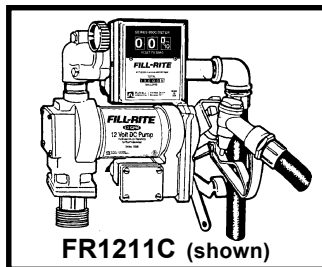
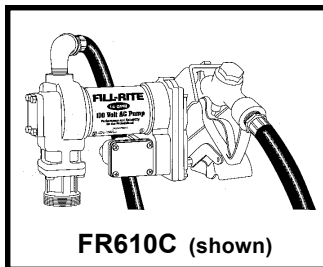


FILL-RITE®

FR1200C / FR2400C DC FR4200D / FR4400 DC SD1202 DC / FR600C / SD602 AC FUEL TRANSFER PUMP

Owner's Operation & Safety Manual for EXPLOSION-PROOF & RAIN-PROOF Models FR1205C, FR1210C, FR1211C, FR2410C, FR2411C, FR4210D, FR4211D, FR4410, FR4411, FR610C, FR611C, SD1202, SD602



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, ANSI/NFPA 70, 30, 30A 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, FR4400, FR600C, SD1202, and SD602 products are positive displacement, rotary vane pumps. Their rugged motors are explosion-proof and rain-proof to ensure a long life of dependability.

ALL PUMPS

Use Teflon® Tape on all pipe threads.

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

DC PUMPS INSTALLATION INSTRUCTIONS

HEAVY DUTY:

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.

STANDARD DUTY:

1. Secure nozzle boot (1200G8521) to motor endplate with the two supplied bolts (300F7751) as illustrated on Page 3 of manual.
2. Tightly screw extension pipe (VP1400F7687) into bung adapter. Attach suction pipe (VP1400F7686) to extension pipe in the same manner.
3. Cut suction pipe at a length that will place its end within 3" of the container bottom. If a longer suction pipe is required, order additional extension (VP1400F7687).
4. Screw bung/suction pipe assembly securely into container opening.

HEAVY DUTY AND STANDARD DUTY (Electrical)

1. Install pump. **Read and understand all of the electrical wiring instructions before proceeding.**
2. If pump does not have proper grounding, meaning continuous metal to metal connection from one component to the next, including tank, bung, pump, meter, filter, hose and nozzle, the pump needs to be electrically bonded to supply tank or vehicle frame. To electrically bond pump, remove green bonding screw located next to junction box cover. Insert this screw through eyelet of furnished green bonding wire assembly and refasten it securely to the pump. The other end of the wire is to be stripped of insulation and the bare wire securely bonded to the vehicle frame or skid tank.

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

3. Remove pump's electrical junction box cover and straighten the 2 wires to make the stripped wire ends accessible outside of the junction box.
4. Screw furnished cable connector into ½ inch NPT conduit opening in pump junction box.
5. Strip 6 inches of the outer covering from one end of the furnished electrical cable being careful not to damage the black and red wire insulation.
6. Loosen cable connector nut and pass the stripped end of the furnished cable through the cable connector until 2 inches of the unstripped cable is within the cable connector. Tighten the cable connector nut.
7. Strip ½ inch of the installation from the ends of the red and black cable wires. Using the furnished wire nuts, connect these wires to the pump wires matching the colors. Be sure no bare wire is exposed.
8. 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 8 on Page 1.

- 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 red wire from the pump will connect to positive battery post and the black 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 8 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 **red** 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 **black** 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.

AC PUMPS INSTALLATION INSTRUCTIONS

HEAVY DUTY:

1. Tightly screw suction pipe (1200KTG9099) into inlet flange (1200F6465) of pumping unit.
2. Extend suction pipe (1200KTG9099) into tank or barrel to within 3" of tank bottom. Do not rest suction pipe on bottom of tank.
3. Screw inlet flange (1200F6465) of pump into tank or barrel opening. Inlet flange must be completely and securely threaded into an undamaged tank or barrel bung.
4. Systems should be designed to require a minimum amount of suction lift. Maximum "equivalent feet of lift" is 7' (2.1m) for gas and 8' (2.4m) for diesel fuel. ("Equivalent feet of lift" is the vertical distance from the surface of the fluid in the tank to the inlet of the pump, PLUS the friction losses through the vertical and horizontal runs of pipe, all elbows and other fittings.)
5. Tank or barrel must be properly vented. Use a gasoline and oil proof pipe compound on all joints. A water separator should be used for pumping diesel fuel.

STANDARD DUTY

1. Secure nozzle boot (700G8828) to motor endplate with the two supplied bolts (600F2220) as illustrated on Page 3 of manual.
2. Tightly screw extension pipe (VP1400F7687) into bung adapter. Attach suction pipe (VP1400F7686) to extension pipe in the same manner.
3. Cut suction pipe at a length that will place its end within 3" of the container bottom. If a longer suction pipe is required, order additional extension (VP1400F7687).
4. Screw bung/suction pipe assembly securely into container opening.

HEAVY DUTY AND STANDARD DUTY (Electrical):

1. Install pump. **Read and understand all of the electrical wiring instructions before proceeding.** Electrical wiring should be done by a licensed electrician in compliance with local, state and national codes.
2. Remove the 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 rigid conduit and wires from the power source to the junction box to maintain explosion-proof integrity. Power to the unit should be supplied from a dedicated 15 amp circuit breaker. No other equipment should be powered from this breaker.
4. Connect wires to pump connecting like colored wires together. Ground wire must be connected.
5. 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. The installation is now complete.

TROUBLESHOOTING (ALL PUMPS)

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.

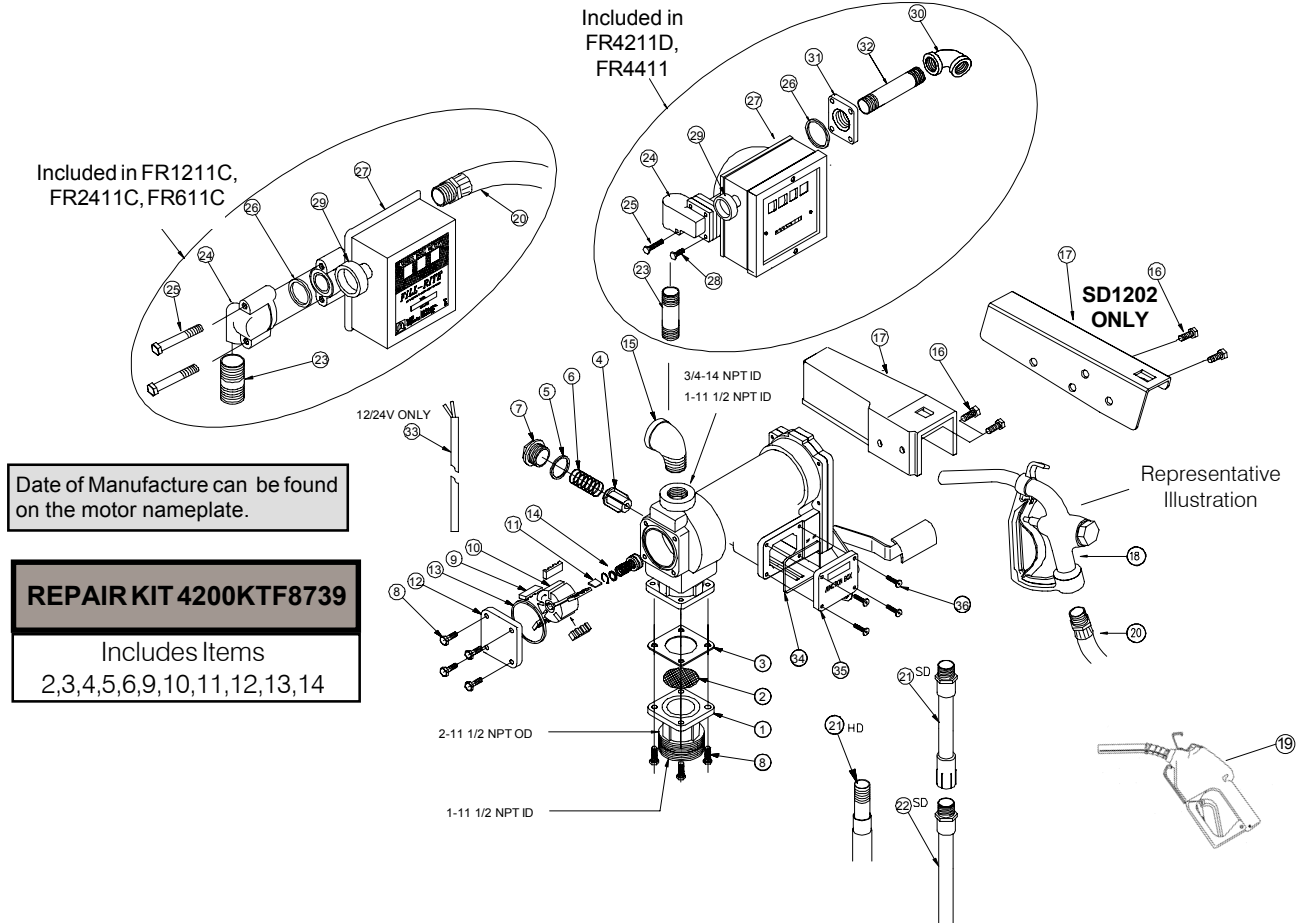
LOW PUMPING CAPACITY:

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	ITM NO.	PART NO.	DESCRIPTION	QTY
1	1200F6465	Inlet Flange	1	20	700F3135	3/4" x 12' UL Listed Hose (FR610C, SD602)	1
2	100F0760	Screen	1		FRH07512	3/4" x 12' Hose (FR1200C,FR2400C,SD1202)	1
3	100F0790	Inlet Gasket	1		FRH10012	1" x 12' Hose (FR4200D, FR4400)	1
4	1200F2756	Bypass Valve	1	21	1200KTG9099	Suction Pipe Steel (Heavy Duty)	1
5	1200F6455	Bypass Gasket (-121)	1		VP1400F7687	Suction Pipe Extension (Standard Duty)	1
6	1200F2770	Bypass Spring	1	22	VP1400F7686	Suction Pipe PVC (Standand Duty)	1
7	1200F6464	Bypass Cap	1	23	800F3972	3/4" x 2 1/2" Nipple	1
8	1200F6721	1/4-20 x 3/4 HHCS	8		1200F6732	1" X 4" Nipple (FR4211D, FR4411)	1
9	1200G9485	Vane, Bronze	5	24	1200F6470	Fitting Meter	1
10	1200G8881	Rotor, Bronze	1		305F0998	Fitting Meter (FR4211D, FR4411)	1
11	1200F6440	Rotor Key	1	25	800F2300	Screw 5/16-18 x 1 3/4 HHCS	2
12	1200F6435	Rotor Cover	1		900F8649	Screw 1/4-20 x 2 (FR4211D, FR4411)	1
13	1200F6505	Rotor Cover Gasket (-138)	1	26	700F2800	O-ring Custom Buna-N	1
14	1200KTF6446	Seal Assembly	1	27	807C	Meter, 3/4"	OPT
15	702F3400	3/4" Streeel Elbow	1		901	Meter, 1"	OPT
	800F4400	1" Streeel Elbow (FR4200D, FR4400)	1		807CMK	Black, 3/4" Meter Kit	OPT
16	600F2220	Screw 5/16-18 x 5/8 HHCS	2	28	1200F6721	Screw 1/4-20x3/4 (FR4211D, FR4411)	1
	300F7751	Screw 5/16-18x1/2 HHCS (SD1202)	2	29	800G8870	Knob Assembly	1
17	700F6673	Nozzle Cover Red	1	30	304F7885	1" 90 degree Elbow	1
	700G8828	Nozzle Cover Yellow (SD602)	1	31	900F8076	Meter Flange	1
	1200G8521	Nozzle Cover (SD1202)	1	32	304F7924	1" x 5" Nipple	1
18	6U075	3/4" Manual Nozzle (SD, FR610C)	1	33	1200R9067	18' Power Cable (12 / 24 V)	1
	N075UMN11	3/4" Manual Nozzle non UL	1	34	1200G9038	Junction Box Gasket	1
	N100UMN11	1" Manual Nozzle non UL	1	35	1200G8999	Junction Box Cover	1
19	N075UAU10	3/4" Automatic Nozzle	OPT	36	VP1400F8823	Screw #10-32 x 3/4 PHMS	4
	300F7801	1" Automatic Nozzle	OPT				

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



	H Heavy Duty Two Year Warranty					S Standard Duty One Year Warranty	
	FR1210C	FR2410C	FR4210D	FR4410	FR610C	SD1202	SD602
Warranty	Two Years	Two Years	Two Years	Two Years	Two Years	One Year	One Year
Motor HP	1/4 HP	1/4 HP	1/4 HP	1/4 HP	1/4 HP	1/4 HP	1/4 HP
Motor Volt	12V DC	24V DC	12V DC	24V DC	115V AC	12V DC	115V AC
Amp	20	10	22	13	1.5	20	1.5
Certified Rainproof	yes	yes	yes	yes	yes	yes	yes
Flow with manual nozzle	57 LPM 15 GPM	57 LPM 15 GPM	76 LPM 20 GPM	76 LPM 20 GPM	57 LPM 15 GPM	49 LPM 13 GPM	49 LPM 13 GPM
Meter	807C	807C	901	901	807C	807CMK	807CMK
Static Guard Hose	3/4" x 12'	3/4" x 12'	1" x 12'	1" x 12'	3/4" x 12' UL	3/4" x 10'	3/4" x 12' UL
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	12" wide 9" high 9" deep	9" wide 9" high 7.5" deep	12" wide 9" 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	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.	30 min.	30 min.	30 min.
Max. Operating Temp °F	150°	150°	150°	150°	150°	130°	130°
Min. Operating Temp °F	minus 15°	minus 15°	minus 15°	minus 15°	minus 15°	minus 15°	minus 15°
Minimum suction lift gasoline	7'	7'	10'	10'	7'	7'	7'
Minimum suction lift diesel	8'	8'	15'	15'	8'	8'	8'
Maximum outlet pressure	12 psi	12 psi	14 psi	14 psi	12 psi	12 psi	12 psi
Minimum dry vacuum	10" mercury	10" mercury	12" mercury	12" mercury	6" mercury	6" mercury	6" mercury
Outlet	3/4" F NPT	3/4" F NPT	1" F NPT	1" F NPT	3/4" F NPT	3/4" F NPT	3/4" F NPT
Threaded tank adapter	2" M NPT	2" M NPT	2" M NPT	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	1" F NPT	1" F NPT	1" F NPT
Automatic nozzle	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
Thermal overload protection	yes	yes	yes	yes	yes	yes	yes
Integral inlet screen	yes	yes	yes	yes	yes	yes	yes
Pump UL and cUL listed	—	—	—	—	yes	—	yes
Motor UL and cUL listed	yes	yes	yes	—	yes	yes	yes
Screen	yes	yes	yes	yes	yes	yes	yes
Ball Bearing construction	yes	yes	yes	yes	yes	yes	yes
Security	Padlocking	Padlocking	Padlocking	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	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.



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