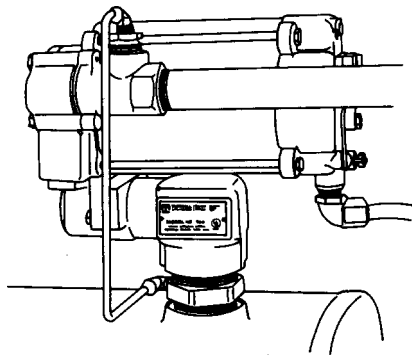


FILL-RITE

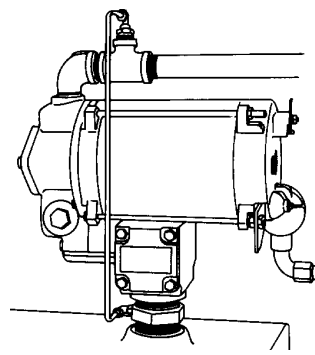
Owner's Operation & Safety Manual

REMOTE PUMPS

Models FR713, 303, 313



Model FR713



Model 303 and 313

OUTSTANDING FEATURES

- Up to 18 GPM / 60 LPM
- UL & C-UL Listed
- 1/3 HP 115 VAC-60Hz motor, optional 220/240 VAC-50/60Hz
- Thermal overload protector
- Integral check valve
- Built-in bypass valve
- Anti-siphon device

OUTSTANDING FEATURES

- Up to 30 GPM / 114 LPM
- UL & C-UL Listed
- 3/4 HP 115/230 VAC-60Hz motor (313). For diesel applications. Not recommended for gasoline.
- 1/2 HP 115/230 VAC-60Hz motor (303). For gasoline and diesel applications.
- Thermal overload protector
- Integral check valve
- Built-in bypass valve
- Anti-siphon device



TUTHILL CORPORATION | **Transfer Systems Group**

8825 Aviation Drive
Fort Wayne, Indiana USA 46809
Tel 219 747-7524 Fax 219 747-3155

Dear Fill-Rite Customer,

Congratulations on your purchase of a Fill-Rite Remote Pump. We at Fill-Rite have built our worldwide reputation by designing the finest and most reliable pumps available in today's market.

Your new pump was designed with pride by some of the best and most experienced fluid control experts available. We use the most advanced technology possible to give you a pump with the superiority you deserve and the quality you've come to expect from Fill-Rite products.

George P. Jenkins
President



DANGER



Electrical wiring should be done by a licensed electrician in accordance with approved electrical codes. Pump should be properly grounded and a rigid conduit should be used when installing electrical wiring. Improper use or installation of this product can cause serious bodily injury or death.



SAFETY INSTRUCTIONS

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

1. To prevent damage to FR713 pump, do not operate without the check valve (700F2661) or the check valve substitute (700F2679) in place.
2. Do NOT smoke near pump or use pump near an open flame. Fire could result.
3. Take motors needing service to an authorized repair shop or return to factory to maintain "explosion proof" integrity.
4. These pumps must be used with remote dispensers and are not intended for any other applications.
5. The pump motor is equipped with thermal overload protection. If overheated, it will shut itself off without any damage to the windings. Be sure to turn off the pump power if this occurs. As the motor cools, it will start without warning if power is on.

GENERAL DESCRIPTION

The Fill-Rite Series 700B UL listed remote pumps are positive displacement, direct drive, rotary vane pumps. Depending on installation and product viscosity, these pumps can deliver up to 18 gallons of fluid per minute. Their rugged, yet lightweight design makes for a long life of trouble free operation.

The Fill-Rite Series 300 UL listed pumps are positive displacement, direct drive, rotary vane pumps. Depending on installation and product viscosity, these pumps can deliver up to 30 gallons/114 liters of fluid per minute. Their high quality, trouble free design makes them a reliable, long life, high capacity pump.

SAFETY

The safety of Fill-Rite Series 700B and 300 pumps is proven by their listing with



Underwriters Laboratories Inc., a nationally recognized independent organization for testing of products to ensure public safety. Also recognized in Canada.

TECHNICAL INFORMATION

Model FR713 Design Features:

- Inlet: 2" male NPT on bung, 1 1/4" female NPT on suction pipe
- Outlet: 3/4" NPT
- Built in check valve, bypass and pressure relief valves. (Anti-siphon device prevents thermal expansion pressure buildup.)
CAUTION: DO NOT INSTALL ADDITIONAL FOOT VALVE OR CHECK VALVE DURING INSTALLATION WITHOUT PRESSURE RELIEF VALVE. HOUSING OR PLUMBING CRACKING MAY RESULT.
- Overall Dimensions: 14" (35.6cm) wide x 11" (28cm) high x 12" (30.5cm) deep
- Explosion proof motor
- 1/3 HP 115VAC-60Hz motor, 1725 RPM, 5.5 amps at 115 VAC
- Thermal overload protection
- Ball bearing construction; no greasing or oiling required

Model FR713 Performance:

- 22 psi (1.52 bar) maximum outlet pressure
- Maximum flow rate: up to 18 GPM (68 LPM)
- Maximum viscosity of fluid pumped: diesel fuel
- Maximum operating ambient temperature: 150°F (65.6°C)
- Minimum operating ambient temperature: -15°F (-27°C)
(Consult factory for extreme temperature applications)
- Minimum dry vacuum: 12" (30.5cm) of mercury
- Minimum suction lift: 10' (3m) for gas & 15' (4.5m) for diesel fuel. The lift in feet is equivalent to 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. Systems should be designed to require a minimum amount of suction lift.

Models 303 and 313 Design Features:

- Inlet: 2" male NPT on bung, 1 1/4" female NPT on suction pipe
- Outlet: 1" NPT
- Built in check valve, bypass and pressure relief valves. (Anti-siphon device prevents thermal expansion pressure buildup.)
CAUTION: DO NOT INSTALL ADDITIONAL FOOT VALVE OR CHECK VALVE DURING INSTALLATION WITHOUT PRESSURE RELIEF VALVE. HOUSING OR PLUMBING CRACKING MAY RESULT.
- Cast iron pump housing: bronze rotor and carbon vanes
- Overall Dimensions: 14 3/4" (37.5cm) wide x 14 1/2" (36.8cm) high x 7 3/4" (19.7cm) deep
- Explosion proof motor
- 313: 3/4 HP 115/230 VAC-60Hz dual voltage motor, 1725 RPM, 11 amps at 115 VAC or 5.5 amps at 230 VAC
- 303: 1/2 HP 115/230 VAC-60Hz dual voltage motor, 1140 RPM, 9.2 amps at 115 VAC or 4.6 amps at 230 VAC
- Thermal overload protection
- Ball bearing construction; no greasing or oiling required

Models 303 & 313 Performance:

- 25 psi (1.72 bar) maximum outlet pressure
- 313: up to 30 gpm (114 lpm)
- 303: up to 20 gpm (76 lpm)
- Maximum viscosity of fluid pumped: diesel fuel
- Maximum operating ambient temperature: 150°F (65.6°C)
- Minimum operating ambient temperature: -15°F (-27°C) (Consult factory for extreme temperature applications)
- Minimum dry vacuum: 14" (35.6cm) of mercury
- Minimum suction lift: 10' (3m) for gas & 18' (5.5m) for diesel fuel. The lift in feet is equivalent to 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. Systems should be designed to require a minimum amount of suction lift.

Fluid Compatibility

The FR713, 303, and the 313 are compatible with the following fluids:

- Diesel, Gasoline, Kerosene, Mineral Spirits, Heptane, and Hexane

NOTE: Only the 303 and FR713 versions are recommended for gasoline applications.

The FR713, 303, and the 313 are NOT compatible with the following fluids:

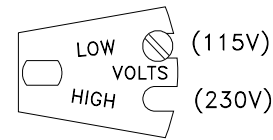
- Acetone, Ammonia, Benzene, Bleach, Hydrochloric Acid, Ink, and Toluene

If in doubt about compatibility of a specific fluid, contact supplier of fluid to check for any adverse reactions to the following wetted materials.

Cast Iron	Steel	Stainless Steel
Bronze/Iron	Carbon	Polyester
Fiber	Viton	Buna N
Zinc Plated Steel	Ceramic	Aluminum

MODELS 303, 313 VOLTAGE SELECTION SWITCH

Franklin motors



Voltage select screw should be placed next to correct voltage setting (115VAC shown)

OPTIONS

Model FR713

- Full 1/3 HP, 220/240 VAC, 50/60Hz motor

INSTALLATION

Pumps are furnished with factory installed anti-siphon devices and must be installed in accordance with the applicable requirements of the Automotive and Marine Service Station Code, NFPA No. 30A, and the National Electrical Code, NFPA No. 70. They are designed for use either inside or outside of buildings subject to the acceptance of inspection authorities having jurisdiction at points of installation.

Complete installation must include one (or more) UL listed remote dispenser(s) with a UL listed emergency shut-off valve with fusible link located at dispenser inlet. If a non-UL listed dispenser is used without a solenoid valve, the system must consist of one dispenser only. All piping should be Schedule 40. Use UL classified gasoline and oil resistant pipe compound on all threaded joints.

See Remote Dispenser Owner's Operation & Safety Manual for complete installation and operation instructions. The following dispensers are available from Fill-Rite.

- Model 317 "Weights & Measures" Elite
- Models 315S, 315ST with $\pm 2\%$ accurate meter
- Model FR307 AST "Weights & Measures", UL listed
- Models FR305R, 305R AST with $\pm 2\%$ accurate meter

Pump has a built-in check valve with pressure relief to prevent fluid thermal expansion from causing unsafe system pressures. **DO NOT USE ADDITIONAL CHECK VALVES OR FOOT VALVES UNLESS THEY HAVE PROPER PRESSURE RELIEF VALVES BUILT INTO THEM.**

Mechanical Installation

Mount pump securely on top of tank in proper position for connecting piping to dispenser. Tighten pump by using pipe wrench **ONLY** on tank adapter, being careful not to damage anti-siphon return line.

The FR713, 303, and the 313 require a 1 1/4" suction pipe.

Circuit Breakers

Power to the unit should be supplied from a dedicated circuit breaker, 20 amp for FR713 and 30 amp for 303 & 313. No other equipment should be powered from this breaker. If two pumps are supplied from one breaker, that breaker must be capable of handling the load of both motors. Provision must be made to break both legs of any AC circuit.

See remote dispenser installation instructions in the Owner's Operation & Safety Manual for completing the installation.

REPAIR

To maintain UL listing, motors that need repair should be taken to an authorized repair shop or returned to factory for service. Pumps must be thoroughly flushed and drained before being taken in for service.

MAINTENANCE

To keep pump running at its best, periodically perform the following procedures.

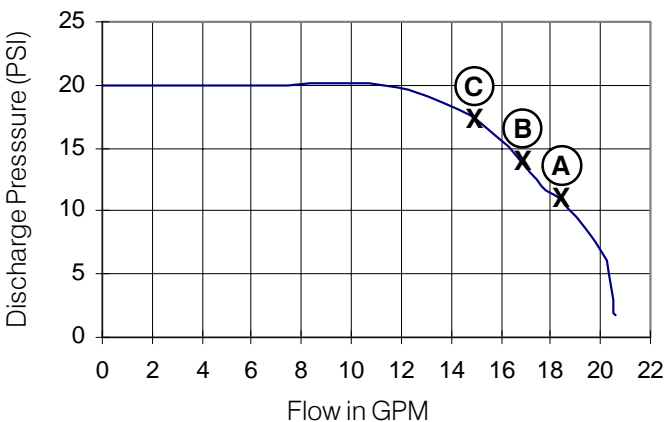
Model FR713:

1. Check strainer for dirt accumulation. To clean strainer, remove strainer cover (item 20) and pull out screen (Item 22).
2. Remove rotor cover (item 15) and inspect vanes (item 9). Vanes should be replaced after extensive wear to prevent damage to pump.

Model 303 or 313:

1. Examine check valve screen for dirt accumulation. To clean screen, remove check valve cover (item 17) and pull out valve (item 19).
2. Remove rotor cover (item 6) and inspect vanes (item 9). Vanes should be replaced after extensive wear to prevent damage to pump.

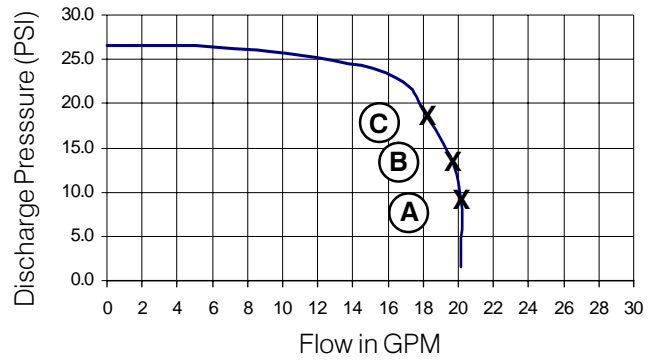
FR713 FLOW CURVE*



- A) FR713 with 12' of 3/4" hose and manual nozzle.
- B) FR713 with 12' of 3/4" hose and automatic nozzle.
- C) FR713 with 12' of 3/4" hose, automatic nozzle, and FR305R dispenser.

*Nominal flow curve for reference only. Based on 3 feet suction lift. Actual flow rate may vary.

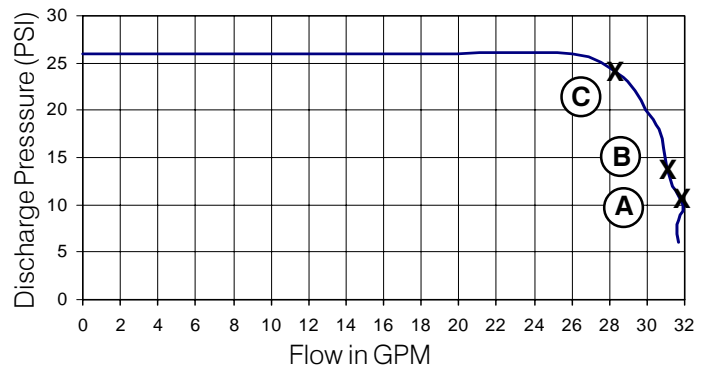
303 FLOW CURVE*



- A) 303 with 12' of 3/4" hose and manual nozzle.
- B) 303 with 12' of 3/4" hose and automatic nozzle.
- C) 303 with 12' of 3/4" hose, automatic nozzle, and FR305R dispenser.

*Nominal flow curve for reference only. Based on 3 feet suction lift. Actual flow rate may vary.

313 FLOW CURVE*



- A) 313 with 12' of 3/4" hose and manual nozzle.
- B) 313 with 12' of 3/4" hose and automatic nozzle.
- C) 313 with 12' of 3/4" hose, automatic nozzle, and FR305R dispenser.

*Nominal flow curve for reference only. Based on 3 feet suction lift. Actual flow rate may vary.

FR713 PUMP PARTS LIST

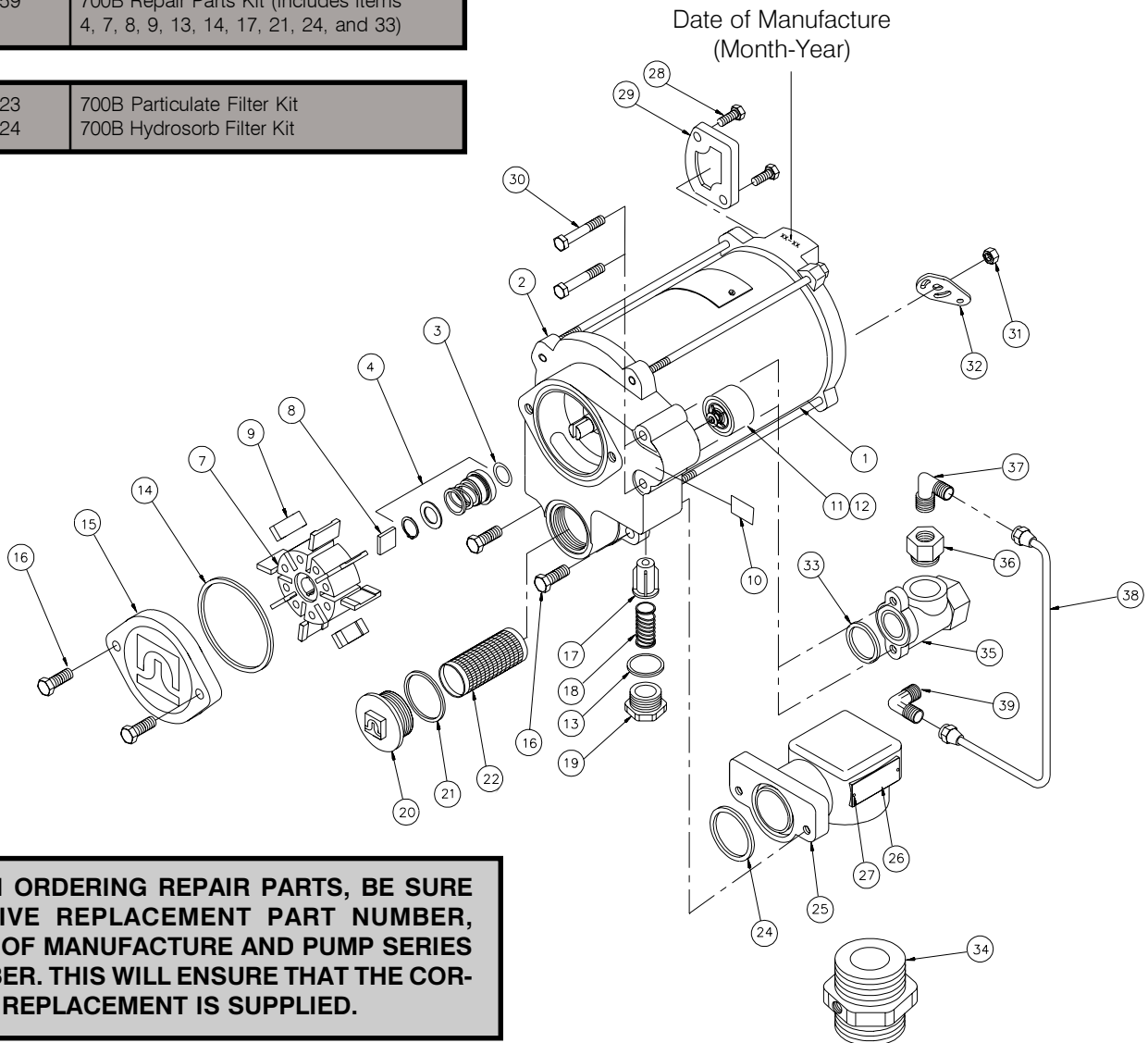
ITM NO.	NEW PART NO. †	OLD PART NO. *	PART NO.	DESCRIPTION	QTY	ITM NO.	NEW PART NO. †	OLD PART NO. *	PART NO.	DESCRIPTION	QTY
1	700F2683	F2683	F2683	Motor, 115 VAC, 60 Hz	1	20	800F4360	800-114	F4360	Strainer Cover	1
2	700F2686	700F2686	F2686	Pump Housing (Included with Item 1)	1	21	800F4380	800-115	F4380	O-Ring Gasket (-131)	1
3	700F2754	700-103	F2754	Fiber Seal Slinger	1	22	700F2665	700F2665	F2665	Strainer, Standard Mesh	1
4	700KTF2687	700-40K	F2687	Seal Assembly	1	24	300F7744	300-28	F7744	O-Ring Gasket (-224)	1
7	700F2654	700F2654	F2654	Rotor	1	25	700F2652	700F2652	F2652	Inlet Housing	1
8	700F3131	700-53	F3131	Rotor Key	1	26	-----	-----	-----	Pump Nameplate	1
9	700F2704	F2704	F2704	Vane	8	27	700G1906	G1906	G1906	3/32 Rivet	2
10	700F2680	700F2680	F2680	Check Valve Label (Included with Item 2)	1	28	600F2220	600-109	F2220	5/16-18 x 3/4 HHCS	2
11	700F2661	F2661	F2661	Check Valve Assembly	1	29	700F3015	700F3015	F3015	Junction Box Cover	1
12	700F2679	F2679	F2679	Check Valve Substitute	Opt.	30	304F7717	304-62	F7717	5/16-18 x 2-1/4 HHCS	2
13		1200-12	F6455	O-Ring Gasket (-121)	1	31	700F2950	700-27	F2950	5/16-18 Lock Nut	1
14	300F7743	300-27	F7743	O-Ring Gasket (-236)	1	32	704F2420	600-5	F2420	Switch Lever	1
15	700F8653	700-6WF	F8653	Rotor Cover	1	33	700F2800	700-15	F2800	O-Ring Gasket (-218)	1
16	704F3700	704-18	F3700	3/8-16 x 1 HHCS	4	34	700F0651	F0651	F0651	AST Adapter	1
17	700F2762	700F2762	F2762	Bypass Valve	1	35	700F2657	F2657	F2657	Siphon Breaker Fitting	1
18	700F2775	F2775	F2775	Bypass Spring	1	36	700F0648	F0648	F0648	3/4 x 1/4 Reducer Bushing	1
19	1200F6464	1200-11S	F6464	Bypass Cap	1	37	304F7948	304-96	F7948	Orifice Fitting	1
						38	700F0647	F0647	F0647	Anti-Siphon Tube	1
						39	304F7947	304-95	F7947	1/4 O.D. Tube x 1/4 NPT Elbow	1

† Effective 2/1/99

* Prior to 2/1/92

700KTF2659	700B Repair Parts Kit (Includes items 4, 7, 8, 9, 13, 14, 17, 21, 24, and 33)
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700KTF7023	700B Particulate Filter Kit
700KTF7024	700B Hydrosorb Filter Kit



WHEN ORDERING REPAIR PARTS, BE SURE TO GIVE REPLACEMENT PART NUMBER, DATE OF MANUFACTURE AND PUMP SERIES NUMBER. THIS WILL ENSURE THAT THE CORRECT REPLACEMENT IS SUPPLIED.

303 AND 313 PUMP PARTS LIST

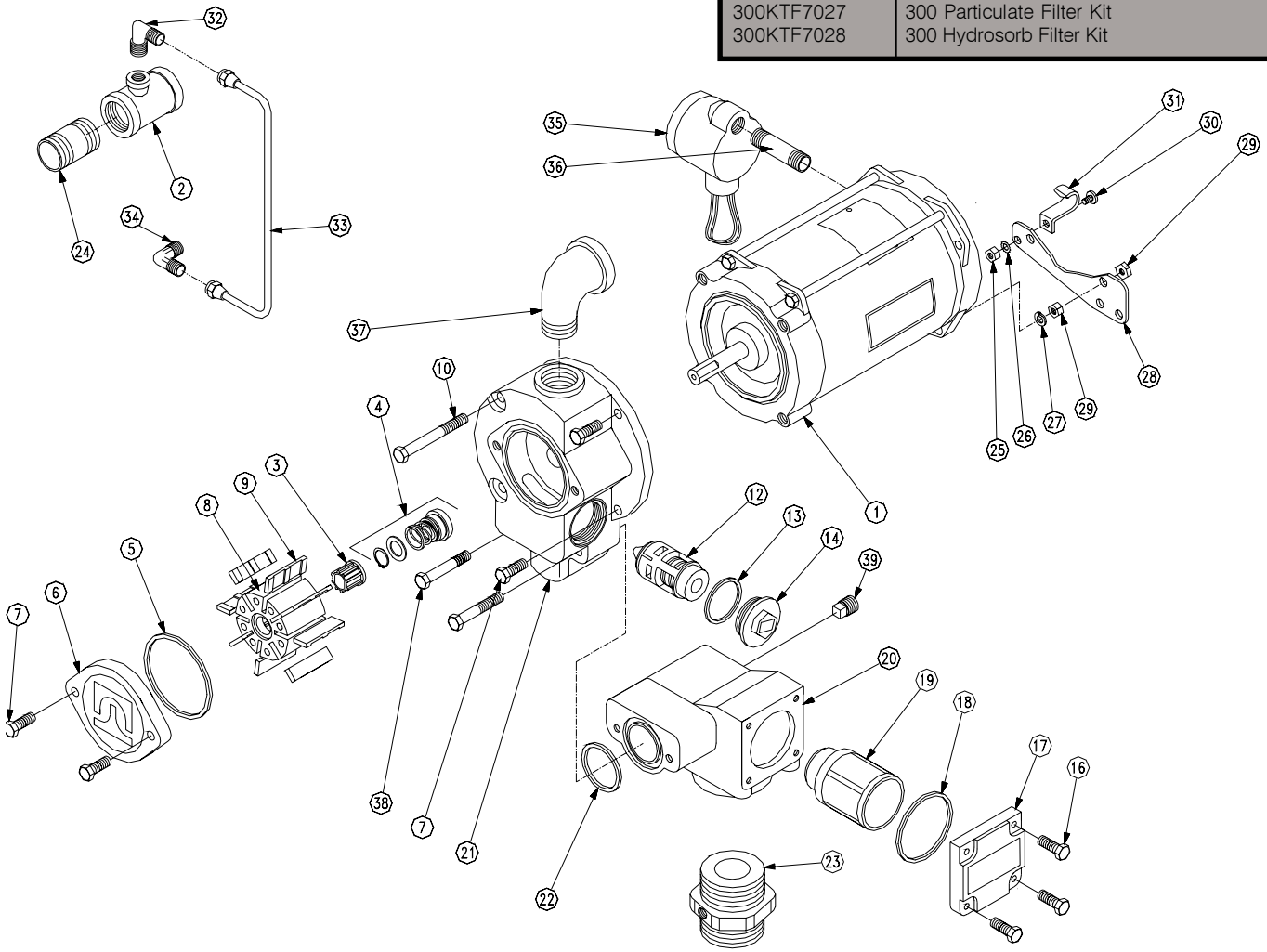
ITM. NO.	NEW PART NO. †	OLD PART NO. *	PART NO.	DESCRIPTION	QTY.	ITM. NO.	NEW PART NO. †	OLD PART NO. *	PART NO.	DESCRIPTION	QTY.
1	300F7770	300-3	F7700	Motor, 3/4 hp, 115/230 VAC, 60 Hz (313)	1	21	300F7706	300-4	F7706	Pump Housing	1
	300F7760	300-75	F7760	Motor, 1/2 hp, 115/230 VAC, 60 Hz (303)	1	22	300F7744	300-28	F7744	O-Ring Gasket (-224)	1
2	303F1048	F1048	F1048	1 x 1 x 1/4 Tee	1	23	700F0651	F0651	F0651	AST Adapter	1
3	300F7787	300-53	F7787	Rotor Insert (Included with Item 8)	1	24	304F9026	304-226	F9026	1 x 1-1/2 Nipple	1
4	700F2685	700-40K	F2685	Seal Assembly	1	25	702F3310	702-20	F3310	1/4-20 Hex Nut (Included with Item 35)	1
5	300F7743	300-27	F7743	O-Ring Gasket (-236)	1	26	702F3300	702-19	F3300	1/4 Ext. Washer (Included with Item 35)	1
6	300F2892	300-6A	F2892	Rotor Cover Assembly	1	27	-----	-----	-----	5/16 Split Lockwasher (Included w/Item 1)	2
7	704F3700	704-18	F3700	3/8-16 x 1 HHCS	4	28	-----	-----	-----	Adapter Plate (Included with Item 1)	1
8	300F7716	300-7A	F7716	Rotor (includes Item 3)	1	29	-----	-----	-----	5/16 Spacer (Included with Item 1)	2
9	300F7719	300-8	F7719	Vane, Carbon	8	30	702F3300	702-21	F3320	1/4-20 x 1/2 PHMS (Included w/Item 35)	1
10	300F7746	300-30	F7746	3/8-16 x 3 HHCS	2	31	300F7780	300-48	F7780	Junction Box Clamp (Included w/Item 35)	1
12	300F7723	300-10	F7723	Bypass Valve Assembly	1	32	304F7949	304-97	F7949	Orifice Fitting	1
13	800F4380	800-115	F4380	O-Ring Gasket (-131)	1	33	700F0649	F0649	F0649	Anti-Siphon Tube	1
14	300F7731	300-18	F7731	Bypass Cap	1	34	304F7947	304-95	F7947	1/4 O.D. Tube x 1/4 NPT Elbow	1
16	700F2810	700-16	F2810	5/16-18 x 7/8 HHCS	4	35	300F7774	300-45	F7774	Junction Box Assembly (Includes Items 25, 26, 30, 31, 36)	1
17	300F7739	300-24	F7739	Check Valve Cover	1						
18	300F7742	300-26	F7742	O-Ring Gasket (-231)	1	36	300F7748	300-32	F7748	Conduit Nipple (Included with Item 35)	1
19	300F7735	300-20	F7735	Check Valve Assembly	1	37	800F4400	800-119	F4400	1" Street El	1
20	300F7710	300-5	F7710	Lower Housing	1	38	300F7745	300-29	F7745	3/8-16 x 2 HHCS	2
						39	300F7747	300-31	F7747	Pipe Plug	1

† Effective 2/1/99

* Prior to 2/1/92

300KTF7794	Repair Kit (Includes items 3, 5, 8, 9, 12, and 13, 18, 22, 24 and F2687 Seal Kit)
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300KTF7027 300KTF7028	300 Particulate Filter Kit 300 Hydrosorb Filter Kit
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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 • Motor not operating 	<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. • Rotor should turn clockwise (FR713) or counterclockwise (303 & 313) at pump end; if not, return for repair.
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 	<ul style="list-style-type: none"> • Remove and clean strainer. • Check for leaks in suction line. • Remove and inspect valve. • Check vanes and slots for wear. • Check rotor and vanes for excessive wear or damage.
Pump runs slowly	<ul style="list-style-type: none"> • Incorrect voltage • Motor failure 	<ul style="list-style-type: none"> • Check incoming line voltage. • 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 • Motor failure 	<ul style="list-style-type: none"> • These fluids can only be pumped for short periods of time. • Remove and clean strainer. • Remove and clean pipe. • Bearing(s) tightening up; return for repair.
Motor will not turn on	<ul style="list-style-type: none"> • No power • Motor failure 	<ul style="list-style-type: none"> • Check incoming power source. • Return for repair.
Fluid leakage	<ul style="list-style-type: none"> • Bad O-ring • Check valve not seated • Dirty seal • Bad seal 	<ul style="list-style-type: none"> • Check all O-ring gaskets. • Make sure check valve or check valve alternate is in place. • Clean and reseal seal. • Replace seal.

Fill-Rite: A Worldwide Reputation for Reliability.

For over 40 years, people all over the world who have needed tough, dependable pumps have insisted on Fill-Rite products. For them, Fill-Rite has been "the reliable red pump" that keeps on working even under the toughest of conditions. We're proud of the reputation our hand pumps, DC and AC pumps and meters have earned. Today they're only a part of the rapidly expanding Fill-Rite line.

Applying the Science of Fluid Transfer.

An active research and development program is the centerpiece of our ongoing commitment to respond to new fluid transfer opportunities. This has led to new products and to new technologies and new facilities to produce these products.

To bring this advanced technology to market, we have invested in precision engineering and testing equipment. This improves our ability to produce fluid handling equipment that meets market demands for quality, performance and price.

A Hard Working Support Network.

Just as important as these capabilities are the people behind them - our design and production personnel. They give you the ability to specify systems that meet the most challenging of applications. With them, you can be assured of prompt, intelligent answers to your fluid transfer questions.

To service customers in the field, we've put together a select, well-monitored team of distributors. Throughout the world, they are ready to help you with technical advice, ordering and delivery.

Fill-Rite will always stand for reliable red pumps and fluid handling equipment. We'll continue to develop new products and production techniques to keep pace with ever changing technologies. Each of our products will always be made with the same care and quality that made our pumps famous.

Fill-Rite Division of Tuthill Corporation ("Manufacturer") warrants to each buyer of its products (the "Buyer") for a period of 12 months from date of installation but in no event more than 18 months from date of manufacture that goods of its manufacture ("Goods") will be free from defects of material and workmanship. Specific to Series 10, 12, 20, and 22, Warranty is understood not to exceed 6 months and is specific to all related items. Manufacturer's sole obligation under the foregoing warranties will be limited to either, at Manufacturer's 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. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR CONSEQUENTIAL DAMAGES, NOR

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 AND 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.

PRODUCT WARRANTY

FILL-RITE



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CORPORATION

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