

MAINTENANCE AND SERVICE MANUAL



GOMCO MODEL — 6003 SUCTION APPARATUS

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1.0 GENERAL INFORMATION

1.1 See Illustration No. 1 for major assemblies and nomenclatures.

1.2 Purpose:

The Gomco Model 6003 is a mobile drainage pump designed to assure gentle suction for specialized uses as gastric lavage, abdominal decompression, duodenal and fistula drainage following prostatectomy. The suction system include two preset drainage levels of 90mm and 120mm of mercury vacuum.

1.3 Features:

Supplied with Gomco Model 6003 Gastro-Intestinal Drainage Pump are:

1. A one gallon glass collection container graduated to 2800 ml with overflow protection cap assembly.
2. A package containing three bacteria filters to prevent contamination of the pump.
3. Compact cart with non-marking casters (2-with brakes), easy to clean stainless steel top work surface, illuminated on-off switch, vacuum selector switch, pump cycle lamp and hospital grade plug.
4. One disposable tubing package containing a 15-inch and a 72-inch length of clean 1/4-inch I.D. clear PVC tubing.
5. A step-down transformer enabling the use of Model 6003 in areas supplied with 230 volts.
6. Solid State pump control to provide days of continuous suction duty.
7. One spare check valve and manifold assembly.

1.3.1 OVERFLOW PROTECTION (See III. No. 3)

The 2800 collection bottle assembly supplied with this pump includes a cap and float assembly (See Illustration No. 3). When collected patient fluids reach the maximum safe limit of the bottle, the vacuum supply to the collection bottle is shut off by the cap and float.

1.3.2 BACTERIA FILTER (See III. No. 1)

The high efficiency bacteria is custom engineered to prevent fluid and aerosol contaminations of mobile suction units. This filter features a hydrophobic, microporous membrane which filters air with maximum efficiency (0.3 micron particles in air), while blocking the flow of aqueous fluids and aerosol contaminants. The Gomco high efficiency filter protects against suction pump contamination in the case of canister overflow as it helps prevent the overflow from reaching the pump.

2.0 SET-UP:

2.1 COLLECTION BOTTLE: (See Illustration No. 3)

1. Check the bottle top edge 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. Be sure the float moves freely.
4. Screw the cover assembly securely onto the bottle top making the gasket seals.

2.2 BACTERIA FILTER (See Figure 1)

Install the bacteria filter to pump stand prior to patient application by;

1. Locate the vacuum and filter connection on the left bottom side of the stand body.
2. Screw the threaded end of the filter into the vacuum and filter connection by turning in clockwise direction.

3. Tighten finger tight.

NOTE: Care must be taken when installing the filter to prevent thread damage due to cross threading and over-tightening.

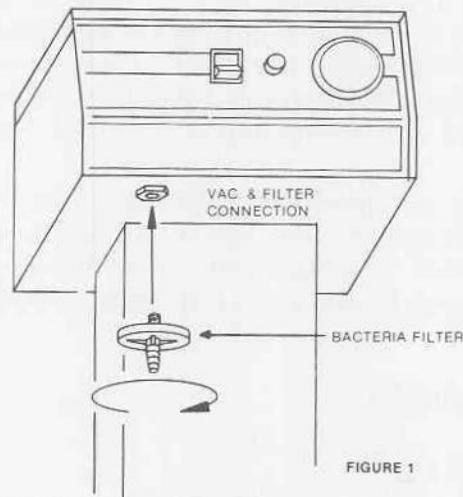


FIGURE 1

3.0 OPERATING PROCEDURE:

1. The power switch should be in the "off" position (See Illustration No. 2)
2. The voltage supply (115v. 50-60 Hz or 230v. 50-60 Hz) of the room that the suction apparatus is to be used in must be determined. For 115 volt use, the power cord extending down from left corner of the stand body (parallel bladed plug) should be plugged directly into the 115 volt receptacle. For 230 volt use, plug the power cord extending down from the left corner of the stand body (parallel bladed plug) into the transformer receptacle at the rear of the stand base. Plug the power cord extending out of the opposite end of the transformer (straight bladed plug) into the 230 volt receptacle.
3. Be sure the collection bottle is assembled as specified in 2.1. Insert the bottle into the bottle brackets on the stand base.
4. Be sure the bacteria filter is installed as specified in 2.2
5. Connect the short length of tubing, enclosed in the tubing package, to the vertical bottle cap fitting stamped "to pump" and to the bacteria filter hose barb.
6. Connect the 72-inch length of tubing to the long bent tube of the bottle cap extending into the bottle.
7. Push the power switch in the front to the "ON" position. The red lamp within the switch indicates the unit is on.
8. Push the "VACUUM SELECT" switch to the desired vacuum range, up for 120mm Hg or down for 90mm Hg. The white lamps indicate the vacuum selection (See Illustration No. 2)
9. During operation, the amber "PUMP CYCLE" (See Illustration No. 2) will blink intermittently to indicate the intermittent pumping action. After four or five minutes of operation, the selected vacuum level will be reached.
10. Prior to using your pump on a patient, insure the vacuum by submerging the end of the patient tube (72-inch) into a container of water. Aspiration of water into the collection bottle should be noticed.
11. Your pump is now ready for patient use.
12. During patient use, the level of the collected contents within the bottle should be frequently checked and emptied to prevent float shut-off.
13. Push the power switch in the front control panel to the "OFF" position and disconnect the short length of tubing from the bacteria hose barb to stop the pump.

3.1 **PERFORMANCE CHECKS:**

To insure proper pump performance, the operator should periodically check the following:

1. The pump cycle lamp (See Illustration No. 2) should blink intermittently, approximately 3.5 - seconds "ON" at the 120 mm setting or 2 - seconds "on" at the 90 mm setting. The approximate "OFF" time should be 20 - seconds.
2. Observe the flow of patient fluids within the tubing. Fluids should be drawn into the collection bottle during the "OFF" time of the pump cycle lamp.
3. To avoid float shut-off within the collection bottle, the collected contents should be emptied or the bottle changed when fluids near the 2800 ml. graduation on the bottle.
NOTE: Reference paragraph 2.1 after emptying or changing collection bottles.
4. The length of tubing between the vertical bottle fitting and the bacteria filter (See Illustration No. 1) should remain dry. If patient fluids have entered the filter, it must be replaced. Suction will not resume until a new filter has been installed.

0 **CARE AND MAINTENANCE:**

4.1 **PERIODIC MAINTENANCE:**

To insure proper pump performance the following checks should be made every 6-months by qualified service personnel:

1. Vacuum level
2. Pump cycle times
3. Ground continuity

4.1.1 **VACUUM LEVEL:**

Vacuum levels should be measured with a collection bottle in the vacuum system and should be in accordance with 6.1.1. Reference 8.1 and 8.2 to correct deviations from specifications.

Necessary instrument:

- Mercury Manometer
- Calibrated Vacuum gauge

4.1.2 **PUMP CYCLE TIMES**

Pump cycle times should be clocked and in accordance with 6.4.1. Reference paragraph 6.4.2 for minor time adjustments. Reference sections 8.3 and 8.4 for serious defects.

Necessary Instrument

- Calibrated Stop Watch

4.1.3 **GROUND CONTINUITY**

Ground Continuity between the chassis and the plug ground pin should be checked to assure operator and patient safety. Power cord replacement or tightening the chassis ground screw will usually rectify an interrupted ground.

Necessary Instrument:

- OHM Meter or Hy-Pot Tester

4.2 **BACTERIA FILTER** (See Illustration No. 1)

The filter should be replaced after one month of patient use or when a reduction of the air flow rate is noticed. It must be replaced in the event fluids have entered it, such as in collection bottle overflow.

NOTE: Extended use of alcohols or solvents may reduce the hydrophobic properties of the microporous membrane.

4.2.1 BACTERIA FILTER REPLACEMENT:

1. Unscrew filter from vacuum and filter connection (See Illustration No. 1) by hand turning in a counter clockwise direction.
2. Screw new filter into vacuum and filter connection by turning in clockwise direction finger tight.

NOTE: Care must be taken when replacing the filter to prevent thread damage due to cross threading and overtightening.

4.3 COLLECTION BOTTLE AND CAP ASSEMBLY:

The 2800 ml collection bottle and cap assembly (See Illustration No. 3) should be thoroughly cleaned and sterilized after every patient use to prevent cross contamination.

4.3.1 COLLECTION BOTTLE AND CAP ASSEMBLY STERILIZATION:

1. Unscrew the cap and float assembly (See Illustration No. 3) from the bottle.
2. Dispose of drainage fluids and materials in bottle.
3. Soak the bottle and cap assembly in a warm detergent solution.
4. Unscrew the float assembly from the cap assembly. Make sure the small gasket on the float stem does not become disconnected while cleaning.
5. Wash all parts with a warm detergent solution and a nylon bristle brush and rinse thoroughly with water and aerate.
6. Autoclave at 250°F for 15 minutes. Follow autoclave manufacturer's directions for recommended procedure.

CAUTION: Do not flash autoclave the collection bottle. If desired, sterilize with ethylene oxide gas. Follow manufacturer's directions for recommended procedure.

7. Screw the float assembly to the cap assembly. (See 2.1 collection bottle set-up and procedure.

4.4 STAND DISINFECTING:

The entire stand should be disinfected after each patient by wiping it down with a mild disinfecting detergent. Mix the detergent according to the recommended manufacturer's directions.

4.5 STORAGE:

Gomco Model 6003 is designed for indoor use and should be stored in facilities similar to the hospital environment. Sheltered from weather, the recommended storage conditions are 0° to 120°F for temperature and a maximum limit of 90% humidity. Periodic maintenance checks as specified in paragraph 4.1 should be made every 6-months.

5.0 OPERATING PRINCIPLE: See Fig. 2

The mild negative pressure of this unit is induced by the expansion and contraction of air within an airtight cylinder. The expansion and contraction of the air in the cylinder is controlled by pressure and suction valves and a solid state timing device to produce a mild suction.

Contained within the air tight pump cylinder is a heating element wound with a resistance wire. During the "ON" time, 120 volts is applied to the heating element for a period of 2 to 3.5 seconds, depending upon the selected vacuum range, controlled by the solid state timer. The resistance wire heats the air within the cylinder and expanded air is expelled into atmosphere thru the pressure (check) valve. The amber pump cycle lamp in the front control panel (See Illustration No. 2) is lit during this time.

During the "OFF" time, voltage to the heating element is interrupted by the solid state timer for a period of 19 to 22 seconds. The pressure valve closes during this period and the remaining air within the cylinder cools and contracts causing a partial vacuum which opens the suc-

tion (CHECK) valve. Air from within the 2800 ml collection bottle is drawn into the cylinder to fill the vacuum. During this "OFF" time, the amber pump cycle lamp in the front control panel remains off and this is when suction actually occurs.

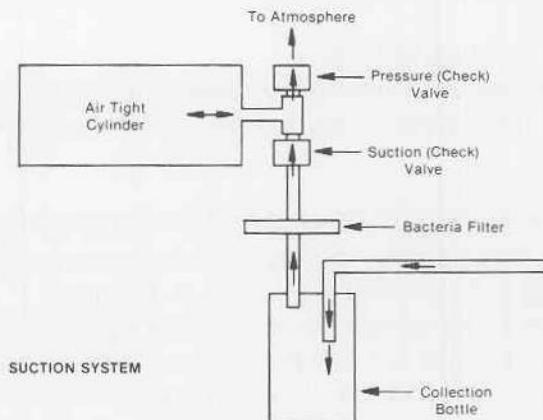


FIGURE 2

SERVICE AND REPAIR

6.1 SPECIFICATIONS:

6.1.1 VACUUM:

At 90mm Setting: 85.5mm to 99mm Hg.
At 120mm Setting: 114mm to 132mm Hg.

6.1.2 FLOW RATE (Air)

At 90mm Setting: .25 liters/minute
At 120mm Setting: .30 liters/minute

6.1.3 ELECTRICAL REQUIREMENTS:

115 Volts 50/60 hz (1.5 amps max.)

6.1.4 PUMP CYLINDER

155 to 160 ohms resistance

6.1.5 DIMENSIONS:

(H) 32³/₄" x (W) 18¹/₄" x (D) 16³/₄"

6.1.6 WEIGHT

43 Pounds

6.1.7 DUTY:

Continuous

NOTE: Vacuum and air flow should be measured after the pump has been running for 15-minutes to normalize the pump cylinder temperature.

TEST EQUIPMENT

Mercury manometer or vacuum gauge
Air flow meter (sprague 160 or equal)
OHM meter AMP meter

6.2 PUMP CYLINDER REPLACEMENT

1. Disconnect the unit from its power source.
2. Remove the stainless steel top cover from the stand by removing the six self tapping screws.
3. Disconnect the valve and manifold assembly from the cylinder tubing connector.
4. Remove the power cord ground wire from the chassis ground screw.
5. Remove the cylinder ground wire from the chassis ground screw.
6. Remove the two cylinder mounting screws from the bottom side of the stand body.
7. Unsolder the two cylinder wires at the cylinder cover terminals and remove.
8. The cylinder is now free. Install new cylinder in reverse order.

NECESSARY TOOLS:

Phillips head screw driver
Flat tip screw driver
Soldering Iron
3/8" Wrench or nut driver

6.3 ELEMENT REPLACEMENT:

1. Remove pump cylinder as described in 6.2
2. Remove the six slotted head machine screws fastening the cylinder cover to the cylinder.
3. Tap the edge of the pump cover with a plastic mallet to break it free of the gasket if necessary.
4. Lift off cover with heating element attached.
5. Remove the two element leads running thru the cover terminals by unsoldering them from the top side of the cover. Pry-up the two small tabs securing the wire to the terminals. The terminal centers should be clear of solder.
6. Loosen the hex nut locking the element rod to the cover and unscrew the element from the cover.
7. Screw new element into cover center hole approximately flush with the top surface of the new cover. Tighten the element lock nut against cover.
8. Pass the two element leads thru the cover terminals and wind each lead around the small terminal tabs and bend both tabs down to secure the wires. Solder the two leads and solder closed the center terminal holes.
9. Check resistance to make sure of proper contact - 155 to 160 OHMS.
10. Apply a small drop of RTV or permatex on the top of the cylinder cover at the center element rod hole to prevent any leaks.
11. Place new gasket on cylinder and insert element & cover assy. while aligning screw holes. Replace the six cover mounting screws and tighten.
NOTE: Care must be taken when handling the element and cover assembly to prevent damage to the fragile element.
12. Install cylinder as described in pump cylinder replacement - 6.2.
NOTE: Check resistance across the two soldered terminals of the pump cover.

TOOLS NECESSARY:

Flat tip screw driver
Plastic Mallet
Soldering Iron
5/16" open end wrench
OHM meter

6.4 CONTROL CIRCUIT:

The pump cycles are controlled by solid state printed circuit board (See Illustration No. 5 Shts. 1 thru 5 for schematic and parts list). Timing is factory set and needs no adjustment.

CONTROL CIRCUIT DESCRIPTION (PN2311) Illustration No. 5

The SF 120A-774 is an on/off recycling timer which provides a fixed "OFF" time of 19 to 22 seconds and a selectable "ON" time of either 3.4 to 3.75 seconds or 2.1 to 2.25 seconds. The 2.1 to 2.25 second "ON" time can be selected by shorting terminals 4 and 5 together. When power is applied the "ON" time occurs first.

A 9V power supply is supplied by D1, R1, C6, C7, C8 and Z1. C7 and C8 are used for high frequency noise filters. C6 is the filter capacitor for the ½ wave voltage supplied through D1, and R1. Z1 is the regulating zener diode.

The circuit timing is accomplished by using a MC 14541 programmable timer, IC1. This IC has a built in oscillator chip whose timing components are connected between Pins 1, 2, and 3. The pin 3 connection used is determined by IC2, a MC4016 quad bilateral switch. The section of this switch that are turned on, determine the timing components which are used.

During the "OFF" time interval, P3, R7, R11 and C2 comprise the timing components. They are selected by high signal on Pin 6 of IC2.

The longer "ON" time timing components are P2, R6, R12 and C3. These are selected by a high signal on Pin 12 of IC2. When a shorter "ON" time is desired, P2 and R6 are parallel by P1 and R5 by applying a high signal on Pin 13 of IC2. Since "ON" time is relatively short, resistor R14, a zero Ohm resistor, is connected between Pin 5 of IC2 and common during test. This prevents the timer from going into the "OFF" time until both "ON" times have been calibrated. This resistor is then removed.

The output of the timer is connected through a full wave bridge, BR1 and SCR. Q1. The gate drive to the SCR is controlled by R2, Q2, R4 and Pin 8 of IC1. When Pin 8 of IC1 is low, transistor Q2 is off, and gate current to Q1 via R2. The timer is then in the "ON" state. When Pin 8 of IC1 is high transistor Q2 is "ON", shorting the gate current of Q1 to common. This provides the "OFF" time.

IC1 is programmed by the connectors of Pin 12 and 13 to either a high or low state. For this circuit the IC is programmed to divide the oscillator frequency by 1024. Since the Q output of IC1 will change state in one half of that number of counts, the number 512 is used to calculate the oscillator frequency. Therefore, the oscillator frequency measured at Pin 1 of IC1 should be 24.98 Hz for the "OFF" time, 143.22 Hz for the long "ON" time, and 227.56 Hz for the short "ON" time.

6.4.1 CONTROL CIRCUIT SPECIFICATIONS:

1. Mode of operation — continuous on-off recycling with power applied to the input terminals. The load is energized during the "ON" time period (See Illustration No. 5)
2. Input voltage — 120 volts \pm 15%, 50/60 Hz.
3. Time delays —

	At 120mm Setting	At 90mm Setting
ON TIME	3.4 to 3.75 sec.	2.1 to 2.25 sec.
OFF TIME	19 to 22 sec.	19 to 22 sec.

4. Load 160 Ohms resistive.

6.4.2 CONTROL CIRCUIT ADJUSTMENT:

1. Remove the stainless steel top cover from the stand body by removing the six self-tapping screws.
2. Remove the fishpaper cover protecting the solid state timer (See Illustration No. 5 Sheet No. 2).
3. Turn the center adjusters of the trim-pots clockwise to increase times, counterclockwise to decrease times.

4. Replace the fishpaper cover onto the timer.
5. Replace the stainless steel top cover onto the stand.

Necessary Tools:

Phillips head screw driver extra small flat tip screw driver

6.4.3 CONTROL CIRCUIT REPLACEMENT:

1. Disconnect the unit from its power source.
2. Remove the stainless steel top cover from the stand by removing the six self tapping screws.
3. Disconnect all wires from P.C. board by pulling off the quick connect terminals (Do not pull on wires. Make sure you have a firm hold on the terminal).
4. Remove the two P.C. board mounting screws from the bottom side of the stand body.
5. Install new board in reverse order. (See Illustration No. 1 for wiring details.)

NECESSARY TOOLS

Phillips head screw driver

Flat tip screw driver

6.5 SUCTION AND PRESSURE VALVES:

Check valves used in the unit are factory sealed, therefore require no maintenance (See Illustration No. 6)

6.5.1 SUCTION AND PRESSURE VALVE REPLACEMENT:

1. Disconnect the unit from its power source.
2. Remove the stainless steel top cover from the stand by removing the six self tapping screws.
3. Disconnect the white silicone rubber tubing from the pump cylinder tubing connector (See Illustration No. 4)
4. Disconnect the clear PVC tubing from the vacuum and filter connection (See Illustration No. 1) and lift out the valve and manifold assembly
5. Disconnect the clear PVC tubing from the suction valve (See Illustration No. 6)
6. Unscrew the suction and pressure valve from the valve manifold.
7. Lightly lubricate the threads of the new valves with petroleum jelly or equivalent and screw the new valves into the manifold. NOTE : Care must be taken when replacing valves to prevent thread damage due to cross threading and overtightening. Valves should only be installed finger tight.
8. Install valve and manifold assy in reverse order.

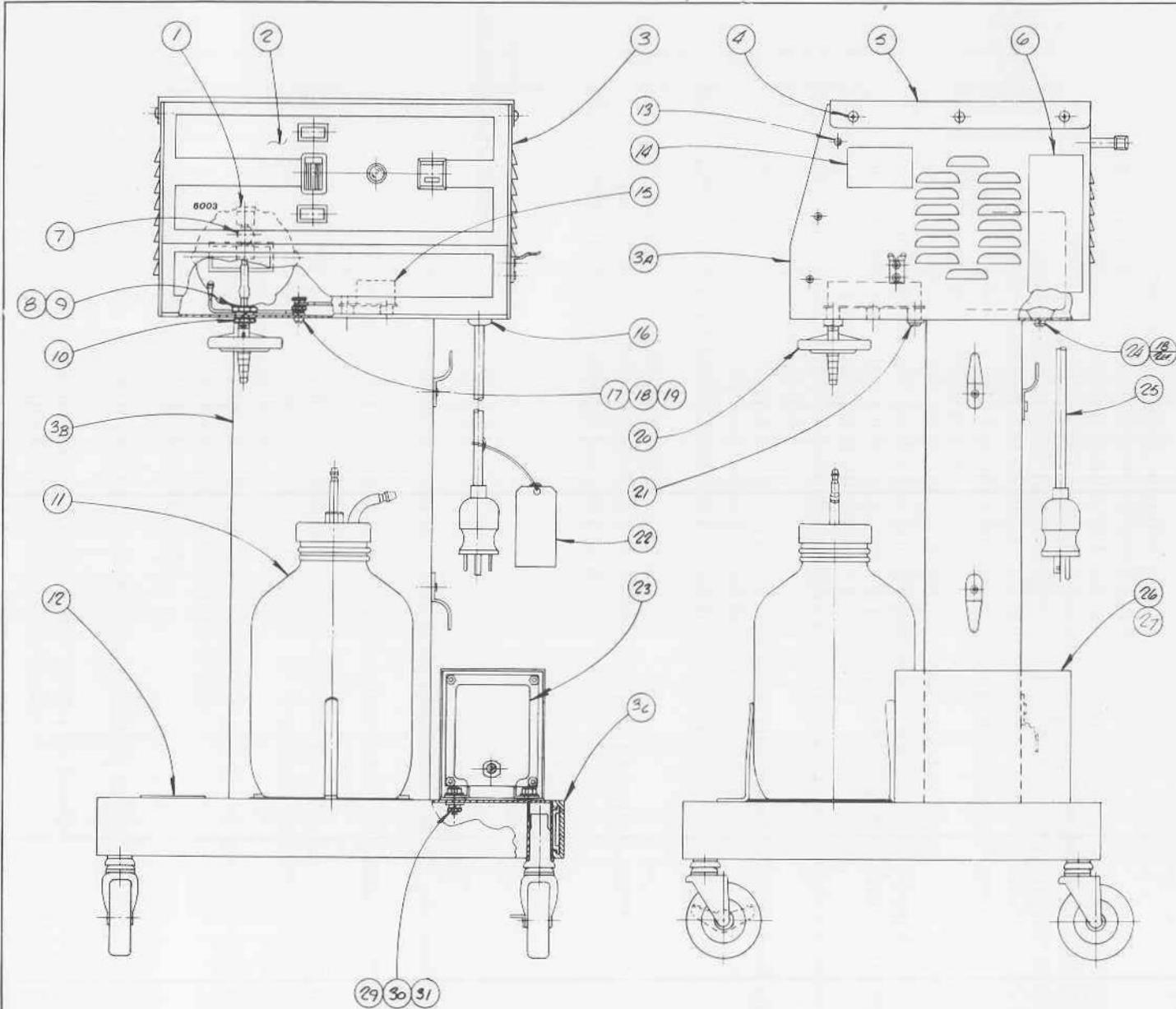
NECESSARY TOOLS: Phillips head screw driver

6.6 Fuse Replacement:

1. Disconnect the unit from its 230 volt power source.
2. Unscrew the fuse cap located on the transformer.
3. Discard the blown fuse and insert a new fuse of the same rating.
4. Screw the fuse cap onto the transformer.

7.0 ILLUSTRATIONS

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No. 3 Collection Bottle Assembly.....	12
No. 4 Cylinder Assembly.....	13
No. 5 Control Circuit.....	14-18
No. 6 Valve Assembly.....	19
No. 7 Wiring Diagram.....	20



DATE: 5-87	DESIGN: CAB	COMCO Division	REV: 0-3937
BY: JMT	CHK: LWB	Water Purification Products, Inc.	REV: 3937
NO: 100	REV: 000	100 East Ferry Street Baltimore, MD 21211	REV: 0003
TITLE: FINAL ASSEMBLY		PART NO: 3937	
REV: 000		REV: 0003	

BILL OF MATERIALS			
REF NO	QTY	DESCRIPTION	PART NO
1	1	PUMP GRINDER ASSY.	2719
2	1	FRONT PANEL ASSY.	3721
3	1	STRAND ASSY.	3933
3A	1	BODY ASSY.	2763
3B	1	UPRIGHT ASSY.	3936
3C	1	BASE ASSY.	3935
4	6	#8-36 ST. SCR TYPE 1	
5	1	5T STL. TOP COVER	2573
6	1	OPERATION DECAL	3960
7	1	LIQUID MEASURE ASSY	2725
8	1	3/8-10 INT. TIGHT LOCKWASHER	
9	1	3/8-18 HEX NUT	
10	1	VAC. FILTER CLOW	2765
11	1	BOTTLE ASSY.	3936
12	1	WARNING DECAL	3263
13	7	TOP RIVET PLATED	2609-2
14	1	SERIAL NO. NAMEPLATE	3938
15	1	PC BOARD	2911
16	1	HEAVY STRAIN RELIEF	2028-2
17	1	#10-32-3/4 PH. HO M5	
18	5	#10 LOCKWASHER	
19	3	#10-32 HEX NUT	
20	1	FILTER 3. PACE	3100
21	2	#8-18-3/8 ST. SCR W/SEMS	
22	1	GROUND TAG	2340-2
23	1	STEP-DOWN TRANS	3726
24	2	#10-32-1/4 PH. HO M5	
25	1	POWER CORD ASSY.	2737
26	1	INT. DECAL (TRANS.)	3901
27	1	TRANSFORMER COVER	3886
28	1	TAPPING PEG (NO. SLOW)	2000
29	4	1/4-20-1/2 W/6-LOC SCR	
30	2	1/4-10 LOCKWASHER	
31	2	1/4-20 HEX NUT	

ILLUSTRATION 1

DRAWN 3-86 CRP	CHECKED ENGR APPR	GOMCO Division Allied Healthcare Products, Inc.	828 East Ferry Street Buffalo, NY 14211	DWG. NO. C-3721-5A
SCALE Full	THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF GOMCO AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR THE MANUFACTURE OR SALES OF APPARATUS WITHOUT PERMISSION.		Tolerance Unless Otherwise Specified DECIMAL 1/100 FRACTIONAL 1/32 ANGULAR 1/2 DEG.	PART NO. 3721-5A
FILE NO.	NAME FRONT PANEL ASSY.			MADE FOR 6003

BILL OF MATERIALS

REF. NO.	QTY.	DESCRIPTION	PART NO.
1	1	FRONT PANEL	3713
2	1	SELECTOR SWITCH	3719
3	1	LAMP	3588
4	1	CYCLE LAMP	2310
5	1	POWER SWITCH	2306

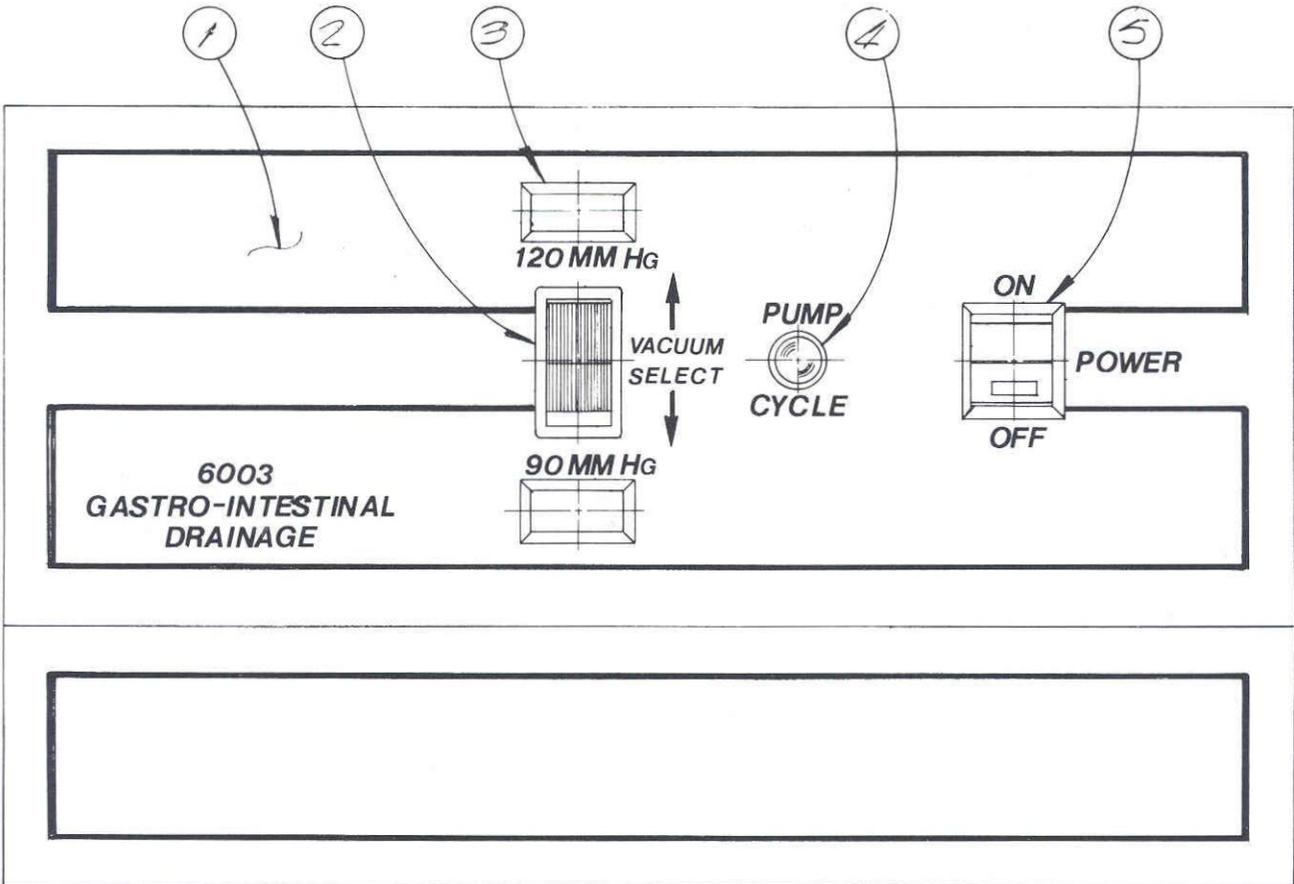
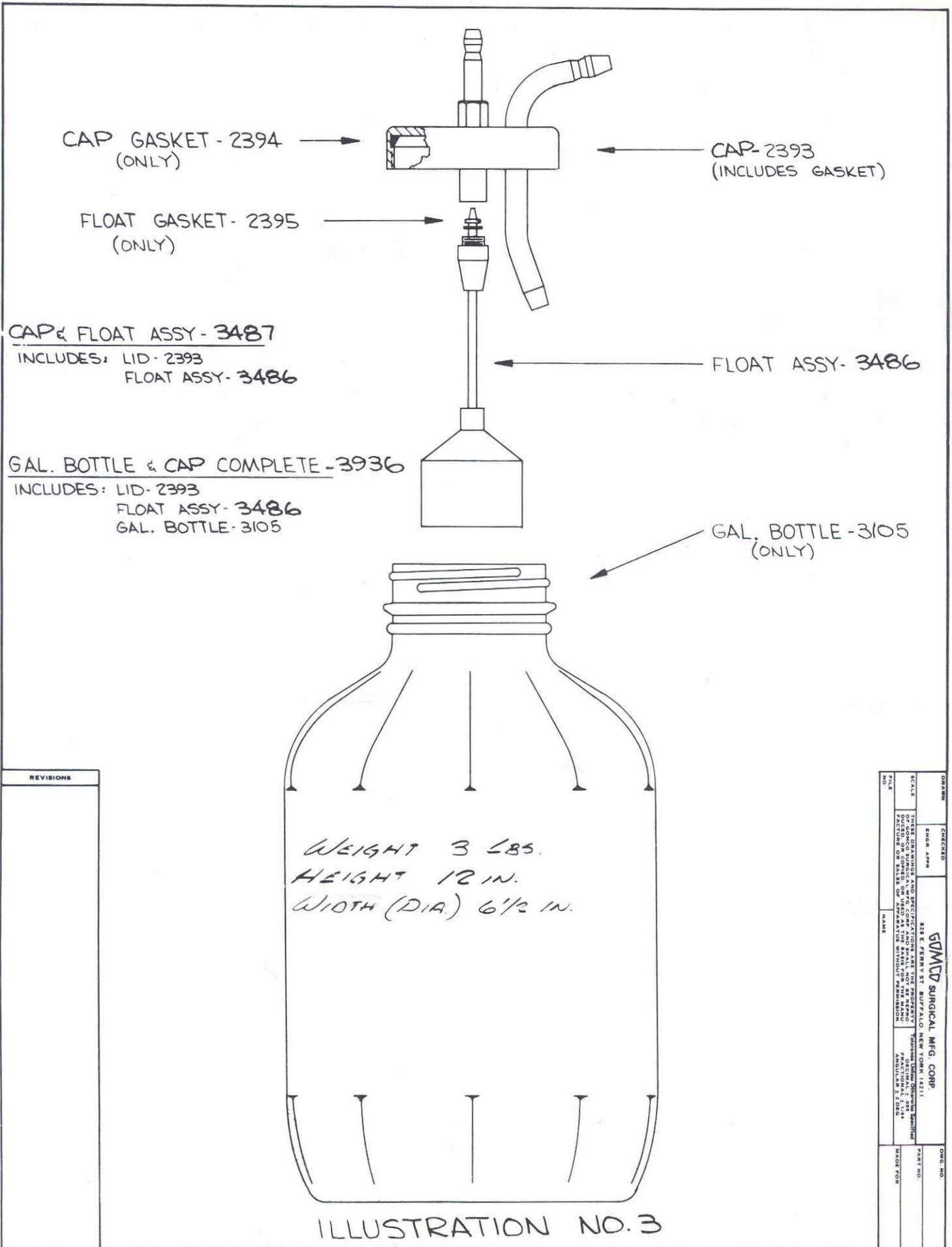


ILLUSTRATION 2

REVISIONS



WEIGHT 3 LBS.
 HEIGHT 12 IN.
 WIDTH (DIA.) 6 1/2 IN.

ILLUSTRATION NO. 3

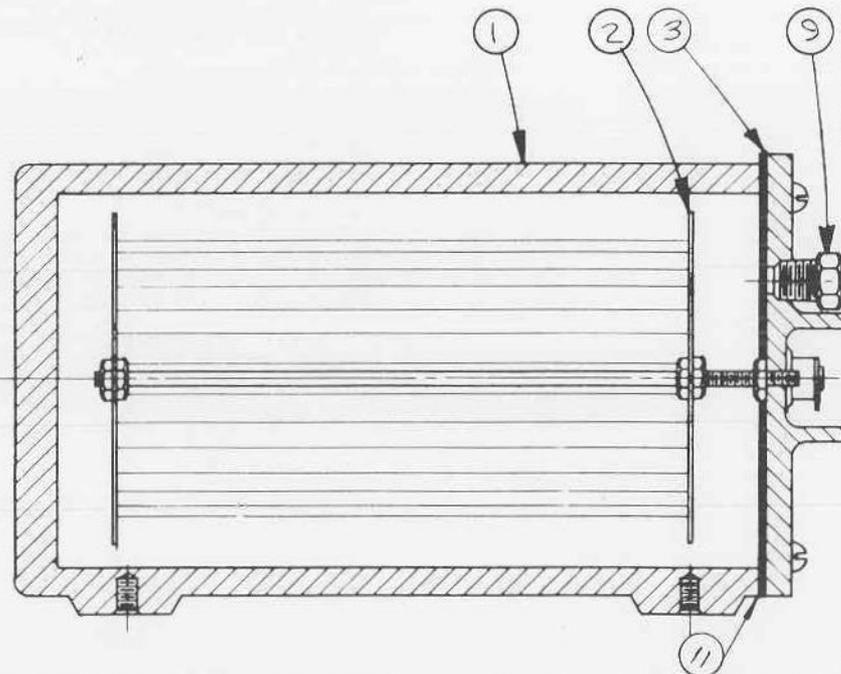
REVISED	REVISIONS

ORGANIZATION	CHECKED	DATE	BY
ENGINEERING			
SCALE			
DESCRIPTION			
PROJECT			
DATE			
NAME			
GOMCO SURGICAL MFG. CORP.			
838 E. FERRY ST. BUFFALO, NEW YORK 14211			

13

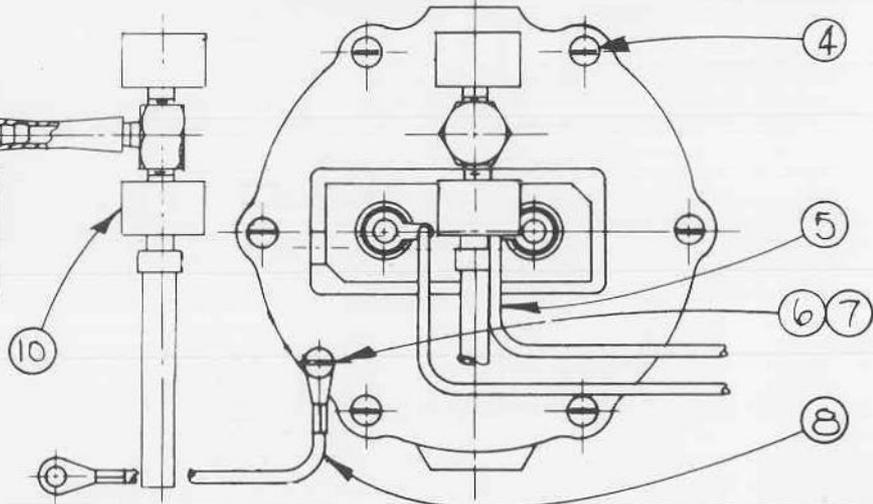
NEXT ASSY -

RESISTANCE ACROSS TERMINALS :
155-160 OHMS



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SCALE FULL		THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF GOMCO SURGICAL MFG. CORP. AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR THE MANUFACTURE OR SALES OF APPARATUS WITHOUT PERMISSION	Tolerance Unless Otherwise Specified DECIMAL ± .005 FRACTIONAL ± 1/64 ANGULAR ± 2 DEG
FILE NO.	NAME PUMP CYLINDER ASSY		Made for 600-601

BILL OF MATERIALS			
REF. NO.	DESCRIPTION	P/N	QTY
1	PUMP CYLINDER	2715	1
2	ELEMENT ASSY	2713-SA	1
3	CYL. COVER ASSY	3489-SA	1
4	RD. HD. M.S. 8-32 x 5/8		6
5	WIRE	2716	2
6	PAN HD. S.T. SCREW 6-32 x 1/4		1
7	LOCKWASHER #6		1
8	GROUND WIRE ASSY	2718-SA	1



11	GASKET	3731	1
10	VALVE & MANIFOLD ASSY.	2725-SA	1
9	TUBING CONNECTOR	2708	1
REF. NO.	DESCRIPTION	P/N	QTY

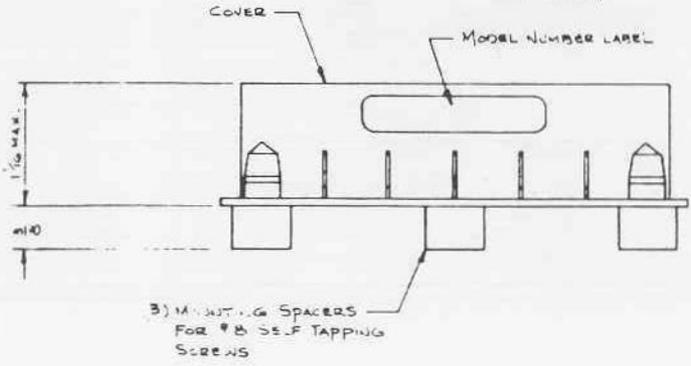
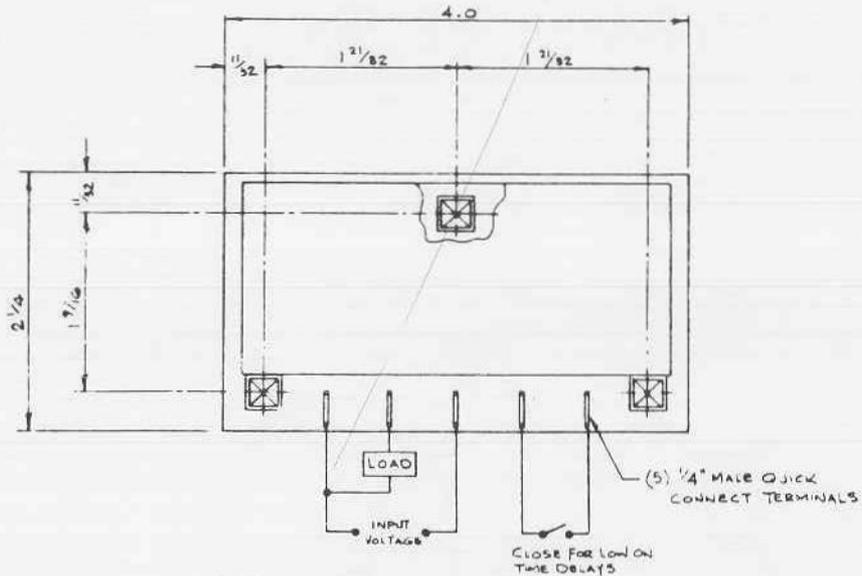
BILL OF MATERIALS CONT'D

REVISIONS

ILLUSTRATION NO. 4

PART NO: SF-774	
REVISIONS	APP. BY

Handwritten: *Handmade in U.S.A. PRODUCTION*



SPECIFICATIONS

- MODE OF OPERATION: CONTINUOUS ON-OFF RECYCLING, WITH POWER APPLIED TO THE INPUT TERMINALS. THE LOAD IS ENERGIZED DURING THE ON TIME PERIOD.
- INPUT VOLTAGE
 - SF120A-774 : 120 VOLTS AC $\pm 5\%$.50/60 HZ
 - SF230A-774 : 230 VOLTS AC $\pm 5\%$.50/60 HZ
- TIME DELAYS
 - OFF TIME DELAYS : SF120A-774 : 19 TO 22 SECONDS
SF230A-774 : 19 TO 22 SECONDS
 - ON TIME DELAYS :

	HIGH	LOW
SF120A-774	3.4 TO 3.75 SEC.	2.1 TO 2.25 SEC
SF230A-774	1.65 SEC. $\pm 10\%$.0	1.1 SEC. $\pm 10\%$.0

- LOAD : APPROX. 160 OHMS RESISTIVE
NOTE : SF230A-774 PROVIDES HALF-WAVE RECTIFIED 230 VAC TO THE LOAD

ILLUSTRATION NO. 5 SHEET NO. 1

SSAC INC
P.O. Box 395, Liverpool, N.Y. 13088

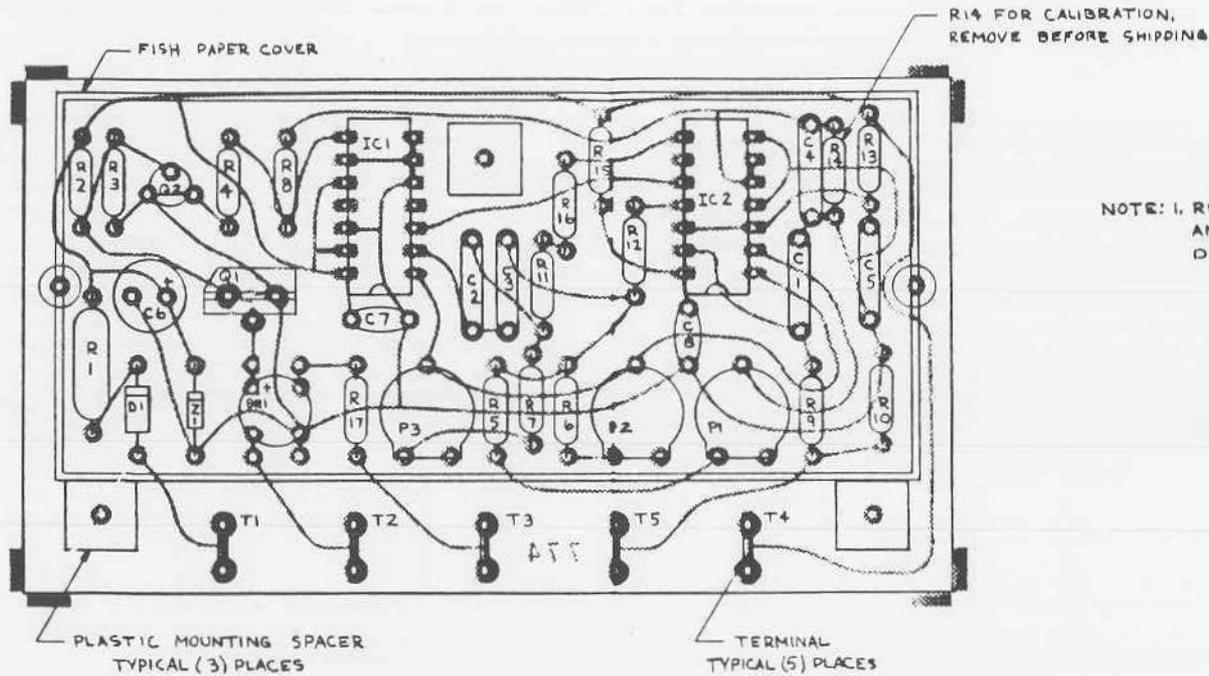
DWN BY CFS DATE 9-26-80
 CHK BY DATE
 APP BY *600* DATE 12-10-80
 SCALE FULL DO NOT SCALE DWG

DIMENSIONS IN - MM
1.000 IN. = 25.40 MM
 TOLERANCES
 FRACTIONS = $\frac{1}{16}$ - 4
 2 PLACE DEC = .01 - 25
 3 PLACE DEC = .005 - 13
 ANGLES = 1°

TITLE: SOLID STATE TIMER
 PART NO: SF120A-774
 SF230A-774
 DWG. 1 OF 1 B 462

PART NO: SF120A-774	
REVISIONS	APP. BY

P1- LOW ON TIME ADJUSTMENT
 P2- HIGH ON TIME ADJUSTMENT
 P3- OFF TIME ADJUSTMENT



NOTE: R1, R15, R16, R17 ARE 0 Ω RESISTORS AND DO NOT APPEAR ON CIRCUIT DIAGRAM

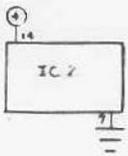
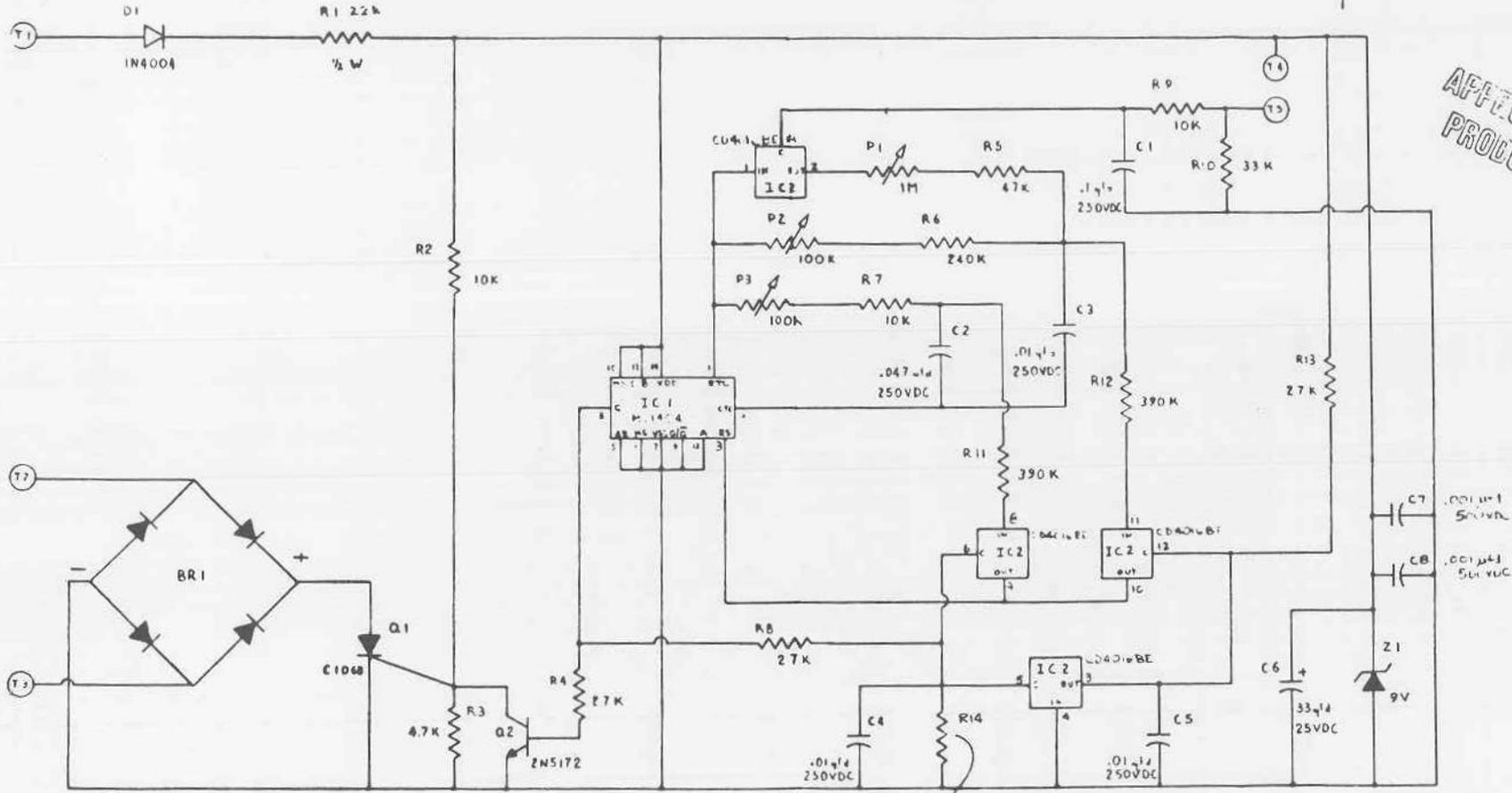
APPROVED FOR PRODUCTION

15

SSAC INC P O Box 395, Liverpool, N Y 13088	DWN BY RTF DATE 9-25-80 CHK BY GJM DATE 9-26-80 APP BY CFS DATE 12-10-80	TOLERANCES FRACTIONS = $\frac{1}{100}$ 2 PLACE DEC. = 01 3 PLACE DEC. = 005 ANGLES = 1°	TITLE: COMPONENT LAYOUT PART NO: SF120A-774 DWG. 1 OF 1
	SCALE 2X DO NOT SCALE DWG	B 1.00	B 1.00

PART NO: SF120A-774	
REVISIONS	APP. BY

APPROVED FOR PRODUCTION



RESISTOR FOR ON TIME CALIBRATION REMOVE TO SHIP

SSAC INC P.O. Box 395, Liverpool, N.Y. 13088	DWN BY: SMK DATE: 9-25-80	TOLERANCES FRACTIONS = 1/16 2 PLACE DEC = .01 3 PLACE DEC = .005 ANGLES = 1°	TITLE: CIRCUIT DIAGRAM
	CHK BY: GAK DATE: 9-26-80		PART NO: SF120A-774
	APP BY: JLD DATE: 12-18-80		DWG 1 OF 1
	SCALE: DO NOT SCALE DWG		B 4

ILLUSTRATION NO. 5 SHEET NO. 3

BILL OF MATERIALS

REF. NO.	QTY.	DESCRIPTION
BR1	1	BRIDGE W04MA
C1	1	CAPACITOR .1ufd 250 VDC
C2	1	CAPACITOR .1ufd 250 VDC
C3	1	CAPACITOR .01ufd 250 VDC
C4	1	CAPACITOR .01ufd 250 VDC
C5	1	CAPACITOR .01ufd 250 VDC
C6	1	CAPACITOR 33ufd 25 VDC MSR
C7, C8	2	CAPACITOR .001ufd 500 VDC
D1	1	RECTIFIER DIODE 1N4004
IC1	1	INTEGRATED CIRCUIT MC 14541 B
IC2	1	INTEGRATED CIRCUIT MC 14016 B
P1	1	TRIMPOT 1 MEG. OHM
P2	1	TRIMPOT 100K OHM
P3	1	TRIMPOT 100K OHM
Q1	1	SCR C 106D
Q2	1	TRANSISTOR 2N5172
R1	1	RESISTOR 22K OHM ½ WATT
R2	1	RESISTOR 10K OHM ¼ WATT
R3	1	RESISTOR 4.7K OHM ¼ WATT
R4	1	RESISTOR 27K OHM ¼ WATT
R5	1	RESISTOR 47K OHM ¼ WATT
R6	1	RESISTOR 270K OHM ¼ WATT
R7	1	RESISTOR 120K OHM ¼ WATT
R8	1	RESISTOR 27K OHM ¼ WATT
R9	1	RESISTOR 10K OHM ¼ WATT

BILL OF MATERIALS

REF. NO.	QTY.	DESCRIPTION
R10	1	RESISTOR 33K OHM ¼ WATT
R11	1	RESISTOR 390K OHM ¼ WATT
R12	1	RESISTOR 390K OHM ¼ WATT
R13	1	RESISTOR 27K OHM ¼ WATT
R14	1	RESISTOR 0 OHM ¼ WATT
R15, 16, 17	1	RESISTOR 0 OHM ¼ WATT
Z1	2	ZENER 9V 1N5239B
	1	PRINTED CIRCUIT BOARD
	5	¼ IN. TERMINAL
	1	COVER
	1	LABEL
	3	SPACER

DRAWN 1-83 HJD	CHECKED ENGR. APPR.	GOMCO Division Allied Healthcare Products, Inc.	828 East Ferry Street Buffalo, NY 14211	DWG. NO. A-2725-SA
SCALE FULL	THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF GOMCO AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR THE MANUFACTURE OR SALES OF APPARATUS WITHOUT PERMISSION.		Tolerance Unless Otherwise Specified DECIMAL $\pm .005$ FRACTIONAL $\pm 1/64$ ANGULAR ± 2 DEG.	PART NO. 2725-SA
FILE NO.	NAME VALVE & MANIFOLD ASSY			MADE FOR

BILL OF MATERIALS

REF. NO.	DESCRIPTION	P/N	QTY.
1	PRESSURE VALVE	3432	1
2	VALVE MANIFOLD	2722	1
3	SILICONE TUBE	2723	1
4	SUCTION VALVE	3433	1
5	PVC TUBE	2724	1

NEXT ASSY- 2719-A

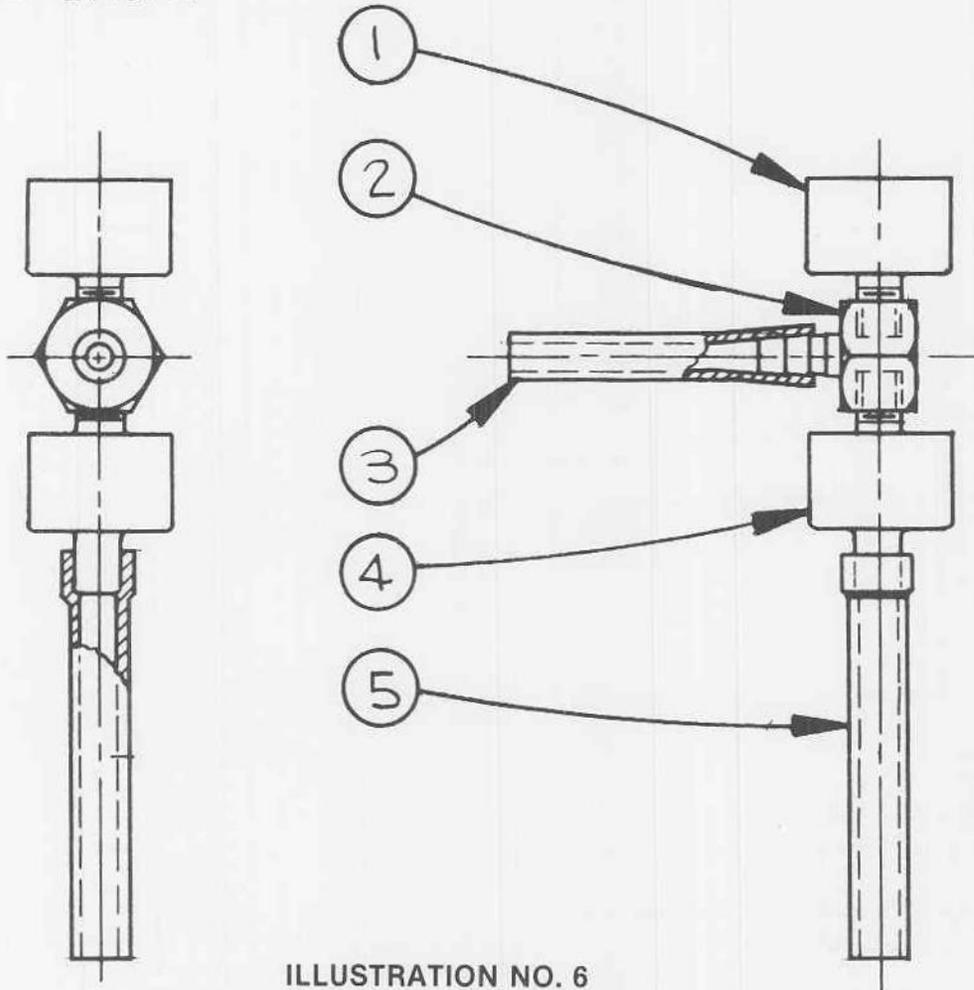
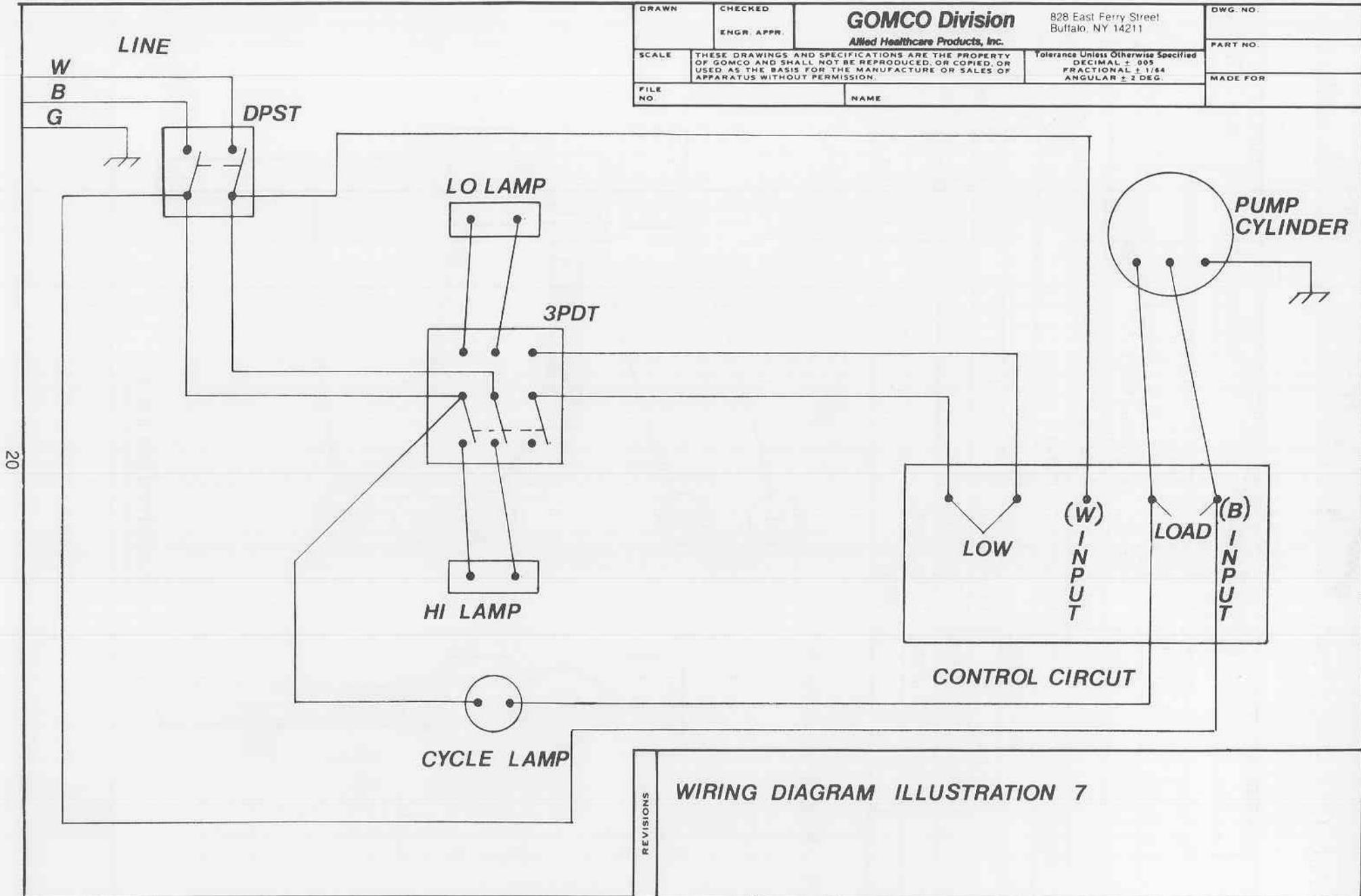


ILLUSTRATION NO. 6

DRAWN	CHECKED	GOMCO Division Allied Healthcare Products, Inc.	828 East Ferry Street Buffalo, NY 14211	DWG. NO.
	ENGR. APPR.			PART NO.
SCALE	THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF GOMCO AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR THE MANUFACTURE OR SALES OF APPARATUS WITHOUT PERMISSION.		Tolerance Unless Otherwise Specified DECIMAL ± .005 FRACTIONAL ± 1/64 ANGULAR ± 2 DEG	MADE FOR
FILE NO.	NAME			



20

REVISIONS

WIRING DIAGRAM ILLUSTRATION 7

8.0 TROUBLE SHOOTING:

PROBLEM		PROBABLE CAUSE	REMEDY
8.1	NO SUCTION BUT PUMP IS CYCLING PROPERLY	1. LOOSE OR OPEN TUBING CONNECTION	CHECK ALL CONNECTIONS
		2. COLLECTION BOTTLE TOP LOOSE OR STUCK FLOAT	CHECK SET-UP, See 2.1
		3. FLOODED BACTERIA FILTER	REPLACE, See 4.2.1
		4. SUCTION OR PRESSURE VALVE BAD	REPLACE, See 6.5.1
8.2	LOW SUCTION	1. LOOSE TUBING CONNECTION	CHECK ALL CONNECTIONS
		2. COLLECTION BOTTLE TOP LEAKING	CHECK SET-UP, See 2.1
		3. SUCTION OR PRESSURE VALVE LEAKING	REPLACE, See 6.5.1
		4. HEATING ELEMENT BURNED OR SHORTED	SEE SPECS., 6.1.6 & 6.3
		5. CONTROL CIRCUIT MALFUNCTION	SEE SPECS., 6.4.1 & 6.4.2
8.3	PUMP CYCLE LAMP	1. CONTROL CIRCUIT MALFUNCTION	SEE SPECS., 6.4.1 & 6.4.2
		2. HEATING ELEMENT BURNED OUT	SEE SPECS., 6.4.1 & 6.4.2
8.4	PUMP CYCLE LAMP DOES NOT COME ON	1. CYCLE LAMP BURNED OUT	REPLACE
		2. CONTROL CURCUIT BURNED OUT	SEE SPECS., 6.4.1 & 6.4.2
		3. WIRING INCORRECT	CHECK WIRING See Ill. No. 7
		4. SELECTOR SWITCH BAD	REPLACE
		5. POWER SWITCH BAD	REPLACE
		6. POWER SOURCE BAD	CHECK OUTLET
8.5	POWER SWITCH LAMP DOES NOT COME ON — 230 VOLT USE ONLY	1. POWER SWITCH BAD	REPLACE
		2. POWER SOURCE BAD	CHECK OUTLET
		3. TRANSFORMER FUSE BLOWN	REPLACE, SEE 6.6

REPLACEMENT PARTS LIST MODEL 6003

		Ill. No.
01-90-3933	Stand Assembly	
Body Assembly	01-90-2743	1
Upright Assembly	01-90-3934	1
Base Assembly	01-90-3935	1
Caster w/o Brake	01-90-3921	1
Caster w/Brake	02-90-3922	
01-90-2743	Body Assembly	1
Body	01-90-2570	
Devilbiss Hook	01-90-2742	
Handle	01-90-2271	
Handle Spacer	01-90-2270	
01-90-3934	Upright Assembly	1
Upright	01-90-3932	
Cord Clip	01-90-1294	
1-90-3935	Base Assembly	1
Base	01-90-3931	
Rubber Bumper	01-90-2816	
Caster Socket	01-90-2908	
Bottle Pad	01-90-2001	
Bottle Bracket	01-90-2697	
01-90-3721	Front Panel Assembly	1
Front Panel	01-90-3713	2
Selector Switch	01-90-3719	2
White Lamp	01-90-3588	2
Cycle Lamp	01-90-2310	2
Power Switch	01-90-2304	2
01-90-3936	Collection Bottle Assembly	3
2800 ML Bottle	01-90-3105	3
Cap & Float Assembly	01-90-3487	3
01-90-3487	Cap & Float Assembly	3
Cap (Including Gasket)	01-90-2393	3
Cap Gasket	01-90-2394	3
Float Gasket	01-90-2395	3
Float Assembly	01-90-3486	3
01-90-2719	Pump Cylinder Assembly	4
Pump Cylinder	01-90-2715	4
Element Assembly	01-90-2713	4
Cylinder Cover Assembly	01-90-3449	4
Tubing Connector	01-90-2708	4
Valve & Manifold Assy.	01-90-2725	4

		III. No.
01-90-2725	Valve & Manifold Assembly	6
Pressure Valve	01-90-3432	6
Suction Valve	01-90-3433	6
Manifold	01-90-2722	6
Silicone Tubing ($\frac{1}{4}$ x $\frac{1}{8}$ x 6 ft.)	01-90-9043	6
Clear PVC Tubing ($\frac{3}{16}$ x $\frac{5}{16}$ x 6 ft.)	01-90-9034	6
01-90-2573	Stainless Steel Top	1
01-90-2311	P.C. Board (115 Volt)	5
01-90-3100	Bacteria Filter (3/Pkg.)	1
01-90-2000	Tubing Package	1
	(15 in. & 72 in. length)	
01-90-2737	Power Cord Assembly	1
	(115 Volt)	
01-90-2765	Vacuum & Filter Connection	1
01-90-3726	Step-down Transformer	1
	(230 Volt to 115 Volt)	
01-90-3886	Transformer Cover	1
01-90-5062	Fuse	Not Shown

NOTE: The following part descriptions are used for internal wiring, but are not sold by GOMCO:

No. 18 Wire, Type TEW, $\frac{1}{32}$ " PVC Insulation

No. 6 - Ring Terminal for 18-22 Wire

No. 10 - Ring Terminal for 18-22 Wire

$\frac{1}{4}$ " Fully Insulated Terminal, Female, for 18-22 Wire (Red Slip-On)

$\frac{1}{4}$ " Fully Insulated Terminal, Female, for 16-14 Wire (Blue Slip-On)

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NOTES
