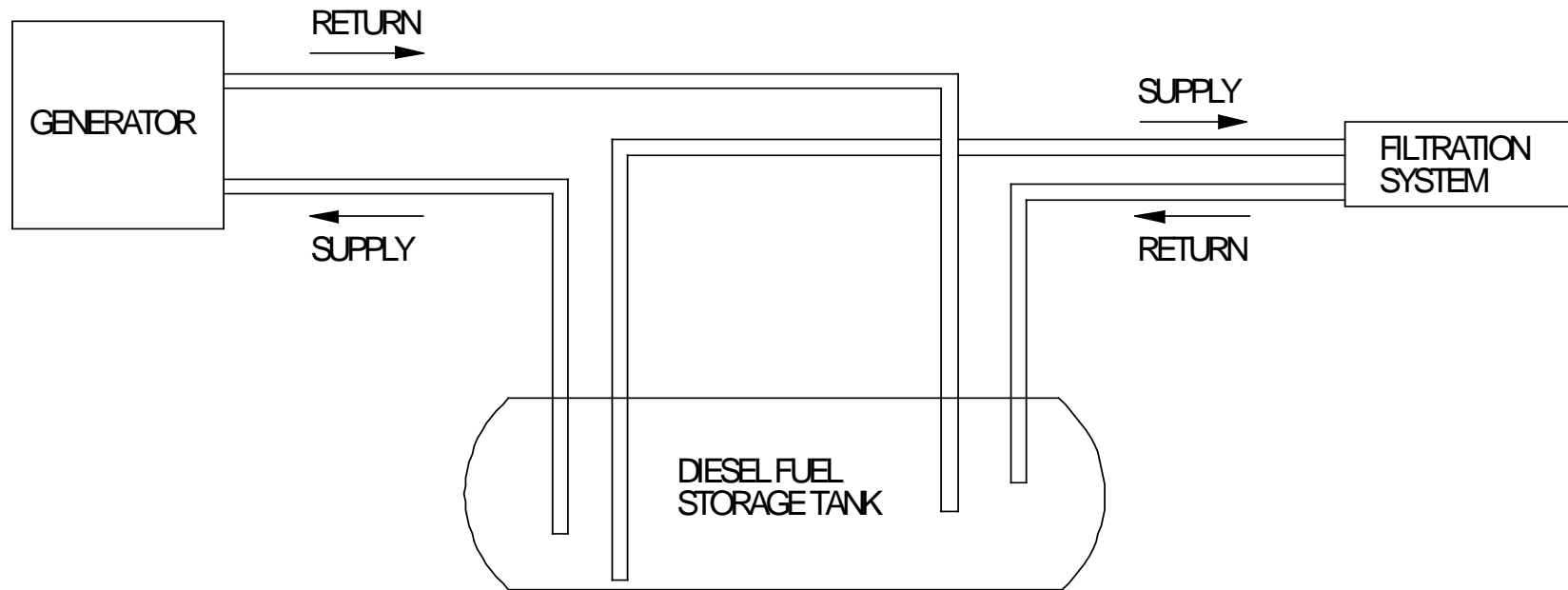
# IDENTIFYING PARTS

## FTI-10A & FTI-20A



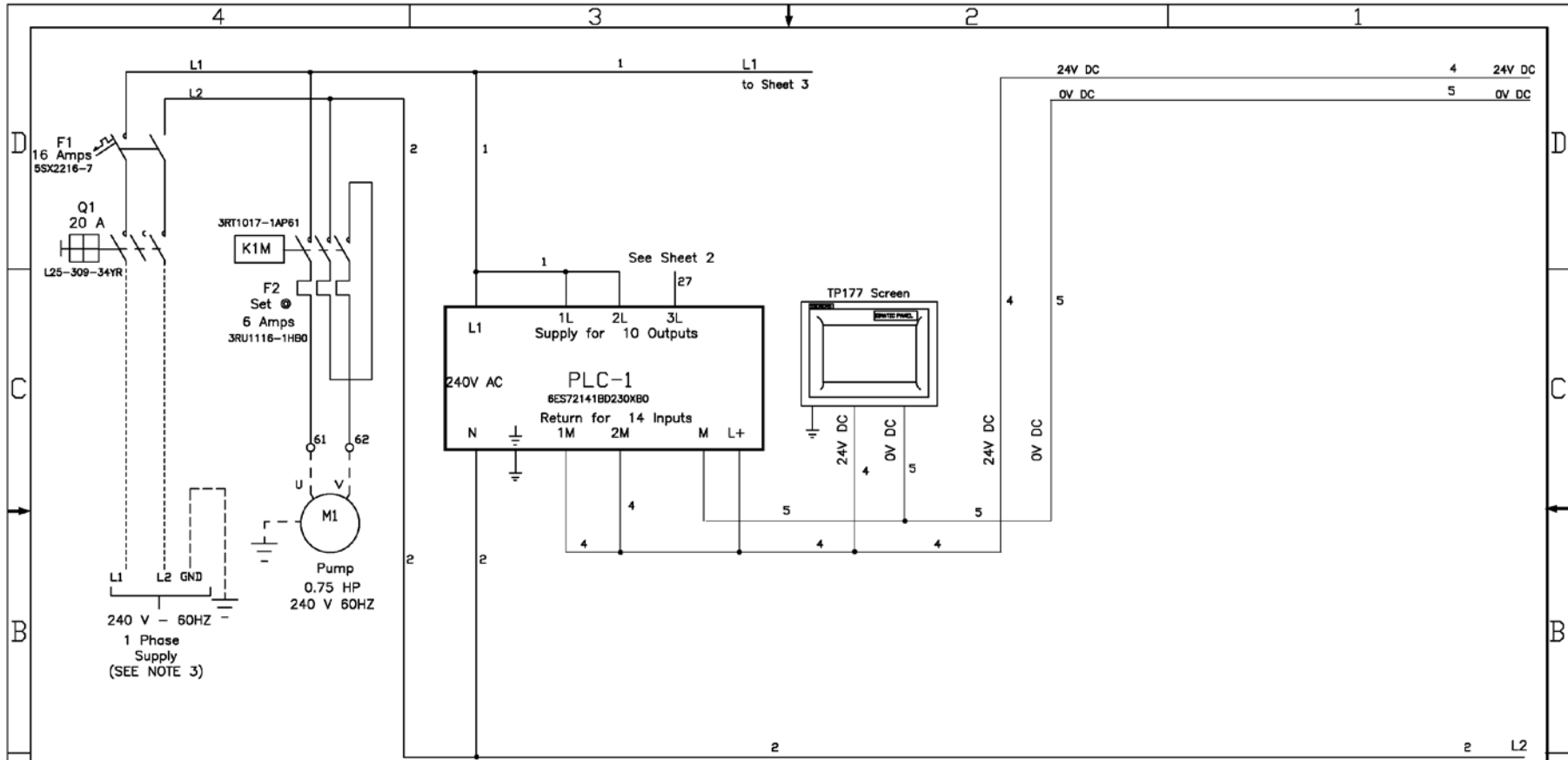
- 1) Supply Line Connection, SS Ball Valve, (Model 10A, 1 1/4" NPT), (Model 20A, 1 1/2" NPT)
- 2) Priming Tee (Remove Cap and fill with Fuel if needed)
- 3) Strainer – Cartridge Type with 100 Mesh, 149 Micron Element
- 4) 10 Micron Pre Filter, Spin On Type
- 5) 3 Micron Pre Filter, Spin On Type
- 6) 1 Micron element and Water Separator
- 7) Site Glass
- 8) Return Line Connection, SS Ball Valve (Model 10A, 1 1/4" NPT), (Model 20A, 1 1/4" NPT)
- 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



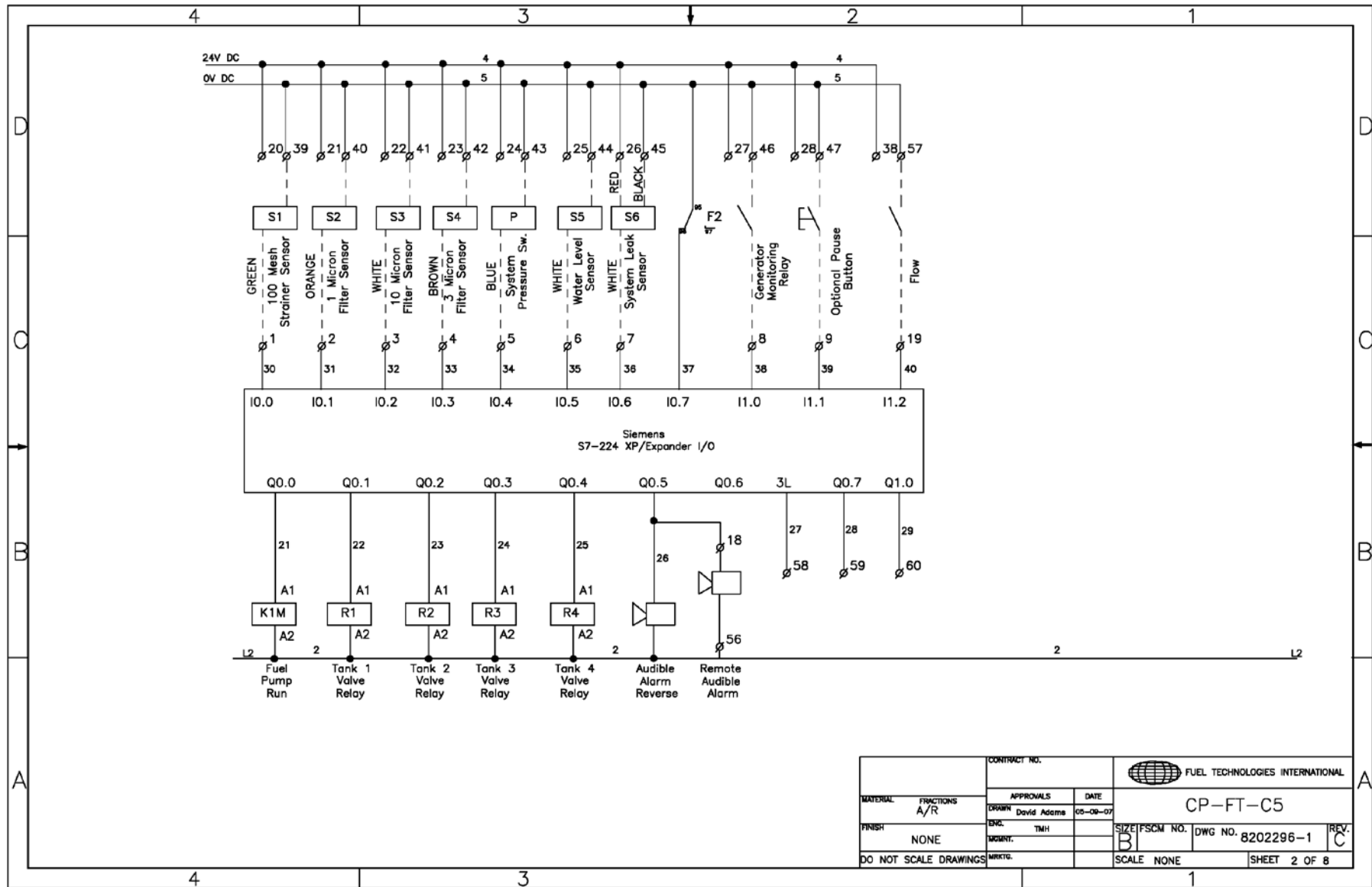
Notes:

1. FTI supply line should be installed 1" from bottom of storage tank, at sump end.
2. A foot valve must be installed on supply line to keep system primed.



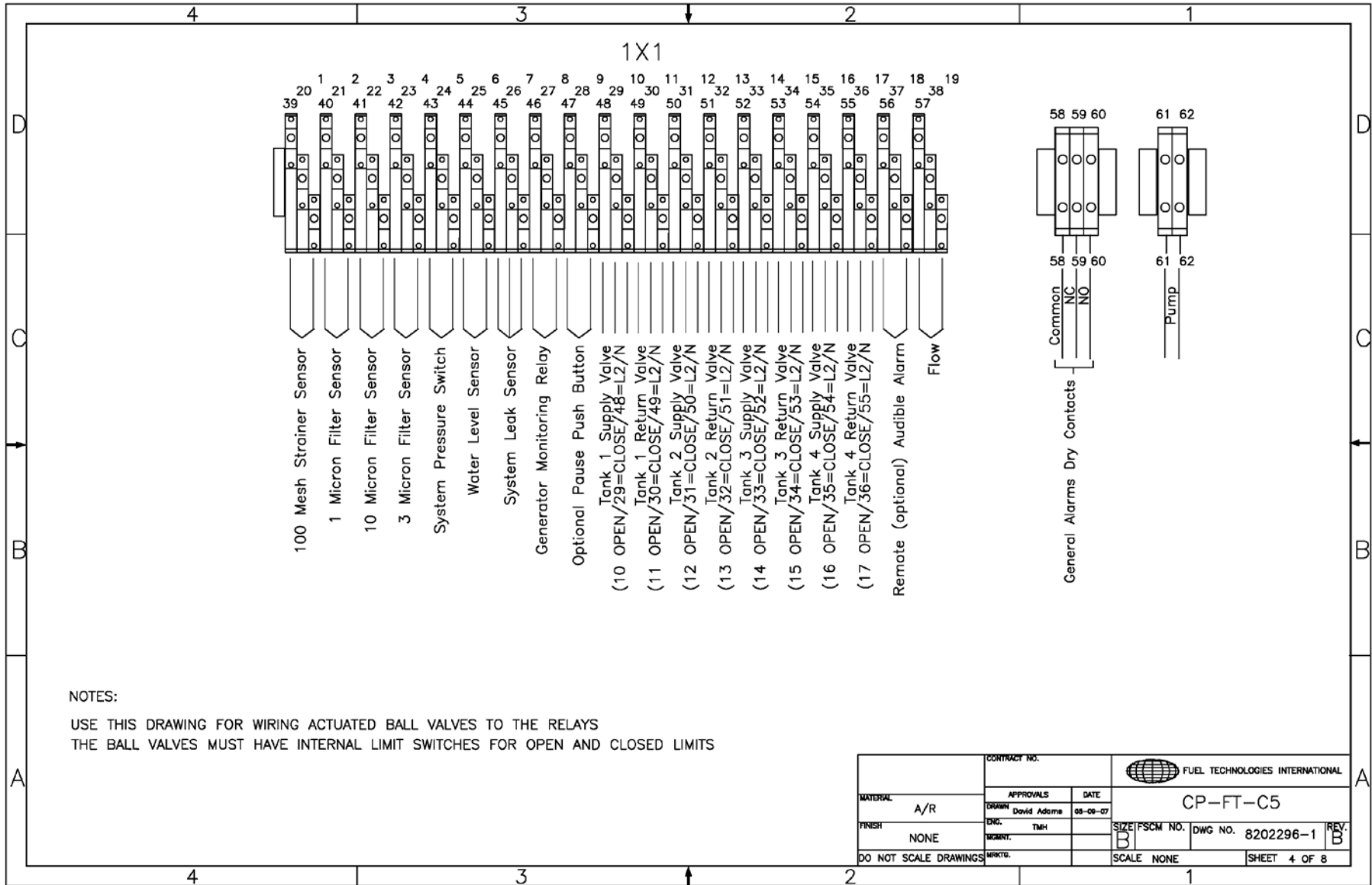
- NOTES:
1. ALL DOTTED LINES ARE FIELD WIRING, TO BE SUPPLIED BY CLIENT
  2. Small circles ( o ) denotes enclosure panel Terminal Boards and their numbers.
  3. INSTALLER MUST PROVIDE MAIN DISCONNECT AND BRANCH CIRCUIT PROTECTION!  
Total Connected Load 20 Amps

CONTRACT NO.		FUEL TECHNOLOGIES INTERNATIONAL	
MATERIAL	A/R	APPROVALS	DATE
FINISH	NONE	DRAWN	David Adams 05-09-07
DO NOT SCALE DRAWINGS		ENGR.	TJH
		SCALE	NONE
		SIZE/FSCM NO.	B
		DWG NO.	8202296-1
		REV.	C
		SHEET 1 OF 8	



CONTRACT NO.		FUEL TECHNOLOGIES INTERNATIONAL	
MATERIAL	FRACTIONS A/R	APPROVALS DRAWN David Adams	DATE 05-08-07
FINISH	NONE	URGENT.	SIZE/FSCM NO. B
DO NOT SCALE DRAWINGS		SCALE NONE	DWG NO. 8202296-1 REV. C
		SHEET 2 OF 8	

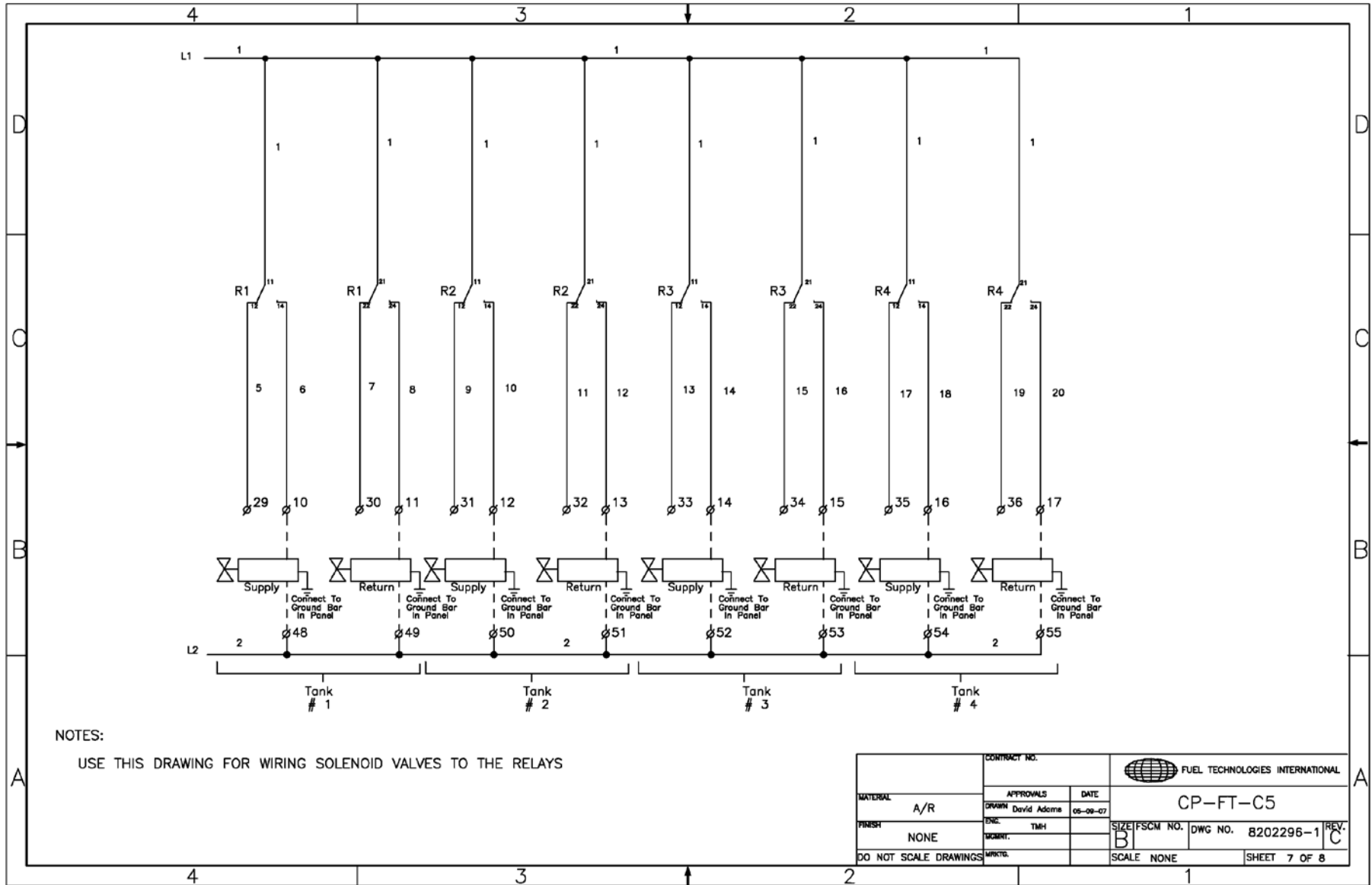




NOTES:

USE THIS DRAWING FOR WIRING ACTUATED BALL VALVES TO THE RELAYS  
 THE BALL VALVES MUST HAVE INTERNAL LIMIT SWITCHES FOR OPEN AND CLOSED LIMITS

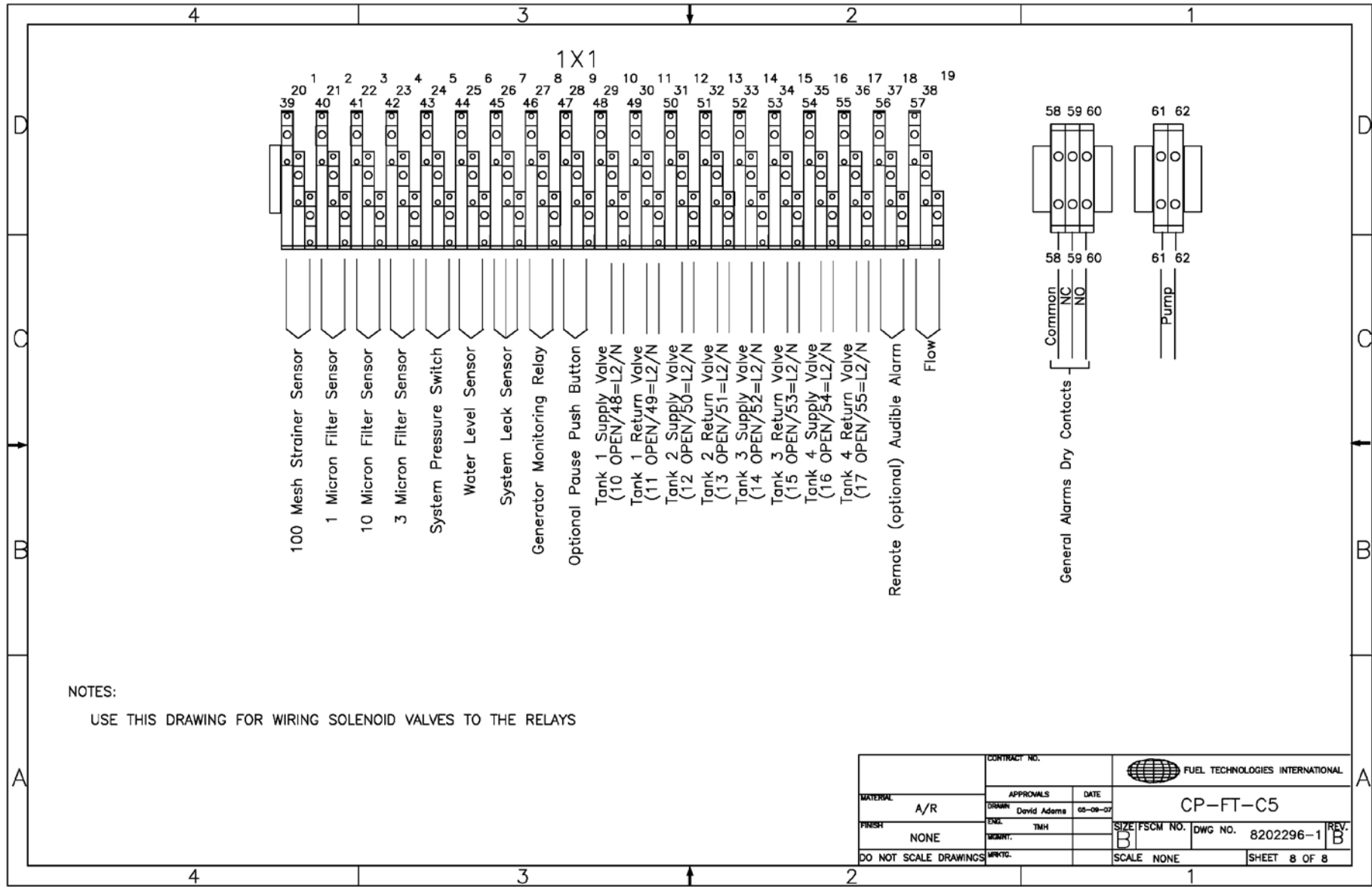
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MATERIAL		APPROVALS	DATE	CP-FT-C5	
A/R		DAWN David Adame	08-08-07		
FINISH		DWG.	TMH	SIZE/FSCM NO.	DWG NO. 8202296-1
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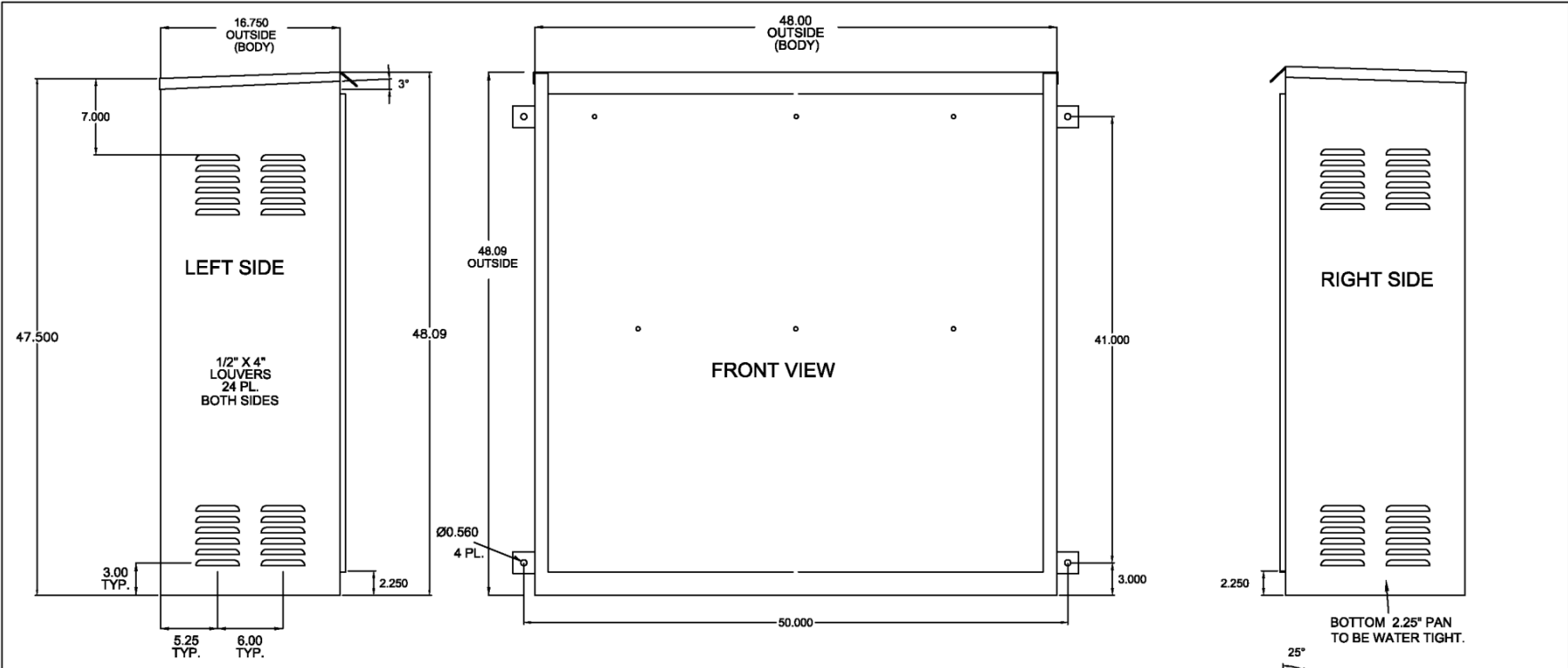
NOTES:

USE THIS DRAWING FOR WIRING SOLENOID VALVES TO THE RELAYS

		CONTRACT NO.		FUEL TECHNOLOGIES INTERNATIONAL	
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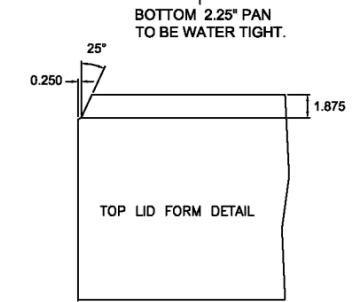


		CONTRACT NO.		FUEL TECHNOLOGIES INTERNATIONAL	
MATERIAL		APPROVALS	DATE	CP-FT-C5	
A/R		DRAWN David Adams	08-08-07		
FINISH		ENL.	TMH	SIZE FSCM NO.	REV.
NONE		ISSUED:		B	B
DO NOT SCALE DRAWINGS		WRITT:		SCALE NONE	SHEET 8 OF 8

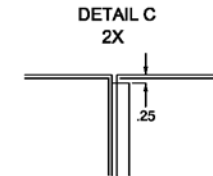
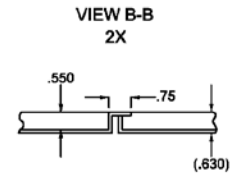
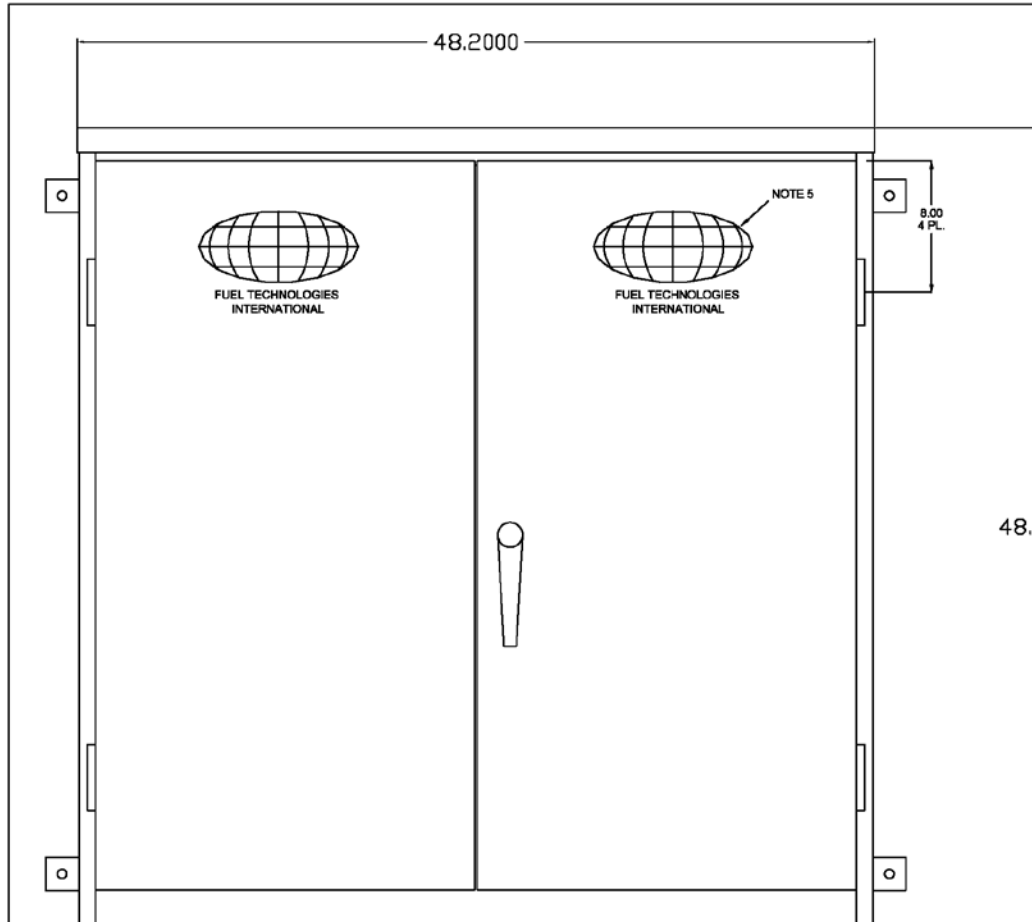


- NOTES: 1. CABINET TOP & BOTTOM ARE WELDED TO BODY.  
 FINISH ALL EXTERNAL SEAMS. TOP OVER BODY.  
 BOTTOM INSIDE BODY 2.00
2. FINISHED CABINET TO BE WATER RESISTANT.  
 ( WELD SEAMS TOP & BOTTOM, BOTTOM TO HOLD LIQUIDS )
3. BREAK ALL SHARP EDGES.
4. .375 DIA. THRU CABINET & FLAT STOCK.  
 WELD THREADED ROD TO FLAT STK. & GRIND FLUSH.
5. ASSEMBLED UNIT WEIGHT IS APPROX. 175 LBS.

**ZINC PRIMER BEFORE POWDER COAT**  
 FINISH - POWDER COAT  
 CARDINAL GRAY HAMMERTONE  
 P/N TO64-GRO5



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 08/30/2010	DWG NO. 6602002	REV C	
FINISH POWDER COAT	SCALE NTS	SHEET 1 OF 1			



- NOTES: 1 FABRICATE 14 GA. CRS DOORS PER DETAILS.  
INSIDE DIMS. TO CLEAR CAB. LIP .06/SIDE.  
APPLY WEATHERSTRIP 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		FUEL TECHNOLOGIES INT.			
DECIMALS: .XX .030 XXX .015		FTI-10 & 20 CABINET			
DRAWN	TOM HAASE	SIZE	DATE	DWG NO.	REV
MATERIAL	14 GA CRS	B	03/14/2011	6602002 PG2	C
FINISH	POWDER COAT	SCALE	NTS	SHEET 2 OF 2	