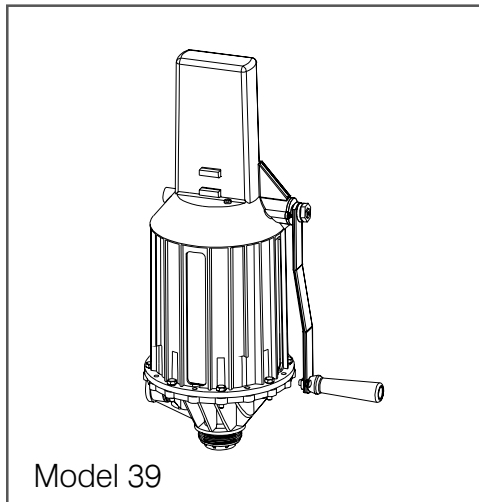


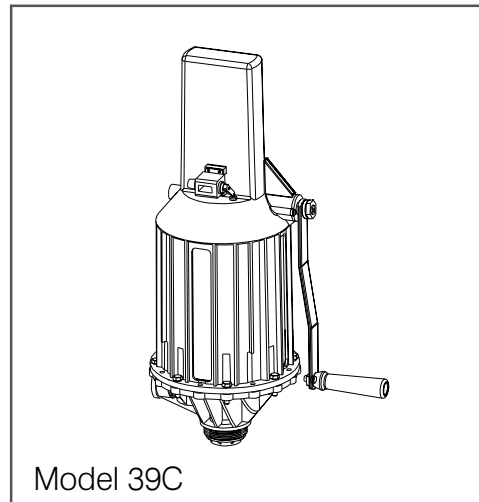


SERIES 39 VOLUMETRIC HAND PUMPS

For Models 39, 39C, 39L, 39CL



Model 39



Model 39C

PATENT NO. 5713723

OUTSTANDING FEATURES

- Visible volumetric pumping chamber
- Accurately dispense one gallon or four liters per full stroke
- Adapts to barrels, mini-bulk tanks and drums
- Self-priming
- Telescopic suction pipe
- Discharge hose with ball valve & anti-drip spout



TUTHILL CORPORATION

Sotera Systems

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Fort Wayne, Indiana USA 46809
Tel 219 747-9060 Fax 219 747-3934


Dear Sotera Customer,

Thank you for buying a Sotera product. Sotera Systems represents a new age in transferring plant protection products. This owner's manual contains valuable information about your new equipment and its operating and service requirements. Please take a few minutes to review this material carefully.

Sotera Systems' mission is to provide handling systems for the agricultural industry that deliver the most accurate, safe, convenient and economical transfer systems for users of plant protection products.

If, for any reason, any of the products do not meet your performance expectations we want to hear from you. Your comments and suggestions are requested and appreciated. Thank you again for buying a Sotera Systems product. We look forward to serving you in the future.

Sincerely,

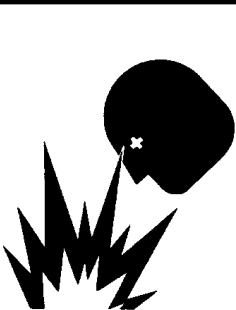


Ron C. Bulloch
Vice President, Sales

SAFETY INSTRUCTIONS

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

1. Agricultural fluids flowing through the pump may be harmful to your health. Use and disposal of these products is controlled by federal, state or local laws and procedures.
2. Conform to fluid manufacturer's recommended handling procedures when using product and when cleaning pump.
3. Use Teflon tape or chemical resistant pipe compound on all threaded joints to avoid leakage of fluid. The 2" threaded port on pump inlet uses gasket 35F1312 and does not require a sealant.
4. Leave plunger all the way down when pump is not in use. Store pump out of direct sunlight.



DANGER

Not for use with fluids that have a flash point below 100°F (37.8°C, ie: gasoline, alcohol). Refer to NFPA 325M (Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids) for flash points of common liquids. Static electricity buildup and discharge could result in arc and explosion.

GENERAL DESCRIPTION

The Sotera Systems Series 39 volumetric hand pump is manufactured from top quality, durable polypropylene and pumps one gallon or four liters with every full plunger stroke. The visible pumping chamber allows smaller quantities to be accurately dispensed in ounces or milliliters.

TECHNICAL INFORMATION

Design Features

- Self-priming to 6 feet (1.8 meters)
- 1" NPT inlet and outlet
- 2" NPS bung mounting threads on inlet
- Telescopic suction pipe for drums up to 38" (.96 meters)
- Adaptable for barrels, storage tanks and drums
- Accurate to better than 1% (1.3 oz. or 38 ml. per full stroke)
- Pump can vent the tank being pumped from or be sealed to the tank using the 35F1312 Bung Gasket.
- Hose kit with anti-drip spout (39F1841)
- Maximum operating temperature: 110°F (43°C)
- Minimum operating temperature: 20°F (-6°C)

OPTIONS

- Gallon or liter graduations
- Buttress adapter (35F0615)
- Counter
- Support kit (39F1832) for mounting on polypropylene drums

Fluid Compatibility

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

Polypropylene Body	Hastelloy-C Valve Springs
Fluorocarbon Seals	Barex® Measuring Chamber

Compatible Fluids

Antifreeze (Ethylene Glycol)	†Maxim®
†Apron®	Methyl Parathion
Atrazine	Micro-Tech®
Bicep®	Motor Oil
Coolant Oil	Nufos®
Diesel	Roundup®
†Dividend®	Touchdown®
DuPont Assure II®	Transmission Fluid
Fallow Master®	Treflan®
FMC Furadan 4F®	2 PLus 2®
Harness Xtra®	Warrior®
Hydraulic Oil	Water
Malathion	Zinc Chloride

†Requires self-lubricating o-ring

Non-compatible Fluids

Assert® Herbicide	Methylene Chloride
Acetone	Nitric Acid
Goal 2XL®	Paint Remover
Hydrochloric Acid 30%	Potassium Hydroxide
Hydrofluoric Acid 25%	Sodium Hydroxide (50%)
Hydrogen Peroxide 30%	Sulfuric Acid
MEK	Toluene
Methanol	

Before using with acids or aggressive chemicals, check compatibility or consult the manufacturer.

INSTALLATION

Use Teflon tape or appropriate chemical resistant pipe compound on all threaded joints.

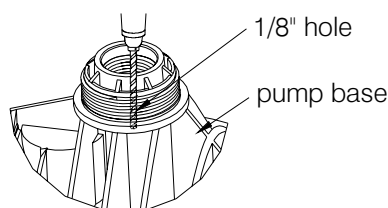
1. Lubricate o-ring at threaded end of the suction tube.
2. Screw suction tube into pump body and tighten firmly until o-ring is seated in bore. Extend telescoping tube to the approximate length of the tank.
3. Slide suction tube and pump into tank or drum.
4. Screw pump into tank or drum.

NOTE: Fill-Guard one way tank fittings (requires (2) 35F1312 gaskets)

TANK VENTING

In most cases, it is desirable to vent the drum or tank being pumped from to prevent the container from collapsing. In some cases special vents are required that do not allow fluid to escape should the tank tip over.

The Model 39 pump is self venting when screwed into a typical drum when the 35F1312 bung gasket is **not** used. If venting is not sufficient (i.e. the tank begins to collapse) an additional vent hole can be drilled as shown.



Use the 35F1312 bung gasket when the pump must be sealed to the tank. If using a Fill-Guard fitting, the two 35F1312 gaskets are required to seal the pump to the Fill-Guard.

QUICK DISCONNECT COUPLERS

NOTE:

When using the Series 39 volumetric hand pump with the MICROMATIC® Drum Valve coupler on plastic drums, the pump needs to be held stable to prevent the coupler from allowing air to leak in. Firmly grasp the top of the pump with one hand while rotating the pump handle to prevent the coupler from rocking. The 39F1832 support kit will help to prevent rocking of the coupler.

The 39 pump is compatible for use with the following quick-disconnect couplers on drums or tanks:

- MICROMATIC® "Macro Valve" coupler used with Stainless Steel kegs.
- Scienco® Products Clean Lock™

Barex® is a registered trademark of BP Chemical. Treflan® is a registered trademark of Dow AgroSciences. Assure II® is a registered trademark of DuPont. Furadan 4F® is a registered trademark of FMC Corporation. Bicep®, Dividend®, Maxim®, & Apron® are registered trademarks of Novartis Corporation. Assert® is a registered trademark of American Cyanamid Company. Fallow Master®, Harness Xtra®, & Roundup® are registered trademarks of Monsanto Corporation. Touchdown® & Warrior® are registered trademarks of Zeneca. 2 Plus 2® is a registered trademark of Isk Biosciences. Nufos® is a registered trademark of Cheminova. Goal 2XL® is a registered trademark of Rohm and Haas. Micromatic® is a registered trademark of Micromatic USA, Inc. Scienco® and Clean Lock™ are registered trademarks of Ingersoll-Dresser Pump Company.

OPERATION

1. Prime Pump: Pump must be primed and purged of air to be accurate. If using a hose, prime the hose as well. The anti-drip spout supplied with the 39 pump will keep the hose primed for best results. (See diagram and complete instructions on page 5.)
2. Grasp the top of the pump with one hand while rotating the crank with the other. Turn the crank clockwise until it stops to get a full gallon. Turn the crank counter clockwise to discharge fluid.
3. Measure from the bottom of the plunger (actual fluid level), when dispensing less than a full stroke.
4. Counter, if present, is activated only if a full stroke is made.
5. Leave plunger all the way down when not in use.

MAINTENANCE

The Series 39 Volumetric Hand Pump was designed for years of service. Please follow these simple maintenance instructions during periods of inactivity and winterization to keep the pump in peak operating condition.

Flushing

To flush the pump, pump two or three gallons of clean water through the pump and hose, then pump air through the pump to eliminate the water. Rinsate should be disposed of properly.

Storage

Pump should be flushed, purged of liquid, and stored out of direct sunlight. Fluid **should not** be allowed to freeze in pump. Leave plunger all the way down when not in use.

SERVICE

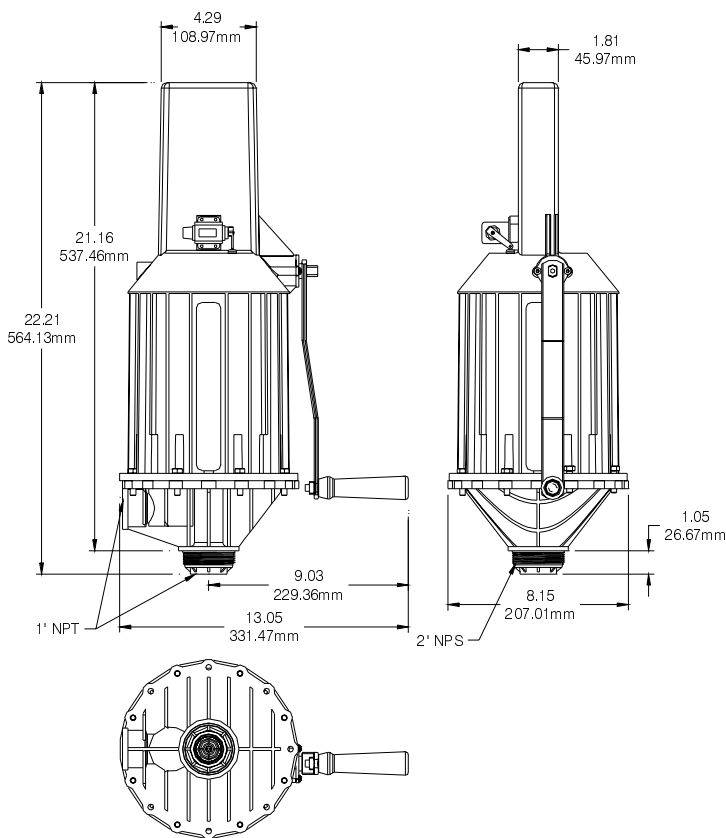
(Refer to exploded view)

1. Flush pump regularly when pumping corrosive fluids or fluid that will harden.
2. To lubricate the pinion and rack, remove two screws (Item 6) from the handle side of pump and pull out the pinion and handle assembly. Apply a liberal coat of thick grease to the pinion. Reinstall pinion and tighten screws to snug. **Do Not** over tighten screws.
3. To lubricate or replace plunger o-ring, the base assembly must be removed from the pump to access the plunger. Turn crank until plunger just sticks out of the tube. (Note: To completely remove the piston and rack, you must first remove the pinion and handle assembly. See #2 above.) Install a new o-ring if needed, being sure it is not twisted when installed. Liberally apply lubricant to the plunger o-ring. Carefully reinstall the plunger by pulling it in with the crank. Reassemble pump.
4. To position the handle so it is pointing down when plunger is at the bottom of the stroke, remove the pinion and handle assembly as described in #2 above.
5. To replace measuring tube, remove base and plunger. Remove tube. Note the tube stop on the inside of the shroud. Insert new tube, lining up graduation marks with windows on shroud. Install plunger and reassemble pump.
6. Inlet and outlet check valves require special tools to install; thus, they are only available in the base assembly.

REPAIR

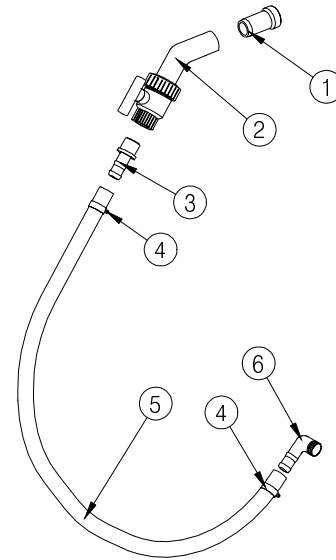
Pumps being returned for service must be triple-rinsed and accompanied by an MSDS sheet indicating the chemicals/fluids which have been pumped. Pumps not adhering to these specifications may be refused service at our repair shop. Complete return procedure listed in our Product Guide.

DIMENSIONS & RISER ADAPTER



Part #35F0151 optional 2" riser for Bonar 55 L (14.5 gal.) Tote, or other tank that has tall sides that prevent the pump from being threaded in.

39F1841 HOSE KIT



ITM. NO.	PART NO.	DESCRIPTION	QTY.
1	400F0237	Anti-Drip Spout	1
2	400G7006	1" Ball Valve/Nozzle	1
3	400F1672	1" Hose Barb	1
4	400F1671	Hose Clamp	2
5	39F1813	1" ID EVA Hose	10 ft.
6	39G7046	1" Elbow Hose Barb	1

Hose kit capacity

54.5 oz. (1625 ml) total fluid contained in 39F1841 10 ft. hose kit

- 1" I.D. hose holds 5oz. (148 ml) of liquid per foot of hose.
- 1" ball valve and Anti-drip nozzle holds 4.5oz. (133 ml) of fluid.

To Prime The Pump And Hose Kit:

The following simple procedure for priming the Series 39 when used in conjunction with the 39F1841 hose kit will help you maximize volumetric accuracy.

1. Be sure all fittings are tight. Use Teflon tape or chemical resistant pipe compound on all threaded joints.
2. Raise the plunger until a small amount of fluid enters the chamber (Figure 1).
3. Reverse the direction and bottom out the plunger.
4. Raise the plunger to the maximum height. Little or no air should now be present.
5. Raise the hose up above the pump, as shown in Figure 2, so all air in the hose moves up toward the nozzle.

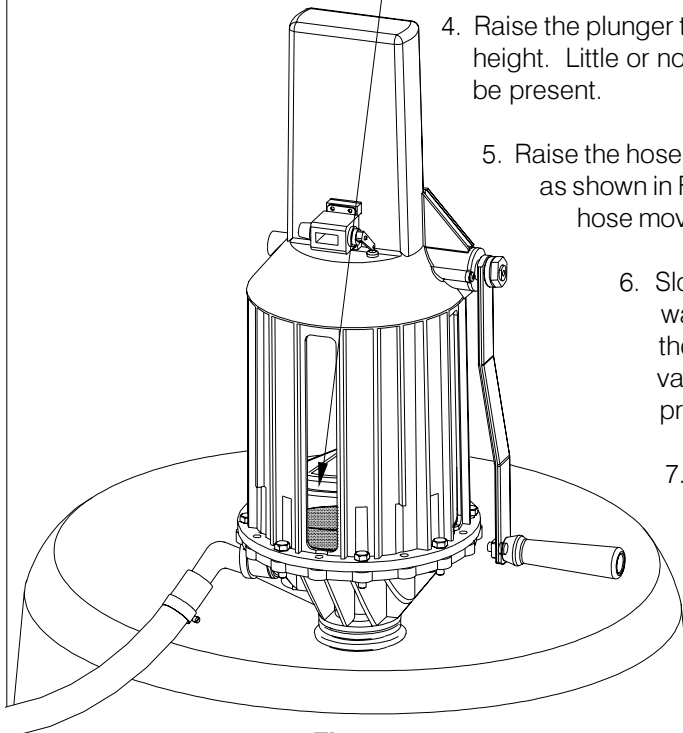


Figure 1

6. Slowly lower the plunger, watching the liquid level in the hose until it reaches the valve. Pump and hose are now primed and ready to pump.

7. After dispensing, shut off the outlet valve and tap the spout inside the tank to remove back pressure from the anti-drip spout.

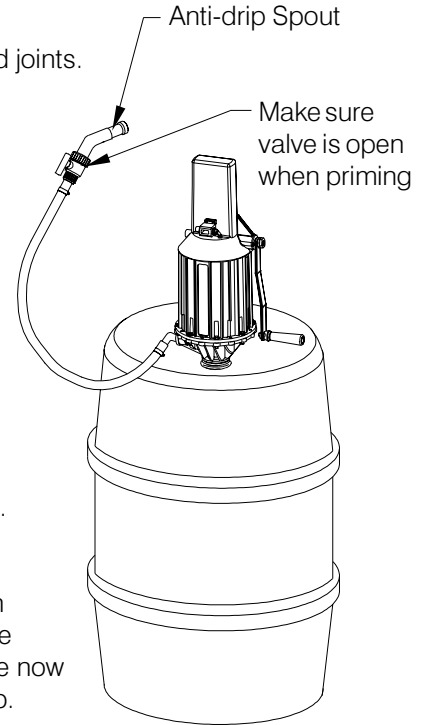
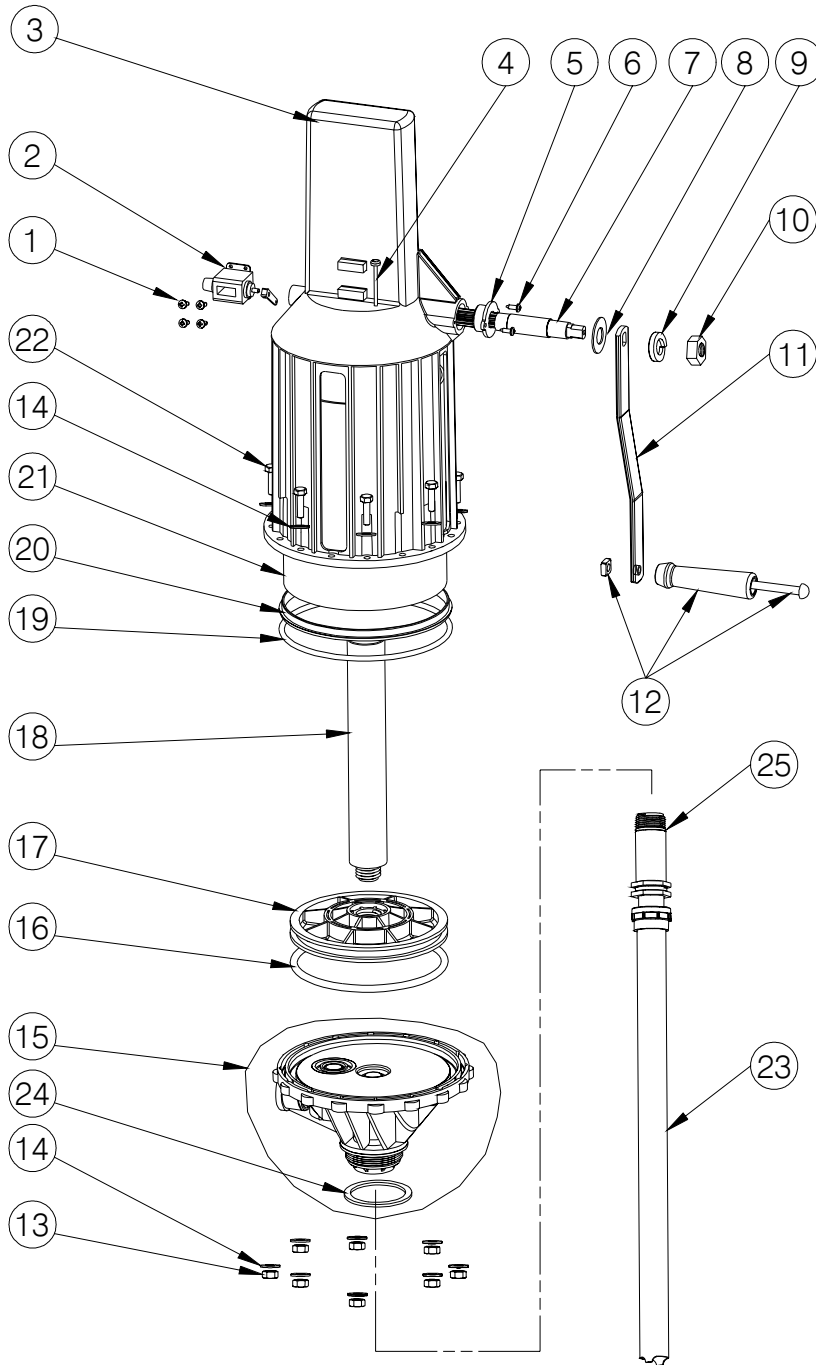


Figure 2

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pump will not prime	<ul style="list-style-type: none"> • Suction line problem • Check valve problem • Plunger o-ring damaged 	<ul style="list-style-type: none"> • Check for leaks in suction line. • Inspect inlet & outlet valves. • Replace o-ring.
Air in pump chamber	<ul style="list-style-type: none"> • Suction tube leak or problem • MicroMatic drum valve leaking air • Loose suction fittings 	<ul style="list-style-type: none"> • Is suction tube o-ring seated into base? Is suction tube damaged? • Hold pump steady on MicroMatic coupler. Stabilizer kit 39F1832 may help prevent air induction. • Use Teflon tape on all suction connections. Tighten until very snug.
Pump fluid leakage above plunger	<ul style="list-style-type: none"> • Worn plunger seal • Worn /damaged tube 	<ul style="list-style-type: none"> • Replace plunger o-ring. • Replace Tube



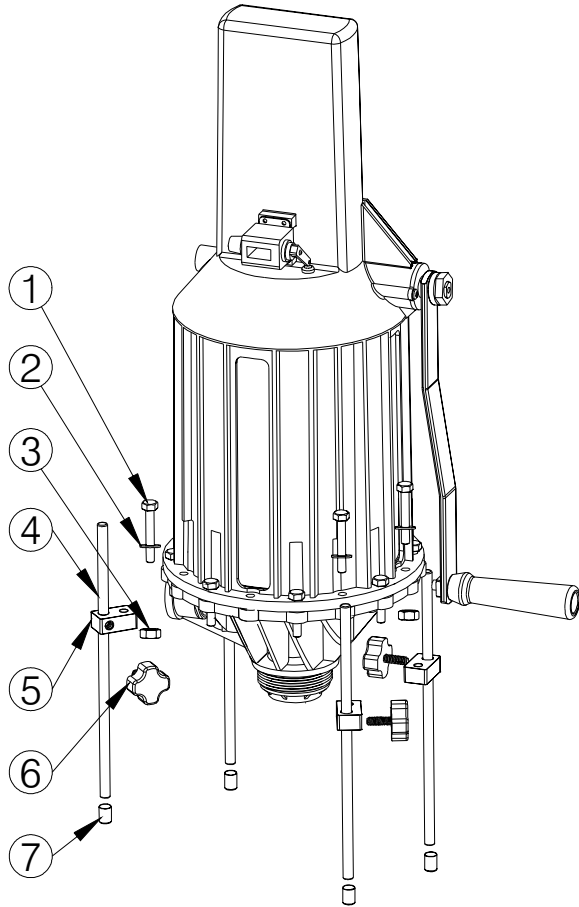
MODEL 39 PARTS LIST

ITM NO.	PART NO.	DESCRIPTION	QTY
1	35F1397	Screw, #4 x 3/8", 4 required	Opt.
2	35F1292	Counter with Lever Arm	Opt.
3	39F1788	Pump Shroud	1
4	39G7141	Counter Activator, Gallon	Opt.
	39G7145	Counter Activator, 4 Liter	Opt.
5	35F1283	Bushing	1
6	35F1396	Screw, #8 x 1/2"	2
7	39F1811	Pinion	1
8	39F1837	Washer, Nylon	1
9	35F1372	Lockwasher, 1/2"	1
10	35F1371	Hex Nut, 1/2-13	1
11	39F1820	Crank Handle	1
12	100F1086	Grip Assembly	1
13	35F7224	Locknut, 1/4-20	8
14	400F6793	Washer, 1/4 Flat	16
15	39G7042	Base Assembly	1
16	39F1815	Plunger O-Ring (-435)	1
17	39F1789	Plunger	1
18	39F1793	Rack, Gallon	1
	39F1833	Rack, Liter	Opt.
19	39F1814	Base O-Ring (-363)	1
20	39F1812	Spacer Ring	1
21	39F1810	Tube, Printed	1
22	39F1822	Screw, 1/4-20 x 1.25 HHCS	8
23	39G7043	Suction Tube	1
24	35F1312	Bung Gasket (Included w/Item 15)	1
25	39G7044	O-Ring (Included w/Item 23)	1

MODEL 39 REPAIR KIT- 39G7036

ITEM NO.	PART NO.	DESCRIPTION	QTY
17	39F1789	Plunger	1
21	39F1810	Calibrated Tube	1
16	39F1815	Plunger O-Ring	1
20	39F1812	Base O-Ring	1

STABILIZER KIT FOR THE MODEL 39 VOLUMETRIC PUMP

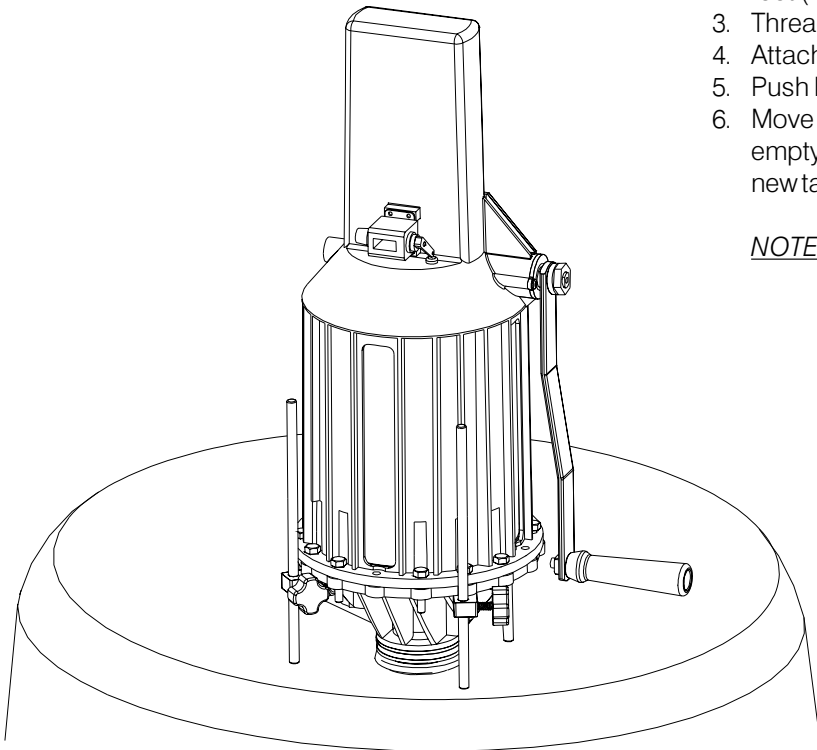


SERIES 39 STABILIZER KIT 39F1832			
ITEM NO.	PART NO.	DESCRIPTION	QTY
1	39G7068	Screw, 1/4-20 x 1 3/4" HHCS	4
2	400F6793	1/4" Flat Washer	4
3	35F7224	Locknut, 1/4-20, Zinc Plated	4
4	39G7060	Stabilizer Rod	4
5	39F1808	Leg Bushing	4
6	39G7061	Lock Knob	4
7	39G7094	Foot	4

39F1832 STABILIZER KIT INSTRUCTIONS

1. Bolt leg bushings (Item 5) to an open hole on the pump flange as shown. Washer (Item 2) goes above the pump flange, leg bushing goes below. Tighten until snug.
2. Slide legs down through hole in bushing. Slide rubber foot (Item 7) on the bottom of each leg.
3. Thread in lock knobs (Item 6).
4. Attach pump to tank.
5. Push legs down as far as they will go, then tighten knobs.
6. Move legs up before removing pump when tank is empty. Repeat step #5 above after installing pump on a new tank.

NOTE: Leg bushings can be positioned in any hole for best support on your tank, including holes with bolts already in them.



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IN DRY AND LIQUID HANDLING SYSTEMS.**
After more than 45 years of product research and development in fuel and chemical handling equipment, Tuthill Corporation created Sotera systems to focus solely on the needs of the agriculture industry. Sotera Systems ushers in a new age in closed systems technology for transferring plant protection products for growers through their farm supply providers.

You'll recognize the familiar Tuthill traits in every Sotera Systems product, like the uncompromising quality, workmanship and dependability you've always relied on. But Sotera Systems is something more, something unique. Each product is designed, engineered, tested and serviced by people who know agriculture. People who understand the need for safe, accurate transfer systems for plant protection products. In a changing world Sotera's mission is to focus on the development of innovative products and systems for both liquid and dry formulations of product, and the technologies it takes to meet those needs.

**A SPECIAL MARKETPLACE.
A SPECIAL COMPANY.**

The agricultural marketplace is dynamic, ever changing and can't be understood at a glance. You have to be entrenched. That's why Sotera Systems is out in the fields talking to growers who use plant protection products and listening to what they have to say. And they say plenty –

everything from concerns about safety, accuracy and governmental policies to convenience, cost and dependability. By being in the fields, Sotera Systems gains tremendous insight into the real needs of growers, and life science companies. Sotera Systems uses this information to create products that make sense for their market. It takes a dedicated company to grasp each detail and translate it into liquid and dry transfer products and systems that perform. It takes a company like Sotera Systems.

**CLOSED SYSTEM TRANSFER PRODUCTS.
PROTECTING THE ENVIRONMENT FOR
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Sotera Systems is not just another product line, it is our only line. Day in and day out, our attention and commitment is to the agriculture marketplace. And this commitment goes beyond the manufacturing of quality handling systems; it includes worldwide product support and technical expertise even when growers are in the field. Our staff are knowledgeable agricultural professionals who offer years of experience and the latest in liquid and dry advice. Our mission is to lead the way in finding innovative ways to transfer plant protection products safely, accurately, conveniently and economically. In partnership with the agriculture industry, Sotera Systems will champion a new age in liquid and dry handling products and systems.

PRODUCT WARRANTY

Sotera Systems of Tuthill Corporation ("Manufacturer") warrants to each buyer of its products ("the Buyer") for a period of 12 months from date of invoice or sales receipt 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. 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 BE LIABLE FOR CONSEQUENTIAL DAMAGES, NOR SHALL MANUFACTURER'S**

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