

GASBOY®

SERIES 60

12 AND 24 VOLT DC PUMPS

INSTALLATION/OPERATION/PARTS

MANUAL

035228

REV. 0273

INSTALLERS - IMPORTANT

In addition to installation information, this manual contains warnings, safeguards and procedures on the use and care of the Series 60 pump. Please leave this manual with the pump owner after the installation is complete.

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GASBOY INTERNATIONAL, INC. A TOKHEIM SUBSIDIARY LANSDALE, PA

IMPORTANT WARNINGS AND SAFEGUARDS

Gasoline and petroleum products are flammable. To avoid injury or death to persons or damage to equipment or property, follow these listed warnings and other warnings and precautions outlined in this manual when installing, using, or working around this equipment. Check with GASBOY Technical Services for compatibility of liquids with pump materials.

TURN OFF AND LOCK OUT ALL POWER TO PUMP BEFORE PERFORMING SERVICE, MAINTENANCE OR IN THE EVENT OF A FUEL SPILL.

All products must be installed by a qualified installer and used in conformance with all building, fire, and environmental codes and other safety requirements applicable to its installation and use, including, but not limited to, NFPA 30, NFPA 30A, NFPA 395 & NFPA 70. A qualified installer is familiar with fuel systems installations under the above stated building, fire, and environmental codes and other safety requirements for the particular type of installation.

This product is only part of a fuel dispensing system and additional equipment and accessories, such as, but not limited to, breakaway connectors, shear valves, pressure regulators, flow limiters, and other safety devices may be necessary to meet the applicable codes.

For maximum safety, we recommend that all employees be trained as to the location and procedure for turning off power to the entire system. Instructions regarding proper operation of the equipment along with the appropriate safety warnings should be posted in plain view at the fuel island.

Before performing service or maintenance (including changing of fuel filters or strainers) or in the event of a fuel spill, turn off and lock out all power to the system. In battery-powered pumps, disconnect power source. In submersible pump applications, turn off and lock out power at the master panel and close any impact valves to the submersible pump and any other dispensers which use that submersible pump. AC power can feed back into a shut-off dispenser when dispensers share a common submersible pump or starter relay. Also block islands so no vehicles can pull up to the dispenser when the dispenser is being worked on.

Federal DOT regulations prohibit dispensing flammables, such as gasoline, from portable tanks.

DO NOT use Teflon tape for any pipe threads in the product.

DO NOT use consumer pumps for pumping fuel or additives into aircraft.

DO NOT use commercial pumps for direct fueling of aircraft without filters and separators necessary to ensure product purity.

DO NOT use where sanitary design is required (for food products for human consumption) or with water-based liquids.

DO NOT smoke near the pump or when using the pump.

DO NOT use near open flame or electrical equipment which may ignite fumes.

DO NOT permit the dispensing of gasoline or other petroleum products into a vehicle with its motor running.

DO NOT permit the dispensing of gasoline or other petroleum products into unapproved containers or into approved containers in or on vehicles including trucks. All containers must be filled on the ground to prevent static discharge. Always use Approved and Listed hoses and nozzles with electric pumps and dispensers.

DO NOT block open the nozzle in any manner. Nozzles shall conform to UL and NFPA code requirements for attended or unattended service.

DO ensure that the pump is equipped with proper filters based on the product being dispensed and its intended use.

DO wear safety goggles and protective clothes when dispensing any liquid which may be potentially harmful or hazardous.

DO keep all parts of body and loose clothing clear of belts, pulleys, and other exposed moving parts at all times.

DO require washing and changing of clothes if fuel is spilled on a person or his/her clothing. Keep away from open flames, sparks, or people smoking.

DO provide a receptacle for catching product from pump/meter when servicing.

DO clean up product spills on the driveway. Turn off and lock out all power prior to cleanup.

DO insure pump is properly grounded.

DO insure hose is compatible with fluid being dispensed.

DO inspect hose, nozzle, and pump on a regular basis for wear, damage, or other conditions which may create a safety or environmental hazard.

DO make sure all pipe threads are properly cut and the inside reamed to remove burrs. Use UL classified gasoline-resisting compound on all joints of gasoline handling piping. Sealing compound must also be resistant to Gasohol (Ethanol and Methanol). Use gasoline-resistant pipe compound on male threads only; pipe compound used on female threads can be squeezed into the supply line where it can enter the product stream and become lodged in the pump or meter.

DO ensure that junction box covers are in place and properly tightened. Mating surfaces between the box and cover must be free of dirt, nicks, and scratches. All unused entries into the junction box must be properly plugged.

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Section 1

OVERVIEW

GENERAL MODEL INFORMATION

The GASBOY Series 60 pumps are 12VDC and 24VDC pumps designed for use on vehicle-mounted tanks using the vehicle's 12VDC or 24VDC electrical system as a power supply. There are four basic models:

- Model 61 is a 12-volt pump with hose and manual nozzle.
- Model 67 is a 12-volt pump with hose, manual nozzle, and 4860 meter-register.
- Model 65 is a 24-volt pump with hose and manual nozzle.
- Model 68 is a 24-volt pump with hose, manual nozzle, and 4860 meter-register.

Discontinued models 60 and 64 are 12- and 24-volt pumps with 1860 meter-registers. Their pump parts are the same; their meter-register parts are covered under **1860 Meter-Register** in Section 4.

MODEL FEATURES

All Series 60 pumps share the following features:

- 5/8" hose, 12' long
- Manual self-closing nozzle
- Supports gasoline, diesel, or kerosene
- Flow rate of up to 14 US GPM, 11 Imperial GPM, 53 liters (LPM)
- 5-vane, direct-drive, self-priming, rotary pump
- 1/4 HP, 2500 RPM motor, permanent magnet
- Current draw, running: 12-volt: 16 Amps; 24-volt: 8 Amps
- Telescoping polyethylene suction, 23" to 42"
- 15' power cable
- Check valve, located in base casting. No other line, foot, or check valve is required.
- Piston-type bypass reduces motor load
- 30-mesh stainless steel strainer
- Maximum working pressure, 50 psi
- Connections: 2" NPT male thread for mounting on tank; 1" NPT female thread for suction; 3/4" NPT discharge outlet.
- Finish, baked red urethane
- Weight: 40 lbs.

Options

- 4860 Meter
- Farm-type automatic nozzle: shuts off at full tank; Standard Flow Unleaded, P/N 038519, Standard Flow Diesel, P/N 038520.
- Liter measure
- Filter Kit, Rear Mount, P/N 048521

INSTALLATION, WIRING, AND OPERATION

INSTALLATION PRECAUTIONS

All tanks and installations must conform with all building/fire codes, all Federal, State, and Local codes, National Electrical Code, (NFPA 70), NFPA 30, Automotive and Marine Service Station Code (NFPA 30A) and NFPA 395 codes and regulations.

Plan your installation carefully. Dispensing troubles, which seem to be pump-related, are frequently traced to faulty installation. Review the following list of installation **DO's** and **DON'T's** to avoid potential problems:

1. **DO** read the **WARNINGS** page at the front of this manual, preceding the Table of Contents. It contains important information regarding the safe use of your pumps.
2. **DO** install an emergency power cutoff, if the pump is used for other than personal use. In addition to circuit breaker requirements of NFPA 70 and NFPA 30A, a single control which simultaneously removes AC power from all site dispensing equipment is recommended. This control must be readily accessible, clearly labeled, and in accordance with all local codes. In order to provide the highest level of safety, we recommend that all employees be trained as to the location and procedure for turning off power to the dispensing equipment.
3. **DO** use breakaway couplings on discharge hose. While not required for tanks under 1100 gallons, use is recommended for safety reasons.
4. **DO** have the pump installed by a competent installer/electrician.
5. **DO NOT** experiment with a pump if you are not sure the installation is correct.
6. **DO NOT** overload sub- or main breaker panels.
7. **DO NOT** install any underground piping without proper swing joints. (Always use shoulder nipples, never close nipples).
8. **DO NOT** cover any lines until they have been both air- and liquid-tested.
9. **DO NOT** back-fill the tank or supply line with cinders or ashes. (Back-fill with clean sand, crushed rock, or pea gravel).
10. **DO NOT** use black iron pipe or fittings for underground installations. (Use only new galvanized or fiberglass* pipe and fittings). *Install all fiberglass pipe and fittings according to manufacturer's specifications and requirements.
11. **DO NOT** use power line wiring of inadequate capacity. (Use gauge specified by the wiring diagram or wire chart provided in Section 3).
12. **DO NOT** use a circuit breaker of improper size. (See Section 3).
13. **DO NOT** install fill pipe to tank where it can be submerged with standing water.
14. **DO NOT** use the GASBOY fuel dispensing equipment to remove water ballast from the storage tank.
15. **DO NOT** use gaskets on covers of explosion-proof type boxes. The sealing compound found around wires at various locations within conduit is a requirement of the National Electrical Code and should not be disturbed. Tighten junction box covers before replacing panels.

16. **DO NOT** use knock-out boxes or flexible conduit for installing this unit. All power and lighting wires should be run in threaded, rigid, metal conduit. All threaded connections must be drawn up tight with five (5) threads minimum engagement. Only one opening in the AC junction box is provided. At completion of the installation, it is the installer's responsibility to ensure that any unused openings are plugged.

INSTALLATION GUIDELINES

All pumps are equipped with a 2" external and 1" internal threads. When installing suction tube, ensure that it is 4" from bottom of tank. Apply a coating of UL-Listed petroleum gasoline-resistant pipe compound to the threads and suction tube before assembling. Tighten threaded joints securely.

Before beginning the installation, disconnect the battery cable that runs to the ground. This will prevent an electrical short or possible damage to the battery. Note the polarity of the terminal to which the ground cable is connected (- negative or + positive).

Be sure to properly ground the pump using a separate connection from the ground screw in the integral J-box to a good chassis ground.

Be sure both the vehicle ignition switch and pump switch are off. Route the power cable under the chassis to the engine compartment, mechanically securing the cable at various points to prevent damage to the power cord.

NOTE: If the power cable supplied is not long enough, order a longer cable with the following specifications: 12 AWG, stranded three-conductor (one black, one white, one green) neoprene insulated, 600 volt rating.

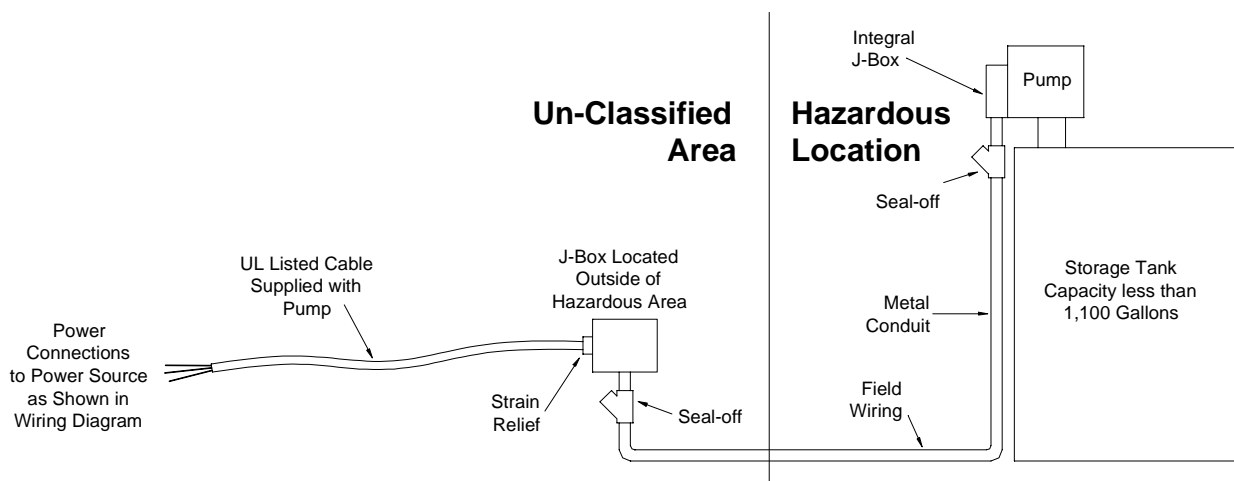
A 20 amp fuse or circuit breaker for 12VDC or 10 amp fuse or circuit breaker for 24VDC (circuit breaker not provided) must be installed between the pump and the starter solenoid. This will protect the pump and battery from possible damage.

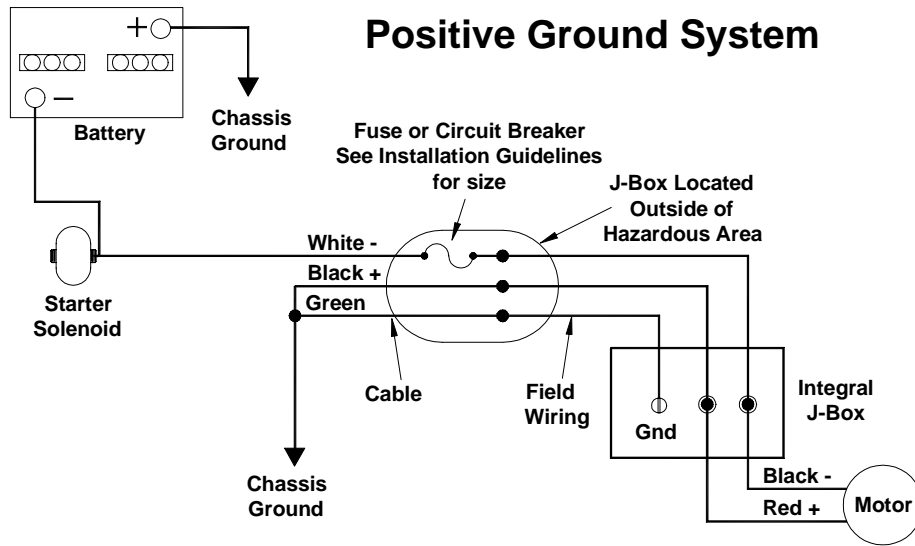
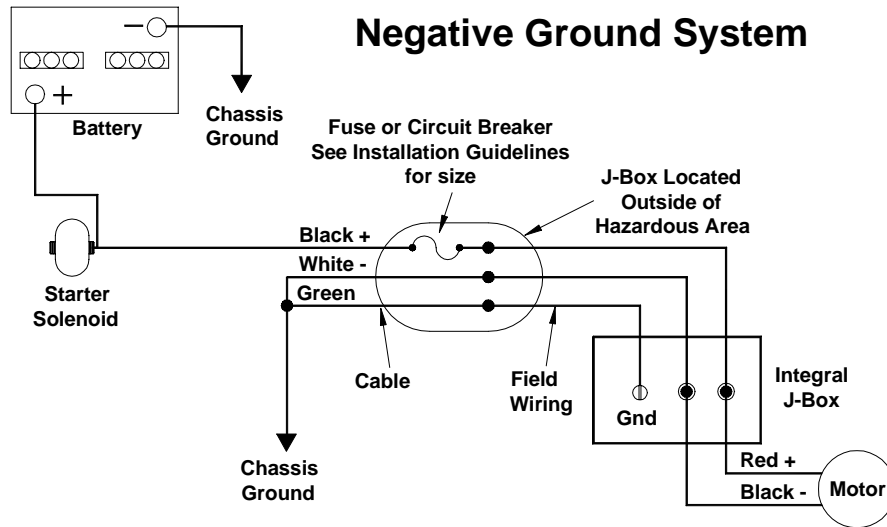
Do not use a temporary connection for providing connection to the battery.

Consult NFPA 30A, Table 7, for classification of areas around the pump and tank when determining location of J-box to be located outside of hazardous area.

WIRING

The following diagrams show installation wiring and wiring for a negative and a positive ground system:





METER CALIBRATION

NOTES: *This meter is for consumer use only and not for re-sale. It is not sealable by Weights and Measures.*

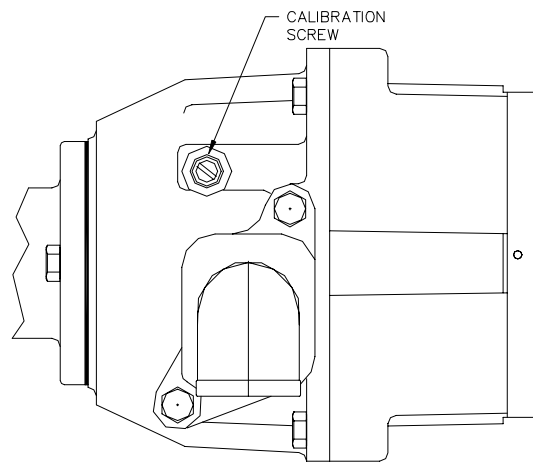
All GASBOY meters are adjusted for accurate measure for diesel within $\pm .05$ gallons at the factory. However, since the conditions of the installation can affect pump accuracy, it is the responsibility of the installer to check the pump for accuracy and make any needed adjustments.

Choose the flow rate at which the meter will be used most often for the zero calibration point. For example, if the pump is being used with an automatic nozzle, calibrate with the nozzle set on the middle or top notch position, whichever is used most frequently.

Use a certified five-gallon measure with a sight glass and scale showing cubic inches over or under an exact five gallons. Fill and drain the test measure to completely wet the interior surfaces. Reset the register to zero and deliver an exact measured five gallons into the test measure at the selected flow. Read the level of the liquid in the sight glass on the scale in \pm cubic inches.

Start with the screw turned all the way in clockwise. For gasoline calibration, turn the screw approximately two full turns counter-clockwise. For diesel, turn the screw approximately two additional full turns counter-clockwise.

Deliver about 1/2 gallon through the meter before resetting to zero and retesting. Allow a ten second drain period each time the test measure is emptied to assure accurate measure. Adjust and retest until register is zeroed at desired flow.



OPERATION

USER NOTE

The use of Gasboy Series 60 12-volt and 24-volt pumps is similar to any other battery-operated piece of equipment. Typical auto and truck batteries will operate this unit. Extended pumping use without recharging batteries, or weak or run-down batteries may result in difficulty restarting the vehicle.

CAUTION

Be sure the electrical connection polarity is correct or damage may result to the pump.

Start Motor

Remove the nozzle from the nozzle boot and pull up the switch shaft assembly.

Stop Motor

Push down the switch shaft assembly. Place the nozzle back in the nozzle boot.

WARNING

Do not use an additional line valve or foot valve in the suction line.

Section 3

MAINTENANCE AND TROUBLESHOOTING

SERVICING THE PUMP

The following instructions cover service of the pump while installed. For easier handling, remove the pump from the tank and use a vise to hold it whenever possible.

NOTE: In these service procedures, the numbers in parentheses refer to the assembly parts drawing in Section 4.

Replacement of Rotor, Vanes or Shaft Seal

To prevent vanes from dropping through the inlet port, loosen the pump cover screws (14). Hold pump cover (15) firmly against pump housing (4) and remove loosened screws. Slide the pump cover aside, partially exposing rotor (18) and transfer holding action from pump cover to rotor. Keep vanes (19) and rotor pressed fully in pump cavity while turning the rotor to remove the vanes. Remove vanes one at a time beginning at the two o'clock position. Remove key (17) and rotor. Replace in reverse order. Make sure the outer edge of the vanes slope away from the direction of the rotor rotation (counterclockwise).

To replace shaft seal, remove rotor and vanes as above. Slide spring (20) and washer (21) off shaft. O-ring (22) will act as a brake to resist removal of brass, rotating seal ring (23). To overcome this resistance, lightly grasp brass ring with pliers and pull at the same time turning shaft back and forth with the flat blade of a screwdriver in the keyslot in the end of the shaft. Remove O-ring from brass ring and spread some grease over machined surface of ring; reinsert brass ring over shaft and press greased surface against carbon, floating seal ring (24). The carbon ring can now be withdrawn stuck to the brass ring. Do not break up the carbon ring to remove it, since some of the pieces may get lost in the pump casting and cause the rotor or measuring chamber to jam later in service. Use a bent wire as a button-hook to hook and withdraw O-ring (25) from recess in back of pump cavity. Install new seal group in reverse order. Make sure recess in back of pump cavity is clean and that O-ring (25) is firmly seated and not twisted in this recess.

Check Valve, Bypass, Strainer Service or Replacement

For easier handling, remove the hose and nozzle. Next, remove the four screws (14) and lift the pump housing (4) off; freeing bypass (12) and spring (13). Withdraw the check valve assembly (11) and strainer (9) from the inlet cavity of the base adapter (8) for cleaning or replacement. To reassemble, insert the screen into the inlet cavity followed by the O-ring (10) and check valve assembly (11). Lay the gasket on the base (8) so that the gasket shape matches the pump housing and is aligned to match the screw holes. Place the bypass spring (13) in the recess in the base and stack the bypass valve on top of spring with closed end up. Thread the bypass and spring into the bypass cavity of the pump housing during the assembly of the housing to the base. If the base (8) has been removed from the tank, assemble by holding the pump in a vise upside down. While the pump is upside down, insert the bypass, closed end first, into the cavity in the pump housing and stack the spring on the bypass. Use a small quantity of grease on the check valve to hold it in position during the assembly of the base to the housing. Hold the base down against the pump housing aligning the gasket with the screw holes and replace screws.

SERVICING THE MOTOR

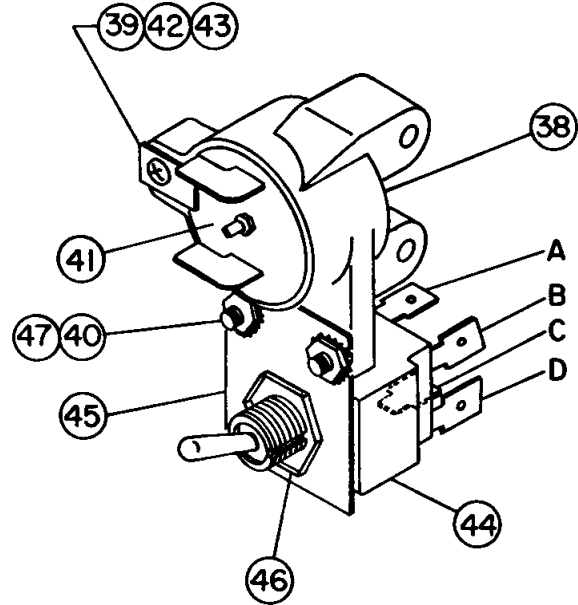
NOTE: To retain validity of the Underwriter's Laboratories (UL) Listing, all motors must be repaired by authorized service personnel by a firm with an approved UL procedure for the repair of explosion-proof motors.

Check Continuity, Replace Motor Protector

To check continuity or replace motor protector (41), disconnect power at the battery and junction box. Remove the cover assembly (51).

If continuity is not present across both terminals of the motor protector, either the motor has overheated or the contacts are not in their normally-closed position. Replace the motor protector.

To replace the motor protector, loosen the screw (43) and move retaining clip (42) out of the way. Withdraw the protector and pull the wires from the terminals. When reconnecting the wires to the new protector, connect black wire from upper brush assembly (28) to the top protector terminal and the white wire from the line switch terminal B to the bottom protector terminal. Insert the protector in the housing (38) and tighten in place with the clip (42).



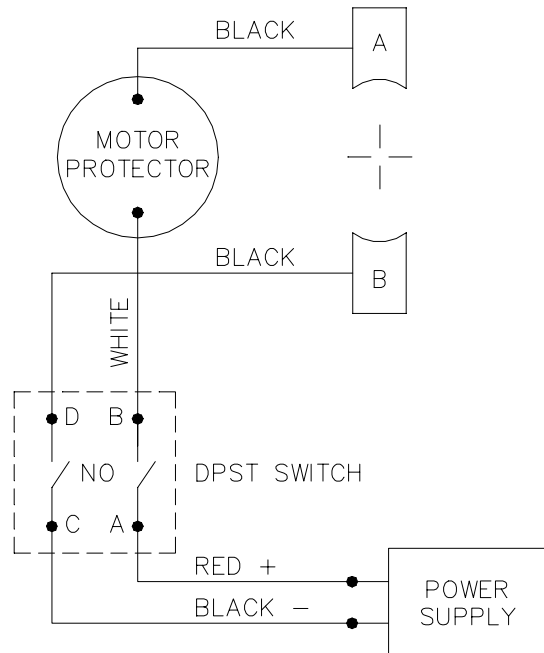
Check Continuity or Replace Line Switch

To check continuity or replace line switch (44), disconnect power at the battery and junction box. Remove the cover assembly (51). Remove keps nuts (47) and pull out the switch far enough to expose the back of the switch.

Check switch for continuity in the ON and OFF positions. With switch ON, continuity should be established between terminals A & B, C & D. If continuity exists with the switch OFF or does not exist with the switch ON, replace the switch.

To replace the switch, pull the wires from the terminals, noting orientation of switch to switch plate. Remove the locknut (46) and install the new switch on the plate. Reconnect the wires to the terminals. Reattach the switch and plate assembly to the protector housing (38).

Before replacing switch cover assembly, add grease on face of junction box to create a water-resistant seal. Then reinstall the switch cover assembly making sure the slot in the yoke (53) fits over the toggle switch stem.



Replace Brushes

NOTE: Numbers in parentheses refer to drawing on previous page and on the assembly parts drawing in Section 4.

Remove the pump cover (15), rotor (18), vanes (19), and seal (20-25). Remove switch cover (51) and pull the black wires from the top terminal of the motor protector (41) and terminal D of the motor switch. Remove the tie rods (35), motor end cover (34) and magnet barrel (32). The armature (31) should come off with the magnet barrel. Note the positions of the springs (27) on brush holder, then remove the brush holder (26) and replace brushes. Reassemble in reverse order; make sure the locating slot in the magnet barrel is aligned with the locating pin (36) before pressing the magnet barrel into the pump housing (4). Connect the top brush to the top terminal of motor protector and the bottom brush to terminal D of the switch.

To remove the armature from the magnet barrel, apply a firm steady pressure against the shaft while holding the magnet barrel to overcome the magnetic attraction of these two parts to remain assembled.

TROUBLESHOOTING CHART

Possible Cause	Checks	Corrective Action
Will not start	Open circuit in the electrical service line.	Check breaker or fuse.
	Open circuit or short circuit in the armature winding.	Replace armature.
	Worn brushes and/or annealed brush springs.	Replace brushes.
Starts, but heats rapidly or runs too hot	Armature winding short circuited or grounded.	Replace armature.
Sluggish, sparks severely at brushes	High mica between the commutator bars.	Clean commutator.
	Worn brushes and/or annealed brush springs.	Replace brushes.
	Open circuit or short circuit in the armature winding.	Replace armature.
	Oil-soaked brushes	Replace brushes.
Abnormally high speed, sparks severely at the brushes	Oil-soaked brushes.	Replace brushes.
Reduction in power, motor gets too hot	Open circuit or short circuit in the armature winding.	Replace armature.
	Sticky or tight bearings.	Replace bearings.
	Interference between the stationary or rotating members.	Locate interference.
	Excess carbon build-up at brush holder.	Clean brush holder.
Motor will not stop when switch is in OFF position	Faulty switch.	Replace switch.
Jerky operation, severe vibration	High mica between the commutator bars.	Clean commutator.
	Worn brushes and/or annealed brush springs.	Replace brushes.
	Open circuit or short circuit in the armature winding.	Replace armature.
	Shorted or grounded armature winding.	Replace armature.

(Continued)

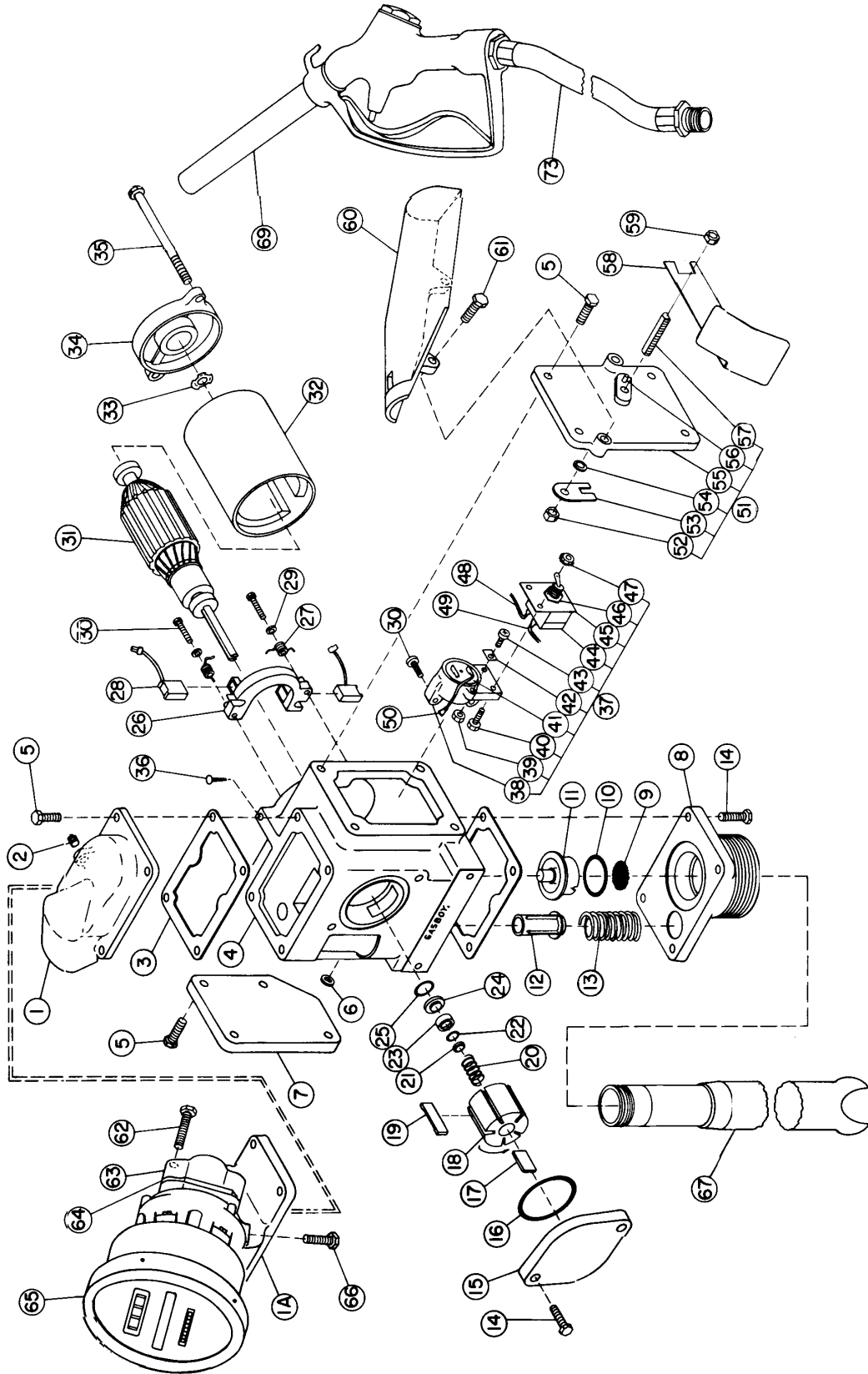
Possible Cause	Checks	Corrective Action
Pump fails to prime	Leak at the suction pipe to pump connection. No liquid in the tank or the suction stub is not submersed in the liquid. By-pass valve leaking or stuck open. Nozzle is not open to allow the discharge of air in the hose.	Tighten connection. Correct condition. Replace bypass valve. Open nozzle.
Motor speed is too slow.	Weak battery or bad motor.	Charge battery or replace pump.

Section 4

PARTS

This manual lists parts information for the Series 60 pumps. Using part numbers when ordering will expedite your order and reduce the possibility of the wrong parts being shipped. When ordering replacement parts, be sure to give the complete name and part number as shown in the appropriate parts lists. It is also helpful to supply the serial number of the equipment. Screws, nuts, washers and pins are not furnished with parts except when specified in the list as being included.

GENERAL ASSEMBLY



GENERAL ASSEMBLY

Item	Part No.	Description	Item	Part No.	Description
1	003349	Top Cover (Models 61 & 65 only)	37	037744	Motor Protector & Switch Assembly (12V) (incl. items 38 - 50)
	003047	Top Cover for Meter (Models 60, 64, 67, 68)		037746	Motor Protector & Switch Assembly (24V) (incl. Items 38 - 50)
	003522	Top Cover w/Vac. Brkr.			
	003041	Cenex Top Cover, 1" NPT Top Center	38	031017	Housing - Motor Protector
	026204	Cenex Top Cover w/Vac. Brkr	39	039055	Nut
2	066570	Vacuum Breaker Assy.	40	052707	Machine Screw
3	026801	Gasket	41	037743	Motor Protector (12V)
4	003759 **	Pump Housing		037745	Motor Protector (24V)
5	051810	Machine Screw	42	020896	Retaining Clip
	051808	Machine Screw (Cenex covers)	43	053665	Screw
6	063185	Wire Stop	44	064334	Switch (DPST)
7	003476	Junction Box Cover	45	046957	Switch Plate
8	003028	Base Adapter	46	039150	Lock Nut
9	051586	Strainer	47	039070	Keys Nut
10	049066	O-ring	48	069150	Wire Assembly
11	066686	Check Valve Assembly	49	069149	Wire Assembly
12	066825	Bypass Valve	50	069151	Wire Assembly
13	057394	Bypass Spring	51	064352	Switch Cover Assembly (incl. Items 52 - 57)
14	051805	Machine Screw	52	038920	Nylok Nut
15	003488	Pump Cover	53	069687	Yoke
16	049061	O-ring	54	067164	Spring Washer
17	031316	Key	55	003469	Switch Cover
18	051482	Rotor	56	043101	Switch Actuator Stop
19	067018	Vane	57	054439	Switch Shaft
	032867	Seal Group (Incl. items 20-25)	58	014697	Switch Bracket
20	057393	Spring	59	038920	Nylok Nut
21	067166	Washer	60	000328	Nozzle Boot
22	048845	O-ring	61	051865	Machine Screw
23	054133	Rotating Seal Ring	62	052090	Machine Screw
24	054131	Seal Ring	63	003645	Flange Outlet
25	048846	O-ring	64	027055	Gasket
26	015843	Brush Holder	65		Meter & Register Assembly (See breakdown for your model)
27	057395	Brush Spring			Register Assembly only (See breakdown for your model)
28	015844	Brush Assembly	65		
29	067163	Fiber Washer			
30	052706	Machine Screw			
31	010948 ***	Arm/Bearing Assy (New 12V)	66	052556	Screw
	010946 ***	Arm/Bearing Assy (Old 12V)	67	064895	Telescopic Suction
	010949 ***	Arm/Bearing Assy (New 24V)	69	038475	Nozzle w/ Hook - Leaded
	010947 ***	Arm/Bearing Assy (Old 24V)		038471	Nozzle w/ Hook - Non-leaded
	*010921	Armature, 12V		038511	Hook Assy, EMCO A2000 (incl set screw) (Not Shown)
	*010922	Armature, 24V			
	*011922 ***	Bearing (New)	73	030539	Hose - 5/8 X 12' Softwall
	*011832 ***	Bearing (Old)	74	067162	Brush Support
32	035174	Magnet Barrel Assembly	75	017391	Cable, Power (Not Shown)
33	068953 ***	Bearing Spring (New)	76	020750	Strain-Relief Cable (Not Shown)
	068951 ***	Bearing Spring (Old)			
34	003468 **	End Cover			
35	051282	Tie Rod			
36	052242	Locating Pin	048521		Filter Kit (Optional; Model 61)

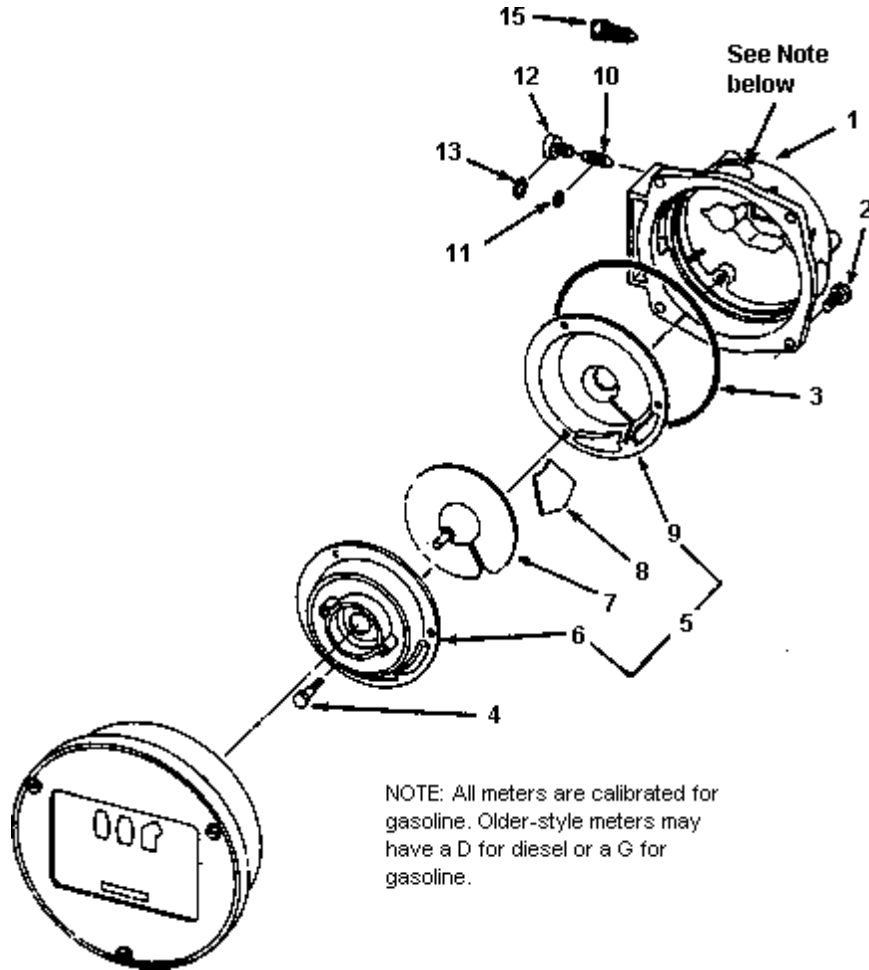
* Indicates part is a subpart of preceding part.

** Parts ordered after 8-26-97 will be machined for "New" bearing design.

*** As of pump S/N 718173 (12V) or S/N 195052 (24V), a design change was made requiring the use of parts marked "New".

1860 AND 4860 METER-REGISTER

Item	Part No.	Description	Item	Part No.	Description
1	012790	Meter Body	6		Meas. Chamber Top
2	051835	Meter Body Screw	7		Measuring Disc
3	049075	O-Ring	8		Baffle
4	025851	Screw	9		Meas. Chamber-bottom
5	019016	Meas. Chamber Assy. (sold as assembly only; includes items 6-9)	12	053081	Adjusting Screw
	019015	Bronze Meas. Chamber	13	048895	O-Ring
			14		Register Assembly (See below for list)



REGISTER ASSEMBLIES

3-Wheel Disc Register (Shown Above)

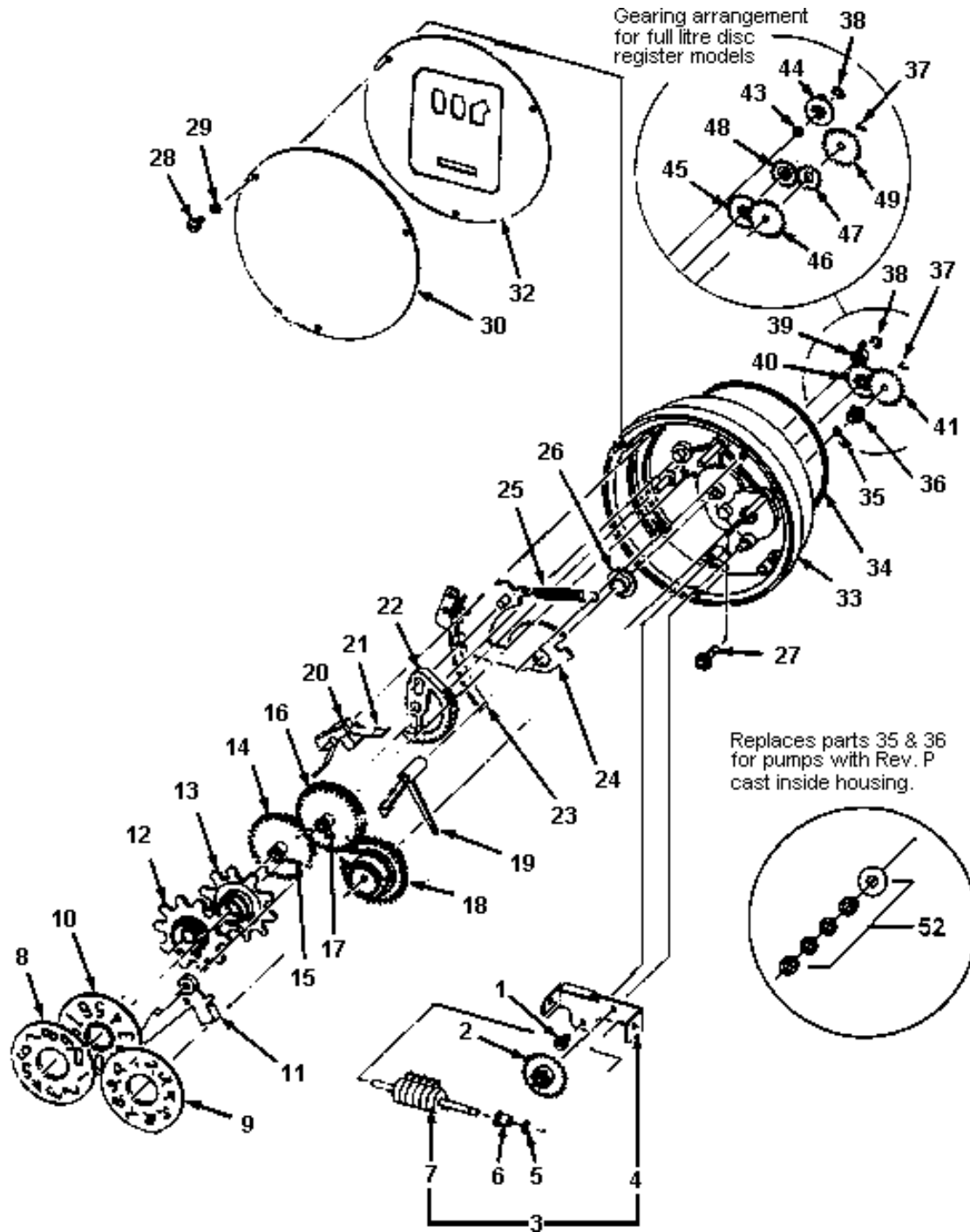
035963	US Gallons
036293	Full Liter
048478	1/10 Liter

4-Wheel Push-Button Register (Not Shown)

036400	US Gallons
036404	Liter

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1860 3-WHEEL METER REGISTER (DISCONTINUED MODELS 60 & 64)



1860 3-WHEEL METER REGISTER (DISCONTINUED MODELS 60 & 64)

035634 US Measure
035640 Liter Measure, 1/10

036296 Liter Measure, Full
035638 Imperial Measure

Item	Part No.	Description
1	052840	Screw
2	028615	Totalizer Drive Gear
3	065305	Totalizer Assembly (items 4-7. Not sold separately.)
8	024280	L H Number disc
9	024310	R H Number disc
10	024220	Center Number disc
11	063220	Overthrow stop center & L H Wheels
12	028225	L H Count Wheel
12A	068994	L H Wheel Assembly (Includes items 12, 14, 15)
13	027580	Center Count Wheel
13A	068993	Center Wheel Assembly (Includes items 13, 16, 17)
14	028245	L H Reset Gear
15	042070	L H Reset Pawl
16	027600	Center Reset Gear
17	042040	Center Reset Pawl
18	068995	Wheel and Clutch Assembly
19	042055	Overthrow Stop Pawl
20	048805	Detent Spring Retainer
21	057580	Detent Spring
22	054325	Reset Sector Gear
23	056425	Reset Lever Shoe
24	033822	Reset Lever
25	057895	Reset Lever Spring
26	012085	Reset Lever Bearing
27	054955	Register Drive Gear & Shaft
28	052840	Dial Mask Screw
29	067780	Fiber Washer
30	028780	Dial Glass
32	035394	Dial Mask US Gallons & Imperial Gallons
33	022675	Register Housing
34	049075	O-Ring
35	048865	O-Ring
36	014095	Bearing and Seal Assy. (Use only when Rev K is cast inside of housing #33. If other Rev., see item 52.)
37	031345	Drive Key
38	049390	Retaining Ring
50	012250	Bezel (70 series)
51	053605	Bezel Screw (70 series)
52	036995	Bearing & Seal Assy. (Use only when Rev P is cast inside of housing #33. If other Rev., see item 36.)

*NOTE: Due to meter redesign, meters manufactured after May 10, 1995 use the **New Style** change gears. Older meters use the **Old Style** change gears.*

Item Part No. Description

CHANGE GEARS-U.S. GALLONS (New Style) Gasoline or Diesel

39	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
40	028129	Cluster Gear, Gas, 32T-11T
41	028448	Drive Gear, Gas, 36T

CHANGE GEARS-U.S. GALLONS (Old Style)

39	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
40	027715	Cluster Gear, Gas, 33T-11T
	027655	Cluster Gear, Dsl, 34T-11T
41	028448	Drive Gear, Gas, 36T
	028450	Drive Gear, Dsl, 37T

CHANGE GEARS-IMPERIAL GALLONS

39	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
40	027670	Cluster Gear, Gas, 34T-10T
	027685	Cluster Gear, Dsl, 35T-10T
41	028465	Drive Gear, Gas, 38T
	028480	Drive Gear, Dsl, 39T

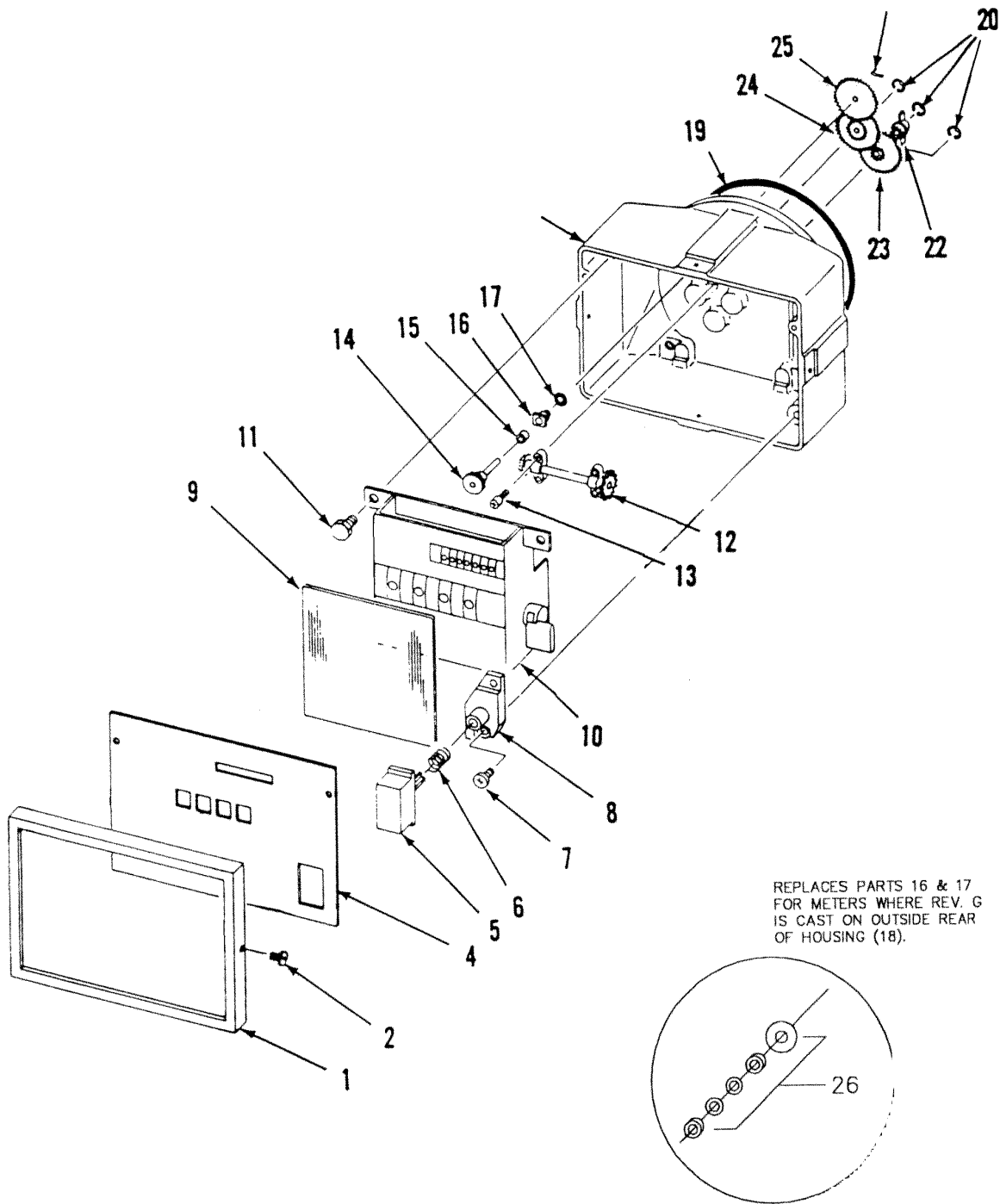
CHANGE GEARS-LITERS, TENTHS (99.9)

32	035380	Dial Mask, Liter, Tenths
39	012505	Control Block, 26T
40	027705	Cluster Gear, Gas, 18T-11T
	027700	Cluster Gear, Dsl, 19T-11T, 1820S only
41	028448	Drive Gear, Gas, 36T
	028465	Drive Gear, Dsl, 38T

CHANGE GEARS-LITERS, FULL (999 LITERS)

3	065309	Totalizer Assembly (All Black Wheels)
9	024315	R H Number disc (Full Liter)
27	053318	Register Drive Gear & Shaft
32	035381	Dial Mask (Full Liter)
43	068454	Spacer Washer
44	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
45	028129	Cluster Gear, Gas, 32T-11T
	027655	Cluster Gear, Dsl, 34T-11T
46	028229	Gear, 38T
47	028230	Gear, 24T
48	028231	Cluster Gear, 14T-25T
49	028232	Drive Gear, Gas, 34T
	028228	Drive Gear, Dsl, 35T

4860 4-WHEEL REGISTER (MODELS 67 AND 68)



4860 4-WHEEL REGISTER (MODELS 67 AND 68)

036341	U.S. Measure, Gas
036343	Liter Measure, Gas
036345	Imperial Measure, Gas

Item	Part No.	Description
1	012236	Bezel
	012267	Bezel, 1820R
2	052693	Bezel Screw
4	035309	Dial Mask
	035307	Dial Mask, 1820R
5	017269	Reset Button
6	057985	Spring, setback
7	053737	Reset Bearing Screw
8	011816	Reset Bearing
9	028736	Dial Glass
10	048461	Register Assembly
11	053901	Register Screw
12	054513	Drive Shaft Assy
13	053626	Drive Shaft Assy Screw
14	054522	Drive Shaft and Gear
15	056791	Spacer
16	014095	Bearing and Seal Assy. (Use if no letter is cast onto rear of housing #18. If Rev. G, see item 26.)
17	048865	O-Ring
18	031020	Register Housing
	048426	Register Housing, 1820R
19	049075	O-Ring
20	049390	Retaining Ring - E
21	031345	Drive Key - Spring
26	036995	Bearing & Seal Assy. (Use only when Rev G is cast onto rear of housing #18. If no Rev. see item 16.)

*NOTE: Due to meter redesign, meters manufactured after May 10, 1995 use the **New Style** change gears. Older meters use the **Old Style** change gears.*

Item	Part No.	Description
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CHANGE GEARS**US GALLONS (New Style) Gasoline or Diesel**

22	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
23	028168	Cluster Gear, 12T-39T
24	028172	Cluster Gear, Gas, 15T-38T
25	028448	Drive Gear, 36T

U.S. GALLONS (Old Style)

22	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
23	028168	Cluster Gear, 12T-39T
24	028172	Cluster Gear, Gas, 15T-38T
	028173	Cluster Gear, Dsl, 15T-39T
25	028450	Drive Gear, Gas, 37T
	028465	Drive Gear, Dsl, 38T

IMPERIAL GALLONS (New Style)

22	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
23	028168	Cluster Gear, 12T-39T
24	028449	Drive Gear, Gas, 37T
25	028174	Cluster Gear, 13T-39T

IMPERIAL GALLONS (Old Style)

22	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
23	028168	Cluster Gear, 12T-39T
24	028174	Cluster Gear, 13T-39T
25	028449	Drive Gear, Gas, 37T
	028163	Drive Gear, Dsl, 39T

LITER MEASURE (New Style)**Gasoline or Diesel**

22	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
23	028172	Cluster Gear, Gas, 15T-38T
24	028175	Cluster Gear, 29T-36T
25	028151	Drive Gear, Dsl, 25T

LITER MEASURE (Old Style)

22	012491	Control Block, 12T
	012490	Control Block, Bronze, 12T
23	028172	Cluster Gear, Gas, 15T-38T
	028173	Cluster Gear, Dsl, 15T-39T
24	028175	Cluster Gear, 29T-36T
25	028171	Drive Gear, Dsl, 26T
	028151	Drive Gear, Gas, 25T

WARRANTY

General Statements:

- Tokheim/Gasboy International, Inc. warrants all new equipment manufactured by Tokheim/Gasboy against defective material and/or workmanship, for the warranty period specified below, when the equipment is installed in accordance with specifications prepared by Tokheim/Gasboy International.
- This warranty does not cover damage caused by accident, abuse, Acts of God, lack of surveillance of automatic recording systems, negligence, mis-application, faulty installation, improper or unauthorized maintenance, installation or use in violation of product manuals, instructions, or warnings.
- Under no circumstance shall Tokheim/Gasboy be liable for any indirect, special, or consequential damages, losses, or expenses to include, but not limited to, loss of product, loss of profits, litigation fees, or the use, or inability to use, our product for any purpose whatsoever.
- *Parts Only* - During the warranty period, Tokheim/Gasboy will, at its option, repair or replace defective parts returned transportation prepaid to its factory.
- *On-Site Labor Included* - Tokheim/Gasboy will also provide, within the Continental United States and during the warranty period, the services of an Authorized Service Representative (ASR) for on-site repair or replacement of defective parts.
- *Replacement Parts* - Any system components that are not part of the original system order, including Island Card Readers, Pump Control Units, etc., are considered replacement parts.

Equipment	Term	Coverage
Commercial Pumps and Dispensers, Full-Cabinet Consumer Pumps	One year from date of installation or 18 mos. from date of Tokheim/Gasboy International's invoice to the purchaser, whichever comes first.	Parts and Labor.
Small Transfer Pumps, Meters, Pressure Regulators	One year from date of installation or 18 mos. from date of Tokheim/Gasboy International's invoice to the purchaser, whichever comes first. – Excepting the Model 2020 Hand Pump, which has a 90-day warranty from date of Gasboy International's invoice.	Parts Only.
Keytrol	One year from date of installation or 18 mos. from date of Tokheim/Gasboy International's invoice to the purchaser, whichever comes first.	Parts and Labor.
Fuel Management Systems: – CFN/Profit Point – Series 1000/FleetKey – TopKAT – Fuel Point Readers (sold with new systems)	One year from date of start-up or 15 mos. from date of Tokheim/Gasboy International's invoice to the purchaser, whichever comes first. – The basic warranty only applies to systems which have been started up by a Tokheim/Gasboy Authorized Service Representative (ASR).	Parts and Labor.
Additional Fuel Point Items: – Fuel Point Readers sold for retrofitting existing systems. – Fuel Point vehicle and dispenser components.	One year from date of start-up or 15 mos. from date of Tokheim/Gasboy International's invoice to the purchaser, whichever comes first.	Parts Only.
Encoders, Embossers, Modems, CRTs, and Logger Printers	Purchased with Fuel Management System (Encoders, Embossers only): 90 days from the date of start-up by a Tokheim/Gasboy ASR, or 180 days from date of Tokheim/Gasboy International's invoice, whichever occurs first. Purchased with Fuel Management System (Modems, CRTs, and Logger Printers only): Matches system warranty. Purchased Separately: 90 days from date of Tokheim/Gasboy International's invoice to the purchaser.	Purchased with System (Encoders, Embossers only): Parts Only. Purchased with System (Modems, CRTs, Logger Printers only): Parts Only. Purchased Separately: Parts Only.
Air Diaphragm Pumps	Three years from date of purchase (for full warranty description, see Price List).	Parts Only.
Items not manufactured by Tokheim/Gasboy (ex. automatic nozzles, hoses, swivels, etc.)	Not warranted by Tokheim/Gasboy International (consult original manufacturer's warranty).	Not Applicable.
Replacement Parts	One year from date of Tokheim/Gasboy International's invoice to the purchaser.	Parts Only.

To the extent permitted by law, this warranty is made in lieu of all other warranties, expressed or implied, including warranties of freedom from patent infringement, or merchantability, or fitness for a particular purpose, or arising from a course of dealing or usage of trade. No one is authorized to vary the terms of the warranty nor may anyone make any warranty of representation, or assume any liability other than that herein stated, in connection with the sale described herein. The acceptance of any order by Gasboy International is expressly made subject to the purchaser's agreement to these conditions.