

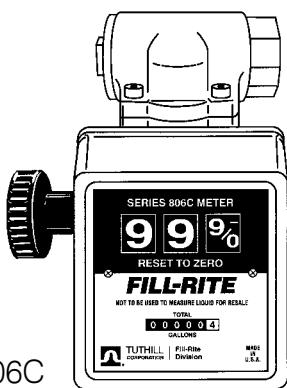
Pump System Technology

FILL-RITE

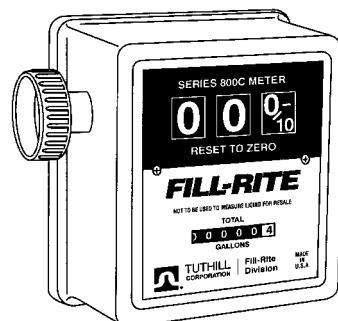
Owner's Operation & Safety Manual

SERIES 800C METER

For models 806C, 807C



Model 806C



Model 807C

OUTSTANDING FEATURES

- 5 to 20 GPM / 19 to 76 LPM flow rate
- $\pm 1\%$ accuracy
- 3/4" or 1" NPT flow ports
- Large, easy to read numbers
- Quick reset knob
- Totalizer
- UL/CSA Listed



www.tuthill.com

8825 Aviation Drive
Fort Wayne, Indiana USA 46809
Tel 219 747-7524 Fax 219 747-3159

Dear Fill-Rite Customer,

Thank you for buying a Fill-Rite product. We believe that you have bought the best. This piece of literature contains information about your new equipment and its operating and service requirements. Please take a few minutes to read it carefully.

Fill-Rite's products are distributed around the world and are the result of people at Fill-Rite working together to design, manufacture, sell, ship and service products which meet the needs of each and every customer.

If, for any reason, any of our products do not meet your performance expectations, we would like to hear from you. Our best sales force is you, our customer, and we want you to be satisfied. We appreciate your purchase of a Fill-Rite product and look forward to providing your future equipment needs.

Sincerely,

George P. Jenkins
President

- EPDM O-rings
- BSPT threads

SAFETY

The safety of Fill-Rite Series 800 meters is proven by their listing with the following agencies.



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



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FILL-RITE DIV
TUTHILL CORP
MR R NALLENWEG, DIRECTOR OF ENGRG
PO BOX 9100
FT WAYNE IN 46899



Your most recent listing is shown below. Please review this information and report any inaccuracies to the UL Engineering staff member who handled your UL project.

PLRZ
Flammable Liquid Meters

July 25, 1997

FILL-RITE DIV TUTHILL CORP
8825 AVIATION DR, FT WAYNE IN 46809
Models 806B, 806C, 807B, 807C, 886, 887; Series 900.

MH8290 (N)

LOOK FOR LISTING MARK ON PRODUCT

Replaces MH8290 dated May 11, 1995.
Underwriters Laboratories Inc.®

K11/0072005
76

For information on placing an order for UL Listing Cards in a 3 x 5 inch card format, please refer to the enclosed ordering information.

UNDERWRITERS LABORATORIES INC.

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SAFETY INSTRUCTIONS

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

1. **Improper use or installation of this product can cause serious bodily injury or death.**
2. Do NOT smoke near meter or use meter near an open flame when dispensing flammable fluids. Fire could result.
3. This product should not be used for fluid transfer into aircraft.
4. This product is not suited for use with fluids for human consumption.

GENERAL DESCRIPTION

The Fill-Rite Series 800C meter is a nutating disc flow meter. The meter uses wheel counters for registering either U.S. gallons or liters. The U.S. gallon meter has two unit wheels and a tenth wheel which can be reset to zero. Its totalizer has five unit wheels and a tenth wheel. The liter counter has three unit wheels which can be reset to zero. Its totalizer has six unit wheels.

OPTIONS

- Liter registers
- 1" NPT Flow Ports
- Teflon or nickel coatings

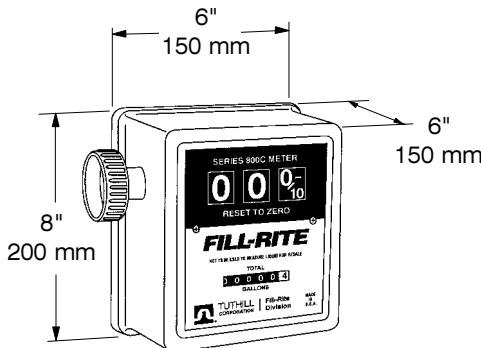
TECHNICAL INFORMATION

Design Features

- 3/4" or 1" NPT female inlet and outlet ports
- Recommended for 5 to 20 GPM (19 to 76 LPM) output
- $\pm 1\%$ accuracy
- 50 PSI maximum pressure
- Meters fluid at temperatures from -15°F (-26°C) to 150°F (66°C)
- Weatherproof, corrosion resistant
- Zero reset unit wheels have large 11/16" figures
- Easy to read totalizer registers to 99,999.9 gallons
- Compact design - 8" x 6" x 6" (200 x 150 x 150 mm)

- Convenient, large reset knob
- Not for resale use
- Maximum viscosity of fluid: Diesel Fuel
- Pressure drop* through meter:
5 GPM (19 LPM) --1 psid (0.07 bar)
10 GPM (38 LPM) --2 psid (0.14 bar)
20 GPM (76 LPM) --8 psid (0.55 bar)

*Nominal data based on mineral spirits. Actual pressure drop may vary.



Fluid Compatibility

The 800C is compatible with the following fluids:

- Diesel Fuel, Gasoline, Kerosene, Mineral Spirits, Hep-tane, and Hexane

The 800C is NOT compatible with the following fluids:

- Bleach, Hydrochloric Acid, Ink, Motor Oil, and Salt Water

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

INSTALLATION

Meters are furnished for horizontal piping, left to right flow, unless otherwise specified. Use oil and gasoline resistant pipe compound on all threaded joints. Flow ports can be located in any of four positions for horizontal or vertical piping.

1. Determine direction of fluid flow.
2. Rotate meter so that counter points slightly down. This prevents parts from falling out when casting is separated.
3. Remove four screws (item 20) and meter housing (item 19).
4. Lift and rotate chamber assembly (item 26) so that chamber inlet points toward where the meter housing inlet will be.
5. Rotate meter housing (item 19) to desired position. Make sure chamber inlet is also pointing in the same direction.
6. Replace four screws (item 20).

ASSEMBLY /DISASSEMBLY

Meter consists of a chamber housing, measuring chamber, gear train, counter assembly and cover. Meter can be

completely disassembled without disturbing piping, or meter can be partially disassembled as required.

Counter Assembly

For access to counter assembly, remove reset knob (item 3) by grasping edges and pulling firmly. Knob is held in place by a spring clip. Loosen two screws (item 29) and lift counterface (item 2) and cover (item 1) off. Remove two screws (item 13) to extract counter (item 4). Reassemble by reversing procedure.

Meter Chamber Assembly

To expose meter chamber assembly, tilt the meter at least slightly face down, so that no parts fall out when removing meter housing. Remove the four screws (item 20), then remove meter housing (item 19). Meter chamber assembly consists of upper and lower chambers, a nutating disc and seal gasket. Reassemble by reversing procedure.

If replacement of any components of the meter chamber assembly is required, the complete assembly must be replaced due to the precise method of its construction. This assures a proper fit and a correctly operating chamber.

Gear Train and Seal

To disassemble gear train and seal, remove gear frame (item 12) by prying slightly. Remove cluster gear (item 10) and washer (item 11) from shaft (item 9). Remove drive gear (item 8) and washers (item 7) by rotating and pulling drive gear. Remove O-ring seal (item 6).

When reassembling seal, lubricate O-ring liberally with oil or petroleum jelly and replace in cover. Place washer on drive gear shaft. Rotate and push shaft through O-ring and cover carefully to prevent damage to O-ring. Shaft must then be guided into pinion bevel (item 28) if counter has not been removed. Replace remaining parts to complete assembly by reversing disassembly procedure.

CALIBRATION

The Fill-Rite Series 800C meters can be calibrated for either U.S. gallons or liters. Calibration is required after disassembly, when metering a different fluid, or after significant wear. Depending on the model, Series 800C meters are calibrated at the factory, metering Stoddard solvent in either U.S. gallons or liters.

Meter calibration can be easily changed by following the calibration procedure listed below. A proving container or a container of KNOWN volume will be needed for the calibration procedure. It is recommended that the container's volume be at least five times larger than the unit of calibration. For example, a five gallon container should be used when calibrating for gallons.

Procedure for Calibration

1. Fill container to a known volume.

- If indicated amount does not match known volume, insure pump is off and pressure relieved, then remove seal screw (item 23) and turn calibration screw (item 21) counterclockwise to reduce indicated amount or clockwise to increase the amount. A full turn will change the indicated amount by approximately 0.1 Gal. (0.4L). Reinstall seal screw.
- Repeat step 2 until calibration is acceptable.

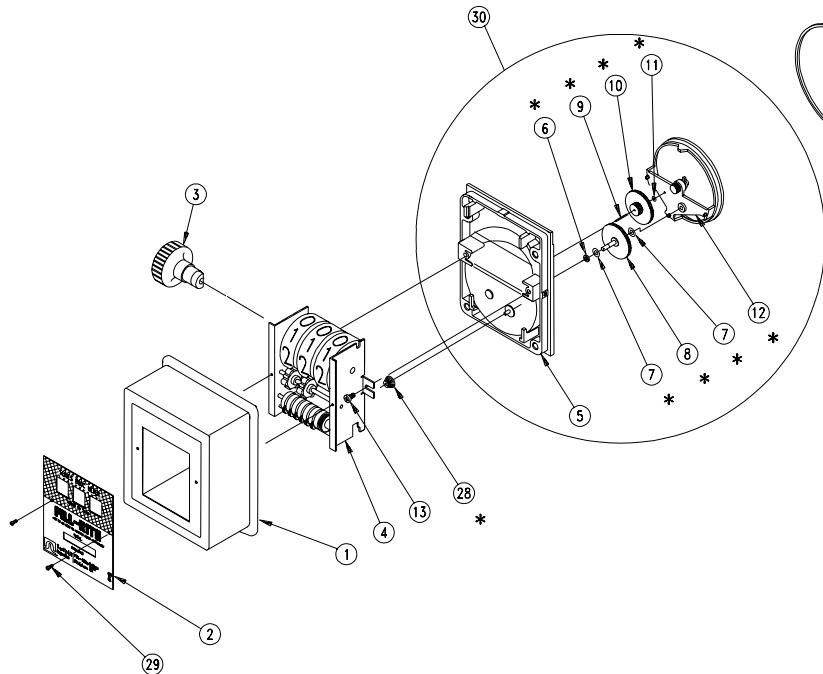
OPERATING INSTRUCTIONS

For accurate measurement, meter and piping must always be filled with liquid and free of air. Meter should be calibrated per instructions in this manual prior to its use.

- Reset meter to "0".
- Meter is ready for use. Do not exceed 50PSI line pressure.

MAINTENANCE

Meter should operate maintenance free. However, certain liquids can dry out while in the meter housing, causing meter to stop. If this happens, meter should be thoroughly cleaned (see instructions below).



Cleaning Instructions

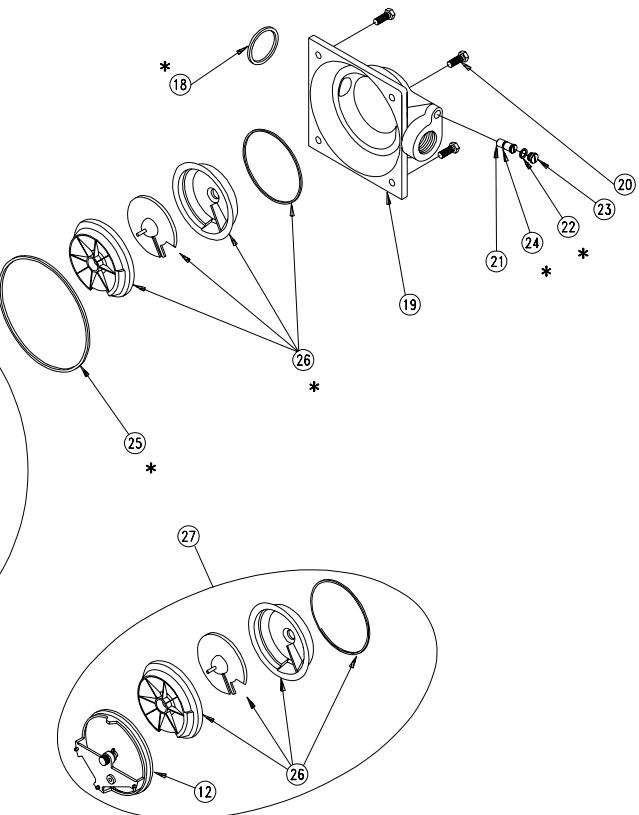
Run a flushing fluid through meter. For a more thorough cleaning, disassemble meter per "ASSEMBLY/DISASSEMBLY" section, "Meter Chamber Assembly" subsection. Rinse all meter components. Recalibrate meter following calibration instructions above.

Storage

If meter is to be stored for a period of time, clean thoroughly. This will help protect meter from damage.

REPAIR

Meters needing repair should be taken to an authorized repair shop or returned to factory for service. Meters must be thoroughly triple-rinsed before being taken in for repair.



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

TOLL FREE CUSTOMER SERVICE

NUMBER

800 634 2695

*These parts are in the 800C Series Repair Parts Kit..

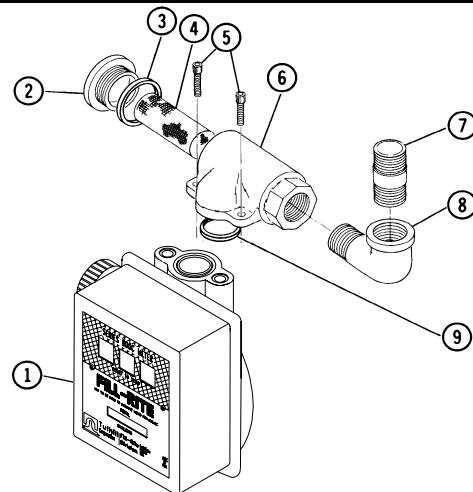
800C METER PARTS LIST

ITEM. NO.	PART NO.	DESCRIPTION	MATERIAL OF CONSTRUCTION	QTY.
1	800F4132	Counter Cover		1
2	800G0208	Counter Face, U.S. Gallon		1
	800G0241	Counter Face, Liter		Opt.
3	800F4261	Knob Assembly		1
4	800F4080	Counter - U.S. Gallon		1
	800F4081	Counter - Liter		Opt.
5	800G2246	Meter Cover	Aluminum	1
	800G2247	Meter Cover, Nickel Plated		Opt.
	800G2248	Meter Cover, Teflon Coated		Opt.
6	800F4191	O-Ring (5-106)	Fluorocarbon	1
	800F4033	O-Ring (5-106)	EPDM	Opt.
7	800F3980	Washer	Stainless Steel	2
8	800F3845	Drive Gear (70T) - U.S. Gallon	Ryton	1
	800F3846	Drive Gear (84T) - Liter	Ryton	Opt.
	800F4185	Drive Gear (73T) - Imperial Gallon	Ryton	Opt.
9	800F3820	Shaft, Cluster Gear	Stainless Steel	1
10	800F3841	Cluster Gear (22T/67T) - U.S. Gallon	Ryton	1
	800F3843	Cluster Gear (10T/67T) - Liter	Ryton	Opt.
	800F3541	Cluster Gear (19T/67T) - Imperial Gallon	Ryton	Opt.
11	800F3830	Washer	Stainless Steel	1
12	800G2250	Gear Frame Assembly	Ryton and Stainless Steel	1
13	900F4007	#8-32 x 5/16 PHMS ACR II		2
18	700F2800	O-Ring (-218), Buna-N (For 800A, 700A/B)		Opt.
	700F2801	O-Ring (-218), Fluorocarbon (For 800A, 700A/B)		Opt.
	800G2601	O-Ring (-218), EPDM (For 800A, 700A/B)		Opt.
19	800G2236	3/4 Inlet - 3/4 Outlet Housing	Aluminum	1
	800G2237	3/4 Inlet - 3/4 Outlet Hsg., Nickel Ptd.		Opt.
	800G2238	3/4 Inlet - 3/4 Outlet Hsg., Teflon Ctd.		Opt.
	800G2242	1 Inlet - 1 Outlet U.S. Housing		Opt.
	800G2243	1 Inlet - 1 Outlet U.S. Hsg., Nickel Ptd.		Opt.
	800G2244	1 Inlet - 1 Outlet U.S. Hsg., Teflon Ctd.		Opt.
	800G2255	1 Inlet - 1 Outlet BSPT Housing		Opt.
	800G2256	1 Inlet - 1 Outlet BSPT Hsg., Nickel Ptd.		Opt.
	800G2257	1 Inlet - 1 Outlet BSPT Hsg., Teflon Ctd.		Opt.
20	700F2810	5/16-18 x 7/8 HHCS		4
21	800F4463	Calibration Screw (Includes Item 24)	Stainless Steel	1
22	800F4449	O-Ring (-012)	Fluorocarbon	1
	800F3389	O-Ring (-012)	EPDM	Opt.
23	800F4440	Seal Screw	Stainless Steel	1
24	800F4036	O-Ring (-008) (Included with Item 21)	Fluorocarbon	1
	800F4034	O-Ring (-008), EPDM		Opt.
25	800F4010	O-Ring (-156), Buna-N		1
	800F4011	O-Ring (-156), Fluorocarbon		Opt.
	800F4032	O-Ring (-156), EPDM		Opt.
26	800G2262	Meter Chamber Assembly - Buna-N	Ryton, Stainless Steel, Buna-N	1
	800G2599	Meter Chamber Assembly - Fluorocarbon	Ryton, Stainless Steel, Fluorocarbon	Opt.
	800G2600	Meter Chamber Assembly - EPDM	Ryton, Stainless Steel, EPDM	Opt.
27	800G2531	Meter Chamber Assembly, Buna-N (Includes Items 12 & 26)		1
28	800F3959	Pinion Bevel		
29	800F2221	#4-6 x 3/8 PHMS Type AB		2
30	800G2532	Cover Assembly - U.S. Gallon		1
	800G2533	Cover Assy. - U.S. Gallon - Nickel Ptd.		Opt.
	800G2534	Cover Assy. - U.S. Gallon - Teflon Ctd.		Opt.
	800G2535	Cover Assembly - Liter		Opt.
	800G2536	Cover Assembly - Liter, Nickel Plated		Opt.
	800G2537	Cover Assembly - Liter, Teflon Coated		Opt.
	800G2544	Cover Assembly - Imperial Gallon		Opt.
	800G2765	Cover Assy. - U.S. with EPDM Seal		Opt.
	800G2778	Cover Assy. - U.S. Nickel with EPDM Seal		Opt.
	800G2900	Cover Assembly - Liter with EPDM Seal		Opt.

800B/800C SERIES REPAIR PARTS KITS

PART NO.	DESCRIPTION
800KTG2540	Repair Kit, U.S. Gallon (Standard Seals) (Includes items 6-12, 18, 22, 24-26, 28)
800KTG2541	Repair Kit, U.S. Gallon (Viton Seals) (Includes items 6-12, 18, 22, 24-26, 28)
800KTG2542	Repair Kit, Liter (Standard Seals) (Includes items 6-12, 18, 22, 24-26, 28)
800KTG2543	Repair Kit, Liter (Viton Seals) (Includes items 6-12, 18, 22, 24-26, 28)
800KTG2579	Repair Kit, U.S. Gallon, (EPDM Seals) (Includes items 6-12, 18, 22, 24-26, 28)

800C SERIES STRAINER KIT



800B TO 800C CONVERSION KIT

PART NO.	DESCRIPTION
800F4134	Conversion Kit Includes items 1, 2, & 29

ITEM. NO.	PART NO.	DESCRIPTION	QTY.
1	800G1325 800G2727 800G1387 800G1998 800G2705 800G1440	806C, 1", U.S. Gallon 806C, 1", U.S. Gallon, Nickel Plated 806C, 1", U.S. Gallon, Teflon Coated 806C, 1" BSP, Liters 806C, 1" BSP, Liters, Nickel Plated 806C, 1" BSP, Liters, Teflon Coated	1 Opt. Opt. Opt. Opt. Opt.
2	800F4360 800F4362 800F4361	Cover Cover, Nickel Plated Cover, Teflon Coated	1 Opt. Opt.
3	800F4380 800F4381	O-Ring (-131), Buna-N O-Ring (-131), Viton	1 Opt.
4	800F4350	Screen	1
5	800F4320	5/16-18 x 7/8 SHCS	2
6	800F4340 800F4343 800F4342	Strainer Housing Strainer Housing, Nickel Plated Strainer Housing, Teflon Coated	1 Opt. Opt.
7	800F4337 800F4339 800F4338 800F4390	Strainer Housing, BSP Threads Strainer Housing, BSP Threads, Teflon Strainer Housing, BSP Threads, Nickel 1 x 2 Pipe Nipple	Opt. Opt. Opt. 1
8	800F4400	1" Street Elbow	1
9	700F2800 700F2801	O-Ring (-218) O-Ring (-218), Viton	1 Opt.
	TH18 TH18T TH18X418 TH18TX418	Strainer Kit, 1", U.S. (Includes items 2-6, 9) Strainer Kit, 1", U.S., Teflon Ctd. (items 2-9) Strainer Kit, 1" BSP (Includes items 2-6, 9) Strainer Kit, 1" BSP, Teflon Ctd. (items 2-6, 9)	

NOTE: OTHER REPAIR AND STRAINER KITS AVAILABLE UPON REQUEST.

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Counter reading high or low	• Calibration off • Air in product • Measuring chamber or gears sticking	• Recalibrate meter. • Find and repair air leaks in system. • Clean or replace internal metering components.
Shaft seal leakage	• Dirty seal • Bad seal	• Clean O-ring seal and seat area. • Replace seal.
Gasket leakage	• Loose joints • Dirty gasket • Bad gasket	• Tighten joints. • Clean gasket and seat area. • Replace gasket.
Low capacity	• Clogged meter chamber • Clogged screen (806C)	• Clean meter chamber. • Clean screen.
Meter body cracks	• High pressure	• Install pressure relief valve to allow bleed back to tank.
Nutating disc breaks	• Flow surge	• Put shut-off valve on outlet of meter • Place meter as close as possible to pump