GOMCO®
EXPLOSION PROOF
SURGICAL SUCTION PUMP
MODEL 3840

OPERATION, MAINTENANCE
AND SERVICE MANUAL
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10.0  PARTS LIST
1.0 PRECAUTIONS:

1.1 WARNINGS:

Warnings are provided to alert the user to situations that may cause personnel injury.

1.2 CAUTIONS:

Cautions are provided to alert the user to situations that may cause equipment damage.

2.0 GENERAL INFORMATION:

2.1 The Gomco Model 3840 provides regulated suction in the surgical environment requiring the use of explosion resistant equipment. The double collection containers with switching valve allows the user to change the bottles without interrupting surgery.

2.2 Features:

Supplied with Model 3840 as standard equipment are:

1. Two 2800 ml collection containers with overflow protection cap assemblies.
2. Flow control valve to switch vacuum from the left bottle to the right bottle.
3. Compact cart design with stainless steel top surface and 3 in. non-marking electrically conductive casters.
4. Two tubing packages. Each including a 26 in. & a 6 ft. piece of electrically conductive tubing.
5. Accessory drawer built into cart for easy storage.

3.0 SPECIFICATIONS:

3.1 Vacuum Range:
0 to 25 in. Hg. (0 to 635 mm Hg.)

3.2 Flow Rates:
Open flow 34 LPM

3.3 Electrical Requirements:
115 Volts 60 Hertz (3.8 Amp maximum) (230 Volt also available)

3.4 Motor Description:
1/6th H.P. explosion-resistant (Class 1, Group C areas), thermally protected, split phase.

3.5 Pump Description:
Diaphragm pump, belt driven

3.6 Dimensions:
152 in. (D) X 20 in. (W) X 322 in. (H) (39.4 cm (D) X 50.8 cm (W) X 82.5 cm (H))
3.7 Weight:
Shipping - 135 Pounds (61.2 kilograms)
Net - 110 Pounds (49.9 kilograms)

4.0 SET-UP:

4.1 Plug Installation:

WARNING: Only qualified service personnel should install the explosion resistant plug.

All explosion resistant units shipped from Gomco are shipped less an explosion-resistant plug, because of the large number of different types available.

A recognized explosion proof plug, matching the wall receptacles in your facility, must be installed onto the power cord of the pump. Follow the recommended installation instructions of the plug manufacturer to insure its explosion proof quality.

4.2 Collection Bottle Assembly:

Each 2800 ml collection bottle is supplied with a cap and float assembly (see Illustration No. 2). When collected fluids exceed the 2800 ml line, the vacuum supply to the collection bottle is shut off by the float.

CAUTION: The float assembly will not shut the pump off. To prevent overflow into the pump, either turn the flow control valve to direct the vacuum to the empty bottle, or turn the pump off

4.2.1 Set-up:

1. Check the bottle top edges for nicks, If the bottle top is nicked, it will not seal.
2. Check that the cap gasket is properly positioned inside the cover
3. Check that the float moves freely.
4. Screw the cover assembly securely onto the bottle top, making sure that the gasket seals.
5. Place the assembly on the stand in the bottle brackets.
6. Repeat the above steps for the second bottle.
4.2.2 Cleaning Instructions:

1. Remove bottle caps.
2. Dispose of drainage fluids and materials in the bottle.
3. Soak the bottle and top assemblies in a warm detergent solution.
4. Unscrew the float assembly from the cover assembly. Make sure the small gasket on the float stem does not become disconnected while cleaning.
5. Wash all parts with a nylon bristle brush, rinse thoroughly with water and aerate.
   a. Autoclave at 250°F for 15 minutes. Follow autoclave manufacturer's directions for recommended procedure.

CAUTION: Do not flash autoclave the collection bottle.

   b. If desired, sterilize with ethylene oxide gas. Follow manufacturer's directions for recommended procedure.
6. Replace float assembly and screw cover assembly securely onto the bottle.

4.3 Tubing Package:

The Model 3840 is supplied with two single patient use conductive tubing packages. Each includes one length 26 in. and one length 6 ft.

4.3.1 Set-up:

1. Connect the 26 in. tube - one end to the cabinet vacuum connection and the other end to the vertical fitting on the cap and float assembly marked "To Pump."
2. Connect the 6 ft. tube to the long bent metal tube on the cap assembly.

5.0 OPERATING PRINCIPLE:

The negative and positive pressures of a diaphragm pump are developed by the reciprocating motion of the diaphragm inside the pump head. These pressures are maintained by the motion of the diaphragm and the pressure and suction flapper valves. On the up stroke, the pressure valve will open to allow air flow through to the exhaust or pressure port. On the down stroke, the pressure valve closes and the suction valve opens which draws a vacuum or creates a negative pressure at the suction side.
6.0 OPERATING PROCEDURE:

1. The ON-OFF switch should be in the OFF position.
2. Be sure all tubing, including the length from bottle to pump, is clean and thoroughly dry inside and out.
3. Be sure that the patient tube is connected to the side of the bottle top having the longer metal tube extending into the bottle.
4. Be sure all overflow protection devices are in proper working order.
5. Plug the line cord into the proper electrical outlet, making sure that it is the same as that indicated on the unit name plate and that it is grounded.
6. Rotate the ON-OFF switch to the ON position.
7. Check the degree of vacuum by pinching closed the patient tube. The amount of vacuum in Hg will register on the vacuum gauge. To increase the vacuum, turn the regulator knob clockwise. To decrease vacuum, turn the knob counterclockwise.
8. Select the left or right collection bottle by turning the "Flow Control Valve" lever to the positions indicated on the cabinet top instruction decal.
9. Your pump is ready for use.

7.0 MAINTENANCE AND SERVICE:

WARNING: Electric shock hazard. Do not remove cover. Refer servicing to qualified service personnel.

7.1 To Remove Rear Panel:

Always disconnect power supply. Turn each of the six (6) screws fastening the rear panel to the cabinet counterclockwise 1/4 turn.

WARNING: The pump in this unit is belt driven. To prevent personal injury, keep hands away while the pump is running.

WARNING: The motor is thermally protected and can automatically restart when the protector resets. Always disconnect the power source before servicing.

7.2 Oiling The Motor:

The motor of this model is permanently lubricated and requires no oiling or greasing.

CAUTION: Do not, at any time, lubricate the motor with oil, grease or petroleum products.
7.3  Drive Belt Replacement:

WARNING: Electric shock hazard. Do not remove cover. Refer servicing to qualified service personnel.

1. Rotate ON-OFF switch to the OFF position.
2. Unplug power cord from outlet.
3. Remove back cover from cabinet.
4. Disconnect ON-OFF switch from top of cabinet (See Illustration No. 1).
5. Disconnect the vacuum tube from the pump.
6. Remove the motor and pump assembly from the cabinet by removing the four (4) hex nuts from the underside of the cabinet. Lift and remove the assembly from the cabinet.
7. Loosen the four (4) hex nuts fastening the motor to the motor mounting plate and slide the motor toward the pump to relieve the belt tension.
8. Replace the drive belt and slide the motor away from the pump until proper belt tension is felt (approximately 1/2 in. flex when moderate finger pressure is applied). Tighten the four (4) motor mounting bolts.

CAUTION: Excessive belt tension causes excessive motor and pump bearing wear.

9. Insert the motor and pump assembly into the cabinet and replace the four (4) hex nuts from the underside of the cabinet, making sure the ground strap is in place.
10. Reconnect the vacuum tube to the pump.
11. Insert ON-OFF switch back into top of cabinet.
12. Replace back cover onto cabinet.

7.4  To Change Pump Air Filters (See Illustration # 6):

WARNING: Electric shock hazard. Do not remove cover. Refer servicing to qualified service personnel.

1. Remove the five (5) Phillips head screws in the top cover of the pump. The filters and gasket are located beneath this top cover. Remove the filters and replace them with new ones. The gasket may be cleaned with water, but it should be replaced yearly with new air filters. Replace the filters in proper position only the air filters and gasket should be checked or replaced at a minimum of at least once a year. To replace the inlet and outlet valves, remove the slotted machine screw that holds each valve in place. The stainless steel inlet and outlet valves are interchangeable. When replacing the outlet valve, place the new valve in location and note there is a retaining bar near the machine screw hole. This retaining bar holds the valve in position when replacing the inlet
valve. Note that the valve holder is marked with an "X" in one corner. This "X" should be in the lower right hand corner toward the inlet of the air chamber. Replace the head and tighten the socket head screws to 90-100 inch pounds of torque. All of the above are contained in Part Kit, Catalog No. 01-90-2295.

7.5 To Replace Pump Diaphragm:

To replace the diaphragm, remove the four (4) socket cap screws from the head of the pump. The diaphragm is held in place by two (2) Phillips head screws. Remove screws, retainer plate and the diaphragm. The diaphragm will fit in any position on the connecting rod. Replace the plate and the two Phillips head screws. Torque to 30 inch pounds.

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**CAUTION:** Do not raise any burrs or nicks on the heads of these screws. These burrs could cause damage to the inlet valve.

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**CAUTION:** Do not, at any time, attempt to remove the connecting rod or completely disassemble the pump. If the pump does not give you the proper service, even after installing a new Service Kit, Part Number 01-90-2295, please return the pump to the factory for repair.

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**CAUTION:** Do not, at any time, lubricate any of the parts with oil, grease or petroleum products. The pump is permanently lubricated and requires no oiling or greasing.

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8.0 ILLUSTRATIONS:

1.0 FINAL ASSEMBLY
2.0 BOTTLE ASSEMBLY
3.0 MOTOR ASSEMBLY
4.0 MOTOR AND PUMP ASSEMBLY
5.0 CABINET ASSEMBLY
6.0 PUMP REPAIR KIT
ILLUSTRATION NO. 2

<table>
<thead>
<tr>
<th>REF NO</th>
<th>Description</th>
<th>PART NO</th>
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<tbody>
<tr>
<td>1</td>
<td>CAP ASSY.</td>
<td>01-90-3983</td>
</tr>
<tr>
<td>2</td>
<td>FLOO ASSY.</td>
<td>01-90-3978</td>
</tr>
<tr>
<td>3</td>
<td>GALLON BOTTLE</td>
<td>01-90-3979</td>
</tr>
<tr>
<td>4</td>
<td>CAP GASKET</td>
<td>01-90-3971</td>
</tr>
<tr>
<td>5</td>
<td>FLOO GASKET</td>
<td>01-90-3975</td>
</tr>
<tr>
<td>6</td>
<td>CAP &amp; FLOO ASSY</td>
<td>01-90-3978</td>
</tr>
<tr>
<td>7</td>
<td>GALLON BOTTLE &amp; CAP ASSY</td>
<td>01-90-3971</td>
</tr>
</tbody>
</table>

CAP & FLOO ASSY - 01-90-3983
INCLUDS: CAP - 01-90-2363
FLOO ASSY - 01-90-3978

GALL BOTTLE & CAP COMPLETE - 01-90-3979
INCLUDS: CAP - 01-90-2363
FLOO ASSY - 01-90-3978
GALL BOTTLE - 01-90-2926
ILLUSTRATION NO. 4
DIAPHRAGM PUMP

* * * PARTS INCLUDED IN DIAPHRAGM PARTS KIT NO. 01-90-2295.

ILLUSTRATION NO. 6
9.0 TROUBLE SHOOTING:

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>PROBABLE CAUSES</th>
<th>REMEDY</th>
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<tbody>
<tr>
<td>Motor will not run when on-off switch is rotated to the on position...</td>
<td>1. Switch is faulty</td>
<td>Replace switch.</td>
</tr>
<tr>
<td></td>
<td>2. Bad power source</td>
<td>Check power outlet</td>
</tr>
<tr>
<td>Motor runs, but no suction.</td>
<td>1. Drive belt broken or slipping</td>
<td>Replace belt or tighten</td>
</tr>
<tr>
<td></td>
<td>2. Vacuum lines disconnected or</td>
<td>Check all tubing</td>
</tr>
<tr>
<td></td>
<td>leaking</td>
<td></td>
</tr>
<tr>
<td>Low suction</td>
<td>1. Loose tubing connection</td>
<td>Check tubing</td>
</tr>
<tr>
<td></td>
<td>2. Collection bottle top leaking</td>
<td>Check set-up</td>
</tr>
</tbody>
</table>

10.0 REPLACEMENT PARTS LIST FOR MODEL 3840:

01-90-3515  
Stainless Steel Top  01-90-3404  
Leg  01-90-3002  
Caster Socket  01-90-3411  
Electrically Conductive Caster  01-90-3923  
Bottle Bracket  01-90-2697  
Bulkhead Fitting  01-90-2666  
Vacuum Regulator Body  01-90-2431  
Plastic TEE (1/8 NPT)  01-90-2445  
Vacuum Regulator Needle  01-90-2429  
Vacuum Regulator Jamb Nut  01-90-2859  
Vacuum Regulator Knob  01-90-2351  
Vacuum Gauge  01-90-2578  
Cabinet Body With Drawer  01-90-2994  
Flow Control Valve  01-90-3516  
Illustration No.  5

01-90-5554  
Motor  01-90-5551  
Switch Assembly  01-90-5548  
Power Cord Assembly  01-90-5549  
Pulley  01-90-3511  
Illustration No.  3
<table>
<thead>
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<th>Item Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>01-90-5555</td>
<td>Motor Assembly (115 Volts/50 Hertz)</td>
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<tr>
<td>01-90-5551</td>
<td>Motor</td>
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</tr>
<tr>
<td>01-90-5548</td>
<td>Switch Assembly</td>
<td></td>
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<tr>
<td>01-90-5549</td>
<td>Power Cord Assembly</td>
<td></td>
</tr>
<tr>
<td>01-90-3511</td>
<td>Pulley</td>
<td></td>
</tr>
<tr>
<td>01-90-5556</td>
<td>Motor Assembly (230 Volts/60 Hertz)</td>
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</tr>
<tr>
<td>01-90-5551</td>
<td>Motor</td>
<td></td>
</tr>
<tr>
<td>01-90-5548</td>
<td>Switch Assembly</td>
<td></td>
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<td>01-90-5549</td>
<td>Power Cord Assembly</td>
<td></td>
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<td>01-90-3511</td>
<td>Pulley</td>
<td></td>
</tr>
<tr>
<td>01-90-5557</td>
<td>Motor Assembly (230 Volts/50 Hertz)</td>
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<tr>
<td>01-90-5551</td>
<td>Motor</td>
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<tr>
<td>01-90-5548</td>
<td>Switch Assembly</td>
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<td>01-90-5549</td>
<td>Power Cord Assembly</td>
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<td>01-90-3511</td>
<td>Pulley</td>
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<td>01-90-3409</td>
<td>Drawer Assembly</td>
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<td>01-90-2998</td>
<td>Drawer Only</td>
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<td>01-90-3408</td>
<td>Drawer Pull</td>
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<tr>
<td>01-90-3409</td>
<td>Rear Panel Assembly</td>
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<tr>
<td>01-90-3001</td>
<td>Rear Panel</td>
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<tr>
<td>01-90-3405</td>
<td>1/4 Turn Fastener</td>
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<td>01-90-3406</td>
<td>Fastener Retainer</td>
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<tr>
<td>01-90-3473</td>
<td>Cord Clip</td>
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<td>01-90-2771</td>
<td>Collection Bottle Assembly</td>
<td>2</td>
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<tr>
<td>01-90-3105</td>
<td>2800 ml Collection Bottle</td>
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<tr>
<td>01-90-2768</td>
<td>Cap &amp; Float Assembly</td>
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<tr>
<td>01-90-2393</td>
<td>Cap (Includes Gasket)</td>
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<td>01-90-2394</td>
<td>Cap Gasket</td>
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<td>01-90-2395</td>
<td>Float Gasket</td>
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<td>01-90-2878</td>
<td>Float Assembly</td>
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<tr>
<td>01-90-3445</td>
<td>Motor Mounting Plate</td>
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<td>01-90-3512</td>
<td>Pump With Pulley</td>
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<td>01-90-3060</td>
<td>Muffler</td>
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<td>01-90-3136</td>
<td>Muffler End Cap</td>
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<td>01-90-2469</td>
<td>Brass Elbow (1/4 NPT)</td>
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<tr>
<td>Code</td>
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<td>Illustration No.</td>
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<tr>
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<tr>
<td>01-90-3562</td>
<td>Motor Mount</td>
<td>4</td>
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<td>01-90-5550</td>
<td>Vee Belt</td>
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<td>01-90-2774</td>
<td>Plastic “Y”</td>
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<tr>
<td>01-90-3412</td>
<td>Cabinet Trim Strip</td>
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<td>01-90-3413</td>
<td>Trim Strip End Cap</td>
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<td>01-90-3418</td>
<td>Clip-On Receptacle</td>
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<tr>
<td>01-90-9041</td>
<td>Electrical Conductive Tubing</td>
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<tr>
<td></td>
<td>3/16 Inch x 7/16 Inch (Vacuum Tubing)</td>
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<tr>
<td>01-90-9042</td>
<td>Electrical Conductive Tubing</td>
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<tr>
<td></td>
<td>1/4 Inch x 1/2 Inch x 6 Foot</td>
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<tr>
<td>01-90-2295</td>
<td>Pump Repair Kit</td>
<td>6</td>
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<tr>
<td>01-90-2525</td>
<td>Pump Diaphragm</td>
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