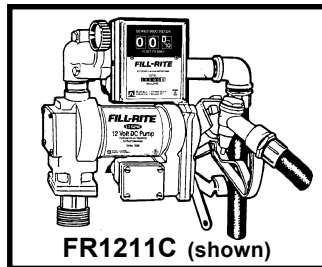
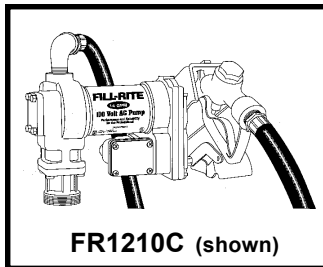


FILL-RITE®

FR1200C / FR2400C FR4200D / FR4400 DC FUEL TRANSFER PUMP

Owner's Operation & Safety Manual for EXPLOSION-PROOF & RAIN-PROOF ATEX Certified Models



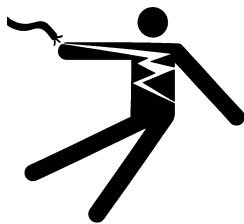
SAFETY INSTRUCTIONS

To ensure safe and efficient operation, it is essential to read and follow each of these warnings and precautions.

1. Do NOT smoke near pump or use pump near an open flame. Fire could result.
2. Disconnect power to pump before servicing pump.
3. Take motors needing service to an authorized repair shop to maintain "explosion-proof" and "rain-proof" integrity.
4. A Fill-Rite filter should be used on pump outlet to ensure that no foreign material is transferred to fuel tank.
5. The pump motor is equipped with thermal overload protection. If overheated, it will shut itself off without any damage to the windings. Move ON / OFF lever to the 'OFF' position to reset pump.
6. Tank or barrel should be anchored to prevent tipping in both the full and empty conditions.
7. To minimize static electricity build-up, keep nozzle in contact with container being filled.



DANGER



Electrical wiring should be done by a licensed electrician in compliance with local, state and national electrical code as appropriate. Rigid conduit should be used and a proper ground must be provided to avoid the possibility of electrical shock. Failure to comply with this warning could result in serious injury and/or loss of property. Use only static wire, conductive hose when pumping flammable fluids.



WARNING

This product should not be used for fluid transfer into aircraft. This product is not suited for use with fluids for human consumption or fluids containing water.

GENERAL DESCRIPTION

The Fill-Rite Series FR1200C, FR2400C, FR4200D and FR4400 products are positive displacement, rotary vane pumps. Their rugged motors are explosion-proof and rain-proof to ensure a long life of dependability.

PUMPS INSTALLATION INSTRUCTIONS

Use Teflon® Tape on all pipe threads.

Do NOT install additional foot valves or check valves that do not have a pressure relief valve.

1. Tightly screw suction pipe (1200KTG9099) into inlet flange (1200F6465) of pumping unit.
2. Extend suction pipe into tank or barrel to within 3" of tank bottom. Do not rest suction pipe on bottom of tank.
3. Screw inlet flange of pump into tank or barrel opening. Inlet flange must be completely and securely threaded into an undamaged tank or barrel bung.

ELECTRICAL INSTALLATION INSTRUCTIONS

1. Install pump. **Read and understand all of the electrical wiring instructions before proceeding.**
2. Remove pump's electrical junction box cover and straighten the 3 wires to make the stripped wire ends accessible outside of the junction box.
3. Install wires from the power source to the junction box according to all electrical codes. Attach the **brown** wire to the **positive** supply and the **blue** wire to the **negative** supply. Use green wire inside the junction box and the lug on motor to ground / earth / bond the pump as required by electrical codes.

CAUTION: Do not connect the positive or negative power to the green wire or external lug as this could cause a fire.

4. Fold wires into junction box and replace cover making sure the gasket is in place. Make sure all screws are seated so there is no space between the cover and the junction box.

For Vehicle Installation

Follow steps 1 through 4 above.

- A. Pass the electrical wires to the source of the vehicle power system, supporting the wires as necessary and protecting it from sharp edges, heat, and anything that could damage the wires.
- B. To determine if the vehicle electrical system is **negative (-)** or **positive (+)** ground, check the battery marking of the terminal that is wired to the vehicle frame or motor block. The brown wire from the pump will connect to positive battery post and the blue wire from the pump will connect to negative battery post.
- C. Attach one end of the fuse holder to the end of the ungrounded wire. Make a solid electrical connection with the other end of the fuse holder to the ungrounded side of the battery. Make a solid electrical connection to the grounded side of the battery with the remaining pump wire. The battery terminal or the end of the battery cable is recommended.

CAUTION: Do not attempt to power the pump from vehicle wiring thinner than 12 gage such as the cigarette lighter wire because these thin wires could overheat and cause a fire.

- D. Check all connections to make sure they are connected per instructions and all electrical codes. Install the 30 amp slow blow fuse in the fuse holder. The installation is now complete.

For Skid Mounted Tanks

Follow steps 1 through 4 on Page 1.

- A. Pass the electrical wires to the power source, supporting the wires as necessary and protecting them from sharp edges, heat and anything that could damage the wires.
- B. Attach one end of the fuse holder to the **brown** pump wire. Make a solid electrical connection to the **positive** terminal of the power source with the other end of the fuse holder. Make a solid connection with the **blue** pump wire to the **negative** terminal of the power source.
- C. Check all connections to make sure they are connected per instructions and all electrical codes. Install the 30 amp slow blow fuse in the fuse holder. The installation is now complete.

MATERIALS OF CONSTRUCTION

Materials of construction of the external surface of the unit are: painted steel; painted cast iron; painted aluminum; zinc plated steel.

Materials of construction of the wetted parts are: cast iron; steel; zinc plated steel; 300 series stainless steel; bronze; carbon; ceramic; polyester; acetal; fiber; fluorocarbon; buna; cork/buna.

REPAIR AND MAINTENANCE

Contact the place of purchase for warranty repair and maintenance.

SPECIAL CONDITIONS FOR SAFE USE

An electrically conductive hose and nozzle must be used with flammable liquids. To minimize static electricity built-up, keep nozzle in contact with container being filled.

INSTALLATION

Pump must be installed in compliance with EN 60079-14.

FR1200C

		Fort Wayne Indiana USA	MADE IN U.S.A. 1200G7590
STYLE FR1200C EXPLOSION-PROOF MOTOR			
12 VOLTS DC	20 AMPS	Ex d IIA T6	TYPE A
1/4 HP	2600 RPM	IP23	AUS EX 3620
55°C RISE	30 MIN. DUTY		II 2 G c T6 EEEx d IIA T6 Sira04ATEX1242X
40°C AMB.	OPER. TEMP. T6		
CAUTION -- MOTOR HAS AUTOMATIC RESET THERMAL PROTECTOR		0344	
DATE WK-YR		SN XXXXXXXX	

FR2400C

		Fort Wayne Indiana USA	MADE IN U.S.A. 2400G7591
STYLE FR2400C EXPLOSION-PROOF MOTOR			
24 VOLTS DC	10 AMPS	Ex d IIA T6	TYPE A
1/4 HP	2600 RPM	IP23	AUS EX 3620
55°C RISE	30 MIN. DUTY		II 2 G c T6 EEEx d IIA T6 Sira04ATEX1242X
40°C AMB.	OPER. TEMP. T6		
THERMALLY PROTECTED		0344	
DATE WK-YR		SN XXXXXXXX	

FR4200C

		Fort Wayne Indiana USA	MADE IN U.S.A. 4200G8681
STYLE FR4200D EXPLOSION-PROOF MOTOR			
12 VOLTS DC	22 AMPS	Ex d IIA T5	TYPE A
1/4 HP	2600 RPM	IP23	AUS EX 3620
55°C RISE	30 MIN. DUTY		II 2 G c T5 EEEx d IIA T5 Sira04ATEX1242X
40°C AMB.	OPER. TEMP. T5		
CAUTION -- MOTOR HAS AUTOMATIC RESET THERMAL PROTECTOR		0344	
DATE WK-YR		SN XXXXXXXX	

FR4400C

		Fort Wayne Indiana USA	MADE IN U.S.A. 4400G7593
STYLE FR4400 EXPLOSION-PROOF MOTOR			
24 VOLTS DC	13 AMPS	Ex d IIA T5	TYPE A
1/4 HP	2600 RPM	IP23	AUS EX 3620
55°C RISE	30 MIN. DUTY		II 2 G c T5 EEEx d IIA T5 Sira04ATEX1242X
40°C AMB.	OPER. TEMP. T5		
CAUTION -- MOTOR HAS AUTOMATIC RESET THERMAL PROTECTOR		0344	
DATE WK-YR		SN XXXXXXXX	

TROUBLESHOOTING (SEE PAGE 5 ALSO)

IF PUMP FAILS TO PRIME:

Check suction line for leaks or obstructions. Check bypass valve for dirt. The poppet should slide freely.

PUMP IS BOUND:

If the motor hums but will not start, the probable cause is a stuck rotor. Remove rotor cover and check rotor and vanes for dirt.

LOW PUMPING CAPACITY:

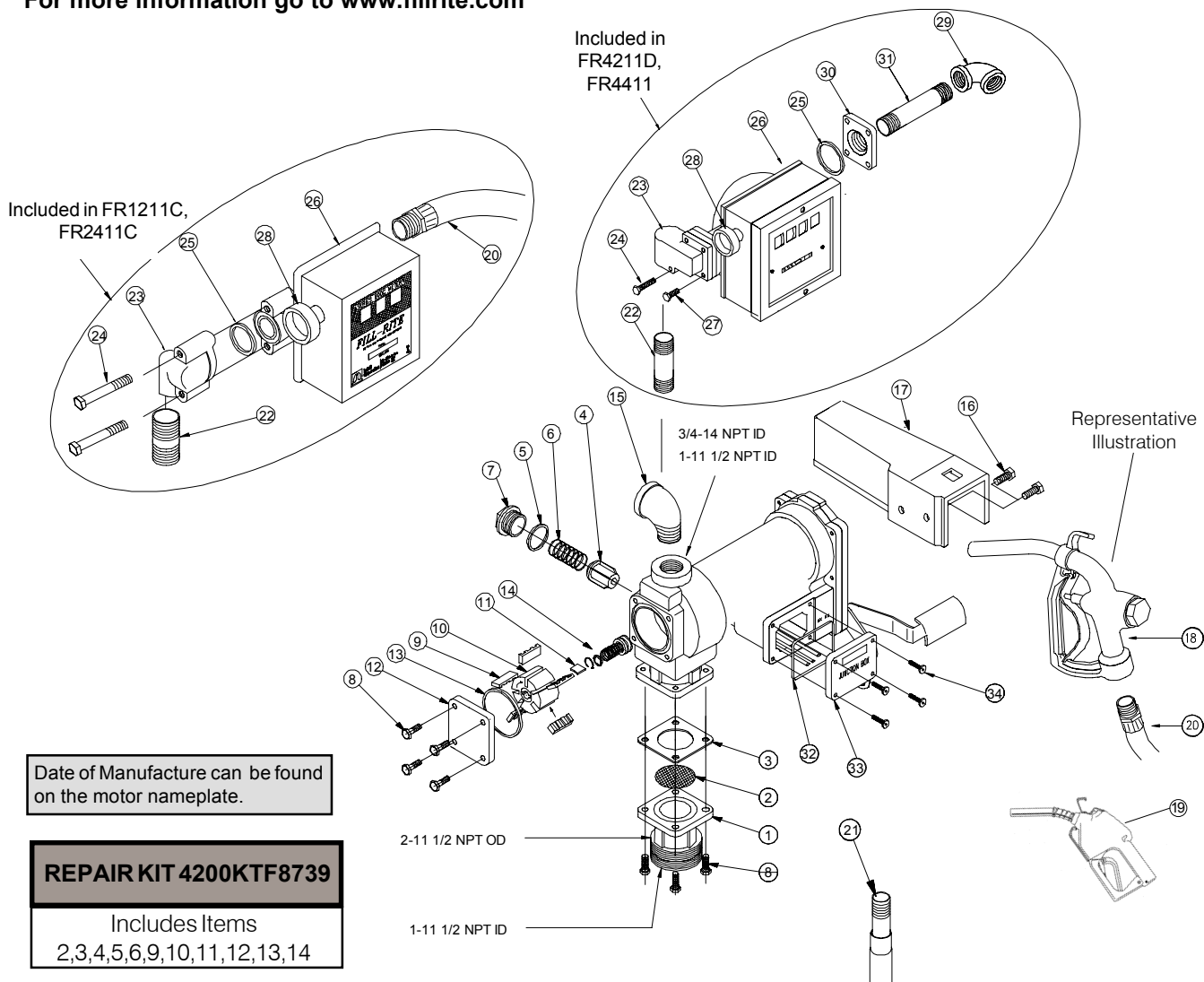
Strainer screen clogged, bypass valve not seating properly, obstruction in suction lines. Make sure all 5 vanes slide easily in their slots.


PARTS LIST

ITM NO.	PART NO.	DESCRIPTION	QTY
1	1200F6465	Inlet Flange	1
2	100F0760	Screen	1
3	100F0790	Inlet Gasket	1
4	1200F2756	Bypass Valve	1
5	1200F6455	Bypass Gasket (-121)	1
6	1200F2770	Bypass Spring	1
7	1200F6464	Bypass Cap	1
8	1200F6721	1/4-20 x 3/4 HHCS	8
9	1200G9485	Vane, Bronze	5
10	1200G8881	Rotor, Bronze	1
11	1200F6440	Rotor Key	1
12	1200F6435	Rotor Cover	1
13	1200F6505	Rotor Cover Gasket (-138)	1
14	1200KTF6446	Seal Assembly	1
15	702F3400	3/4" Steel Elbow	1
	800F4400	1" Steel Elbow (FR4200D, FR4400)	1
16	600F2220	Screw 5/16-18 x 5/8 HHCS	2
17	700F6673	Nozzle Cover	1
18	N075UMN11	3/4" Manual Nozzle	1
	N100UMN11	1" Manual Nozzle	1
19	N075UJAU10	3/4" Automatic Nozzle	OPT
	300F7801	1" Automatic Nozzle	OPT

ITM NO.	PART NO.	DESCRIPTION	QTY
20	FRH07512	3/4" x 12' Hose (FR1200C, FR2400C)	1
	FRH10012	1" x 12' Hose (FR4200D, FR4400)	1
21	1200KTG9099	Suction Pipe Steel	1
22	800F3972	3/4" x 2 1/2" Nipple	1
	1200F6732	1" X 4" Nipple (FR4211D, FR4411)	1
23	1200F6470	Fitting Meter	1
	305F0998	Fitting Meter (FR4211D, FR4411)	1
24	800F2300	Screw 5/16-18 x 1 3/4 HHCS	2
	900F8649	Screw 1/4-20 x 2 (FR4211D, FR4411)	1
25	700F2800	O-ring Custom Buna-N	1
26	807C	Meter, 3/4"	OPT
	901	Meter, 1"	OPT
	807CMK	Black, 3/4" Meter Kit	OPT
27	1200F6721	Screw 1/4-20x3/4 (FR4211D, FR4411)	1
28	800G8870	Knob Assembly	1
29	304F7885	1" 90 degree Elbow	1
30	900F8076	Meter Flange	1
31	304F7924	1" x 5" Nipple	1
32	1200G9038	Junction Box Gasket	1
33	1200G8999	Junction Box Cover	1
34	1200G9502	Screw M5 X .8 20mm	4

****For more information go to www.fillrite.com**



	 Two Year Warranty			
	FR1210C	FR2410C	FR4210D	FR4410
Warranty	Two Years	Two Years	Two Years	Two Years
Motor HP	1/4 HP	1/4 HP	1/4 HP	1/4 HP
Motor Volt	12V DC	24V DC	12V DC	24V DC
Amp	20	10	22	13
Certified Rainproof	yes	yes	yes	yes
Flow with manual nozzle	57 LPM 15 GPM	57 LPM 15 GPM	76 LPM 20 GPM	76 LPM 20 GPM
Meter	807C	807C	901	901
Static Guard Hose	3/4" x 12'	3/4" x 12'	1" x 12'	1" x 12'
Dimensions without meter	12" wide 9" high 9" deep	12" wide 9" high 9" deep	13" wide 12" high 9" deep	12" wide 12" high 9" deep
Dimensions with meter	14" wide 14" high 9" deep	14" wide 14" high 9" deep	14" wide 14" high 9" deep	14" wide 14" high 9" deep
Duty cycle	30 min.	30 min.	30 min.	30 min.
Max. Operating Temp °F	150°	150°	150°	150°
Min. Operating Temp °F	minus 15°	minus 15°	minus 15°	minus 15°
Minimum suction lift gasoline	7'	7'	10'	10'
Minimum suction lift diesel	8'	8'	15'	15'
Maximum outlet pressure	12 psi	12 psi	14 psi	14 psi
Minimum dry vacuum	10" mercury	10" mercury	12" mercury	12" mercury
Outlet	3/4" F NPT	3/4" F NPT	1" F NPT	1" F NPT
Threaded tank adapter	2" M NPT	2" M NPT	2" M NPT	2" M NPT
Inlet suction port	1" F NPT	1" F NPT	1" F NPT	1" F NPT
Automatic nozzle	Opt.	Opt.	Opt.	Opt.
Thermal overload protection	yes	yes	yes	yes
Integral inlet screen	yes	yes	yes	yes
Pump CE	yes	yes	yes	yes
Motor ATEX	yes	yes	yes	yes
Screen	yes	yes	yes	yes
Ball Bearing construction	yes	yes	yes	yes
Security	Padlocking	Padlocking	Padlocking	Padlocking
Fluid Compatibility	Diesel Gasoline Kerosene Mineral Spirit	Diesel Gasoline Kerosene Mineral Spirit	Diesel Gasoline Kerosene Mineral Spirit	Diesel Gasoline Kerosene Mineral Spirit

PRODUCT WARRANTY

Tuthill Transfer Systems ("Manufacturer") warrants to each consumer buyer of its Fill-Rite products (the "Buyer"), from the date of invoice or sales receipt, that goods of its manufacture ("Goods") will be free from defects of material and workmanship. Duration of this warranty is as follows:

- Heavy Duty Products - Two years
- Standard Duty Products – One year
- Economy Duty Products – One year
- Cabinet pumps, Parts, and Accessories - One year

Manufacturer's sole obligation under the foregoing warranties will be limited to either, at Manufacturers' option, replacing or repairing defective Goods (subject to limitations hereinafter provided) or refunding the purchase price for such Goods theretofore paid by the Buyer, and Buyer's exclusive remedy for breach of any such warranties will be enforcement of such obligations of Manufacturer. If Manufacturer so requests the return of the Goods, the Goods will be redelivered to Manufacturer in accordance with Manufacturer's instructions F.O.B. Factory. The remedies contained herein shall

constitute the sole recourse of the Buyer against Manufacturer for breach of warranty. IN NO EVENT SHALL MANUFACTURER'S LIABILITY ON ANY CLAIM FOR DAMAGES ARISING OUT OF THE MANUFACTURE, SALE, DELIVERY, OR USE OF THE GOODS EXCEED THE PURCHASE PRICE OF THE GOODS. The foregoing warranties will not extend to Goods subjected to misuse, neglect, accident or improper installation or maintenance, or which have been altered or repaired by anyone other than Manufacturer or its authorized representative. THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED. No person may vary the foregoing warranties and remedies except in writing signed by a duly authorized officer of Manufacturer. Warranties or remedies that differ from the foregoing shall not otherwise be binding on Manufacturer. The Buyer's acceptance of delivery of the Goods constitutes acceptance of the foregoing warranties and remedies, and all conditions and limitations thereof.



8825 Aviation Drive
Fort Wayne, Indiana USA 46809
Tel 260 747-7524 Fax 260 747-3159

www.tuthill.com

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pump won't prime	<ul style="list-style-type: none"> • Suction line problem • Bypass valve open • Vanes sticking • Gasket leakage • Excessive rotor or vane wear • Outlet is blocked • Motor not operating • Motor runs backwards 	<ul style="list-style-type: none"> • Check for leaks in suction line. • Remove and inspect valve. • Check vanes and slots for nicks, burrs or wear. • Tighten covers and joints. • Check rotor and vanes for excessive wear or damage. • Check pump outlet, hose, nozzle and screen for blockage. • Rotor should turn clockwise at pump end; if not, check wiring for correct polarity. • Check wiring for correct polarity.
Pump hums but will not operate	<ul style="list-style-type: none"> • Dirt in pump cavity • Motor failure 	<ul style="list-style-type: none"> • Clean out pump cavity. • Motor bearing(s) frozen; return for repair.
Low capacity	<ul style="list-style-type: none"> • Excessive dirt in strainer • Suction line problem • Bypass valve sticking • Vanes sticking • Excessive rotor or vane wear • Hose or nozzle damaged 	<ul style="list-style-type: none"> • Remove and clean strainer. • Check suction line for leaks or restrictions; it may be too small, too long or not airtight. • Remove and inspect valve. • Check vanes and slots for wear. • Check rotor and vanes for excessive wear or damage. • Replace hose or nozzle.
Pump runs slowly	<ul style="list-style-type: none"> • Incorrect voltage • Vanes sticking • Wiring problem • Casting out of line • Brush problem • Motor problem • Motor failure 	<ul style="list-style-type: none"> • Check incoming line voltage. • Check vanes and slots for wear. • Check for loose wires. • Motor frame must be installed with punch mark in line with notch in motor casting. • Check brushes for excessive wear and adequate spring tension. • Inspect armature and commutator. • Motor bearing(s) failing; return for repair.
Motor stalls	<ul style="list-style-type: none"> • Bypass valve sticking • Low voltage • Excessive rotor or vane wear 	<ul style="list-style-type: none"> • Remove and inspect valve. • Check incoming line voltage. • Check rotor and vanes for excessive wear or damage.
Motor overheats	<ul style="list-style-type: none"> • Pumping high viscosity fluids • Clogged strainer • Restricted suction pipe • Weak armature • Motor failure 	<ul style="list-style-type: none"> • These fluids can only be pumped for short periods of time (less than 1/2 hour duty cycle). • Remove and clean strainer. • Remove and clean pipe. • Replace armature. • Bearing(s) tightening up; return for repair.
Motor will not turn on	<ul style="list-style-type: none"> • No power • Switch failure • Motor failure • Thermal protector failure 	<ul style="list-style-type: none"> • Check incoming power source. • Check line switch. • Return for repair. • Check thermal protector
Fluid leakage	<ul style="list-style-type: none"> • Bad O-ring gasket • Dirty shaft seal • Bad shaft seal • Incompatible fluid 	<ul style="list-style-type: none"> • Check all O-ring gaskets. • Clean seal and seal cavity. • Replace seal. • Refer wetted parts list to fluid manufacturer.