

JUNE 1994

# GOMCO PORTABLE ASPIRATOR MODELS 300 & 3001



## OPERATION, MAINTENANCE AND SERVICE MANUAL

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## 1.0 GENERAL INFORMATION:

1.1 The Gomco Models 300 and 3001 are designed for general suction use in hospitals or clinics.

### 1.2 Features Model 300:

Supplied with Model 300 as standard equipment are:

1. One (1) 600 ML Collection Bottle.
2. One (1) Disposable Tubing Package.
3. Compact pump with carrying handle, On-Off switch, vacuum gauge, vacuum regulator, and hospital grade plug.
4. High-impact and fire retardant orange plastic base.
5. Bacteria filters, package of 3.

#### 1.2.1 Bacteria Filter:

The high efficiency bacteria filter is custom engineered to prevent fluid and aerosol contamination 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

### 1.3 Features Model 3001:

Supplied with Model 3001 as standard equipment are:

1. One 1100 ML disposable collection container with overflow protection cap.
2. One (1) disposable tubing package.
3. Compact pump with carrying handle, On-Off switch, vacuum gauge, vacuum regulator, and hospital grade plug.
4. High-impact and fire retardant orange plastic base.
5. Bacteria filters, package of 3.

#### 1.3.1 Bacteria Filter:

The high efficiency bacteria filter is custom engineered to prevent fluid and aerosol contamination 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 SPECIFICATIONS:

### 2.1 Vacuum Range:

0 to 22 in. Hg. (0 to 559 mm Hg.)

### 2.2 Flow Rate:

Open Flow 29 LPM

### 2.3 Electrical Requirements:

115 Volts 60 Hz (4.0 amps)  
(220 Volt also available)

### 2.4 Motor and Pump Description:

1/8 h.p. thermally protected, shaded pole motor,  
direct drive diaphragm pump.

### 2.5 Dimensions:

(H) 12" x (D) 9" x (W) 12½"

### 2.6 Weight:

Shipping — 23 pounds  
Net — 18½ pounds

- 2.7 **Duty:**  
Continuous: 8 - Hours Running

### 3.0 SET-UP:

3.1 **1100 ML Disposable Collection Container** (See Illustration No. 3A):

1. Snap the lid onto the collection container firmly.
2. Connect the 72" length of clear tubing to the 90° tubing connector in the lid marked "PATIENT".
3. Connect the short length of tubing to the vertical connector on the lid marked "VACUUM".
4. Insert the container into the bottle brackets.
5. Connect the other end of the short length of tubing to the barbed end of the bacteria filter at the pump.

3.2 **600 ML Glass Collection Bottle** (See Illustration No. 3)

1. The bottle and cap assembly should be sterilized prior to use (See 6.4).
2. The bottle should be assembled as shown in Illustration No. 3.
3. Connect the 72" length of clear tubing to the side of the bottle top having the longer metal tube extending into the bottle.
4. Connect the short length of tubing to the short metal tube extending into the bottle.
5. Insert the bottle into the bottle brackets.
6. Connect the other end of the short length of tubing to the barbed end of the bacteria filter at the pump.

### 4.0 OPERATING PROCEDURE:

1. The "On-Off" switch should be in the "Off" position.
2. Plug the line cord into a grounded electrical outlet, making sure that it is the same voltage as indicated on the unit nameplate. The receptacle should be marked "Hospital Grade" to insure grounding.
3. Be sure the length of tubing from the bottle to the bacteria filter is dry.
4. Push the "On-Off" switch on the side of the pump to the "On" position.
5. Check the degree of vacuum by pinching off the patient tube. The amount of vacuum, in inches of mercury, will register on the vacuum gauge. To increase the vacuum, turn the regulator needle located on the regulator body (See illustration number 2) clockwise. To decrease the vacuum, turn the needle counter-clockwise.
6. Your pump is now ready for patient use.

### 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 MAINTENANCE AND SERVICE

6.1 **Pump Lubrication:**

The pump and motor are permanently lubricated and require no oiling or greasing. Do not at any time lubricate any of the parts with oil, grease, or petroleum products.

## 6.2 Pump Maintenance:

6.2.1 The air filters and gasket should be checked or replaced at a minimum of at least once a year. (See illustration Number 4).

### 6.2.2 To Replace Air Filters and Gasket:

(Included in Parts Kit 2295)

1. Remove the five (5) phillips head screws from the top cover of the pump. The filters and gasket are located beneath this top cover. (See illustration number 4).
2. Remove the gasket and filters and replace the filters with new ones.
3. The gasket may be cleaned with water, but should be replaced yearly.

### 6.2.3 To Replace Valves:

(Included in Parts Kit 2295)

1. Remove the four (4) socket head machine screws holding the pump head in place. **Note:** Some pump heads may be shimmed. When removing the head, take note of their location for proper replacement.
2. Remove the slotted machine screw that holds each valve in place.
3. The stainless steel inlet and outlet valves are interchangeable. Place the inlet valve in position against the retainer bar; replace the valve holder over the valve and secure with the machine screw. **Note:** This valve holder is marked with an "X" in one corner. Position the valve holder so that the "X" is located in the lower right hand corner toward the inlet of the air chamber.
4. Place the outlet valve against the retainer bar; replace the valve retainer over the valve and secure with the machine screw.
5. Replace the head and tighten the socket head screws to 90-100 inch pounds of torque.

### 6.2.4 To Replace Diaphragm

1. Remove the four (4) socket head machine screws holding the pump head in place. **Note:** Some pump heads may be shimmed. When removing the head, take note of their location for proper replacement.
2. Remove the two(2) phillips head machine screws from the diaphragm retainer plate. Remove the plate and diaphragm.
3. The new diaphragm will fit in any position on the connecting rod.
4. Replace the retainer plate and the two (2) phillips head machine screws. Torque to 30-inch pounds. **Caution:** Do not raise any burrs or nicks on the heads of these screws. These burrs could cause damage to the inlet valve. Do not at any time attempt to remove the connecting rod or completely disassemble the pump. If it does not give you the proper service after installing a new service kit, Part No. 2295, please return it to the factory for repair.

## 6.3 Bacteria Filter:

The bacteria 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. With the vacuum regulator fully closed and the pump tube disconnected from the bacteria filter (open to atmosphere), a vacuum reading of 7 to 10 inches of mercury on the gage indicates the filter should be replaced.

### 6.3.1 Bacteria Filter Replacement:

1. Unscrew the filter from the vacuum regulator body (See illustration Number 2) by hand turning in a counter-clockwise direction.
2. Screw a new filter into the regulator body by turning in a clock-wise direction finger tight. **Note:** Care must be taken when replacing the filter to prevent thread damage due to cross threading and overtightening.

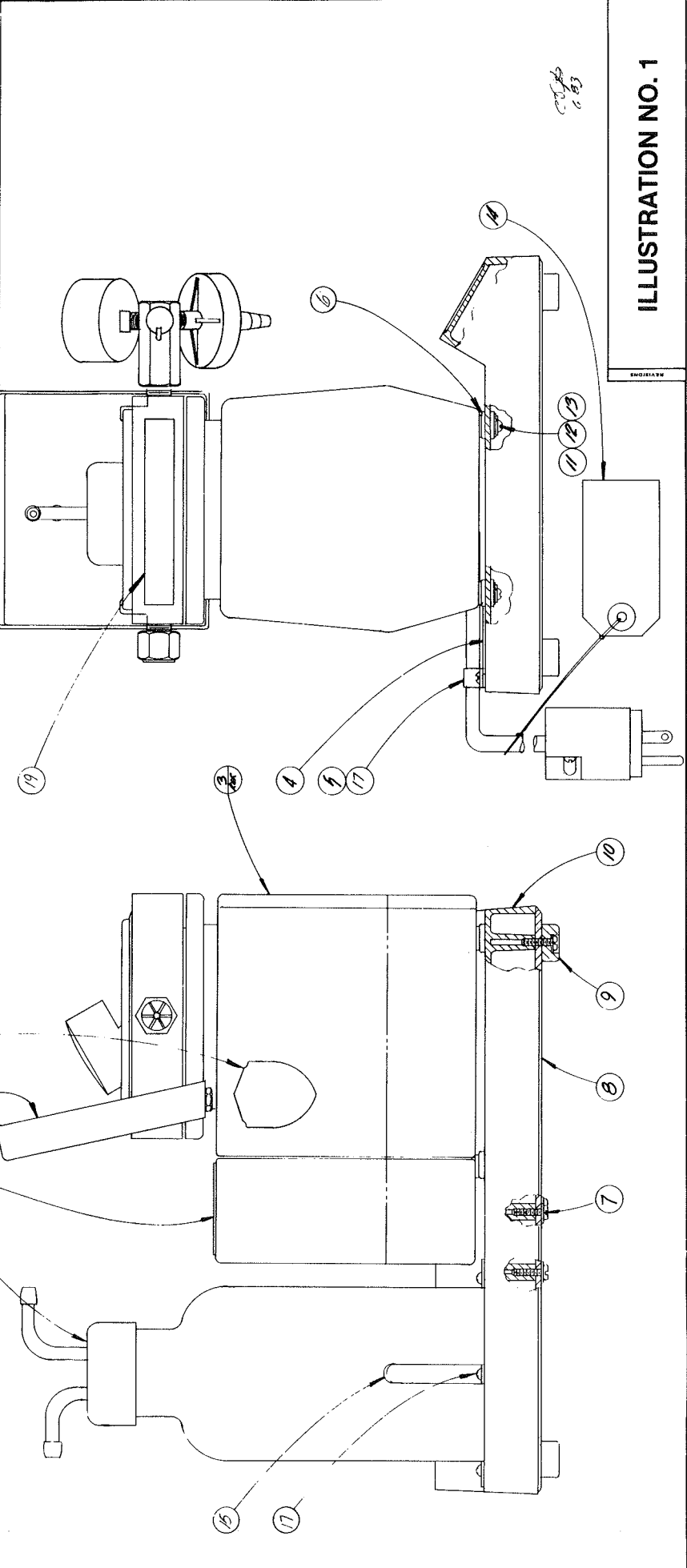
#### 6.4 Glass Collection Bottle and Cap Assembly Sterilization:

1. Remove the cap assembly from the bottle.
2. Dispose of drainage fluids and materials in the bottle.
3. Soak the bottle and cap assembly in a warm detergent solution. Wash all the parts with a nylon bristle brush, rinse thoroughly with water and aerate.
4. Autoclave at 250°F for 15 minutes following the autoclave manufacturer's recommended procedure. **Caution:** Do not flash autoclave the glass collection bottle. If desired, sterilize with ethylene oxide gas. Follow manufacturer's directions for recommended procedure.

### 7.0 ILLUSTRATIONS:

- NO. 1 FINAL ASSEMBLY (Model 300)
- NO. 1A FINAL ASSEMBLY (Model 3001)
- NO. 2 PUMP ASSEMBLY
- NO. 3 COLLECTION BOTTLE (Glass)
- NO. 3A COLLECTION CONTAINER (Disposable)
- NO. 4 PUMP (Exploded View)

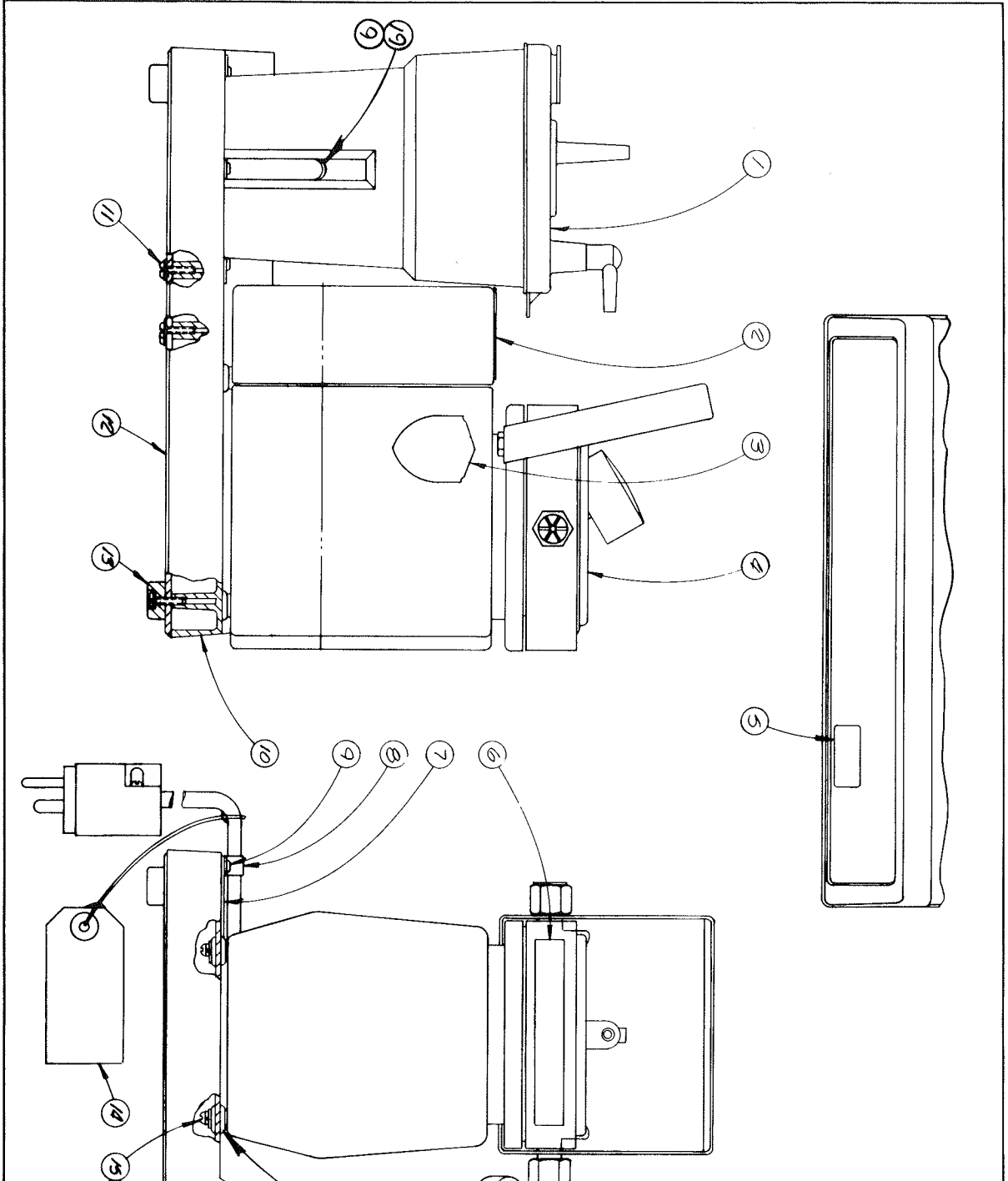
P 2300		BOMTD SURGICAL MFG. CORP.		P 2305 A	
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2	OPERATING UNIT	1	OPERATING UNIT	1	OPERATING UNIT
3	OPERATING UNIT	1	OPERATING UNIT	1	OPERATING UNIT
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17	OPERATING UNIT	1	OPERATING UNIT	1	OPERATING UNIT
18	OPERATING UNIT	1	OPERATING UNIT	1	OPERATING UNIT
19	OPERATING UNIT	1	OPERATING UNIT	1	OPERATING UNIT
20	OPERATING UNIT	1	OPERATING UNIT	1	OPERATING UNIT



1.53

ILLUSTRATION NO. 1

ENGINEER



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ILLUSTRATION NO. 1A



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GOMCO SURGICAL MFG. CORP.			
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SCALE	AS SHOWN		
TITLE	PUMP ASSY		
FILE NO.			
NAME			
BILL OF MATERIALS			
REF. NO.	QTY.	DESCRIPTION	PART NO.
1	1	MUFFLER	3060
2	1	COTTON PACKINGS	
3	1	MUFFLER END CAP	3136
4	1	RESURATOR BODY	3115
5	1	STOP ARM	3081
6	1	DIA. PUMP	2553
7	1	NEEDLE VALVE	3003
8	1	VACUUM CHASE	3059
9	1	FILTER	3100

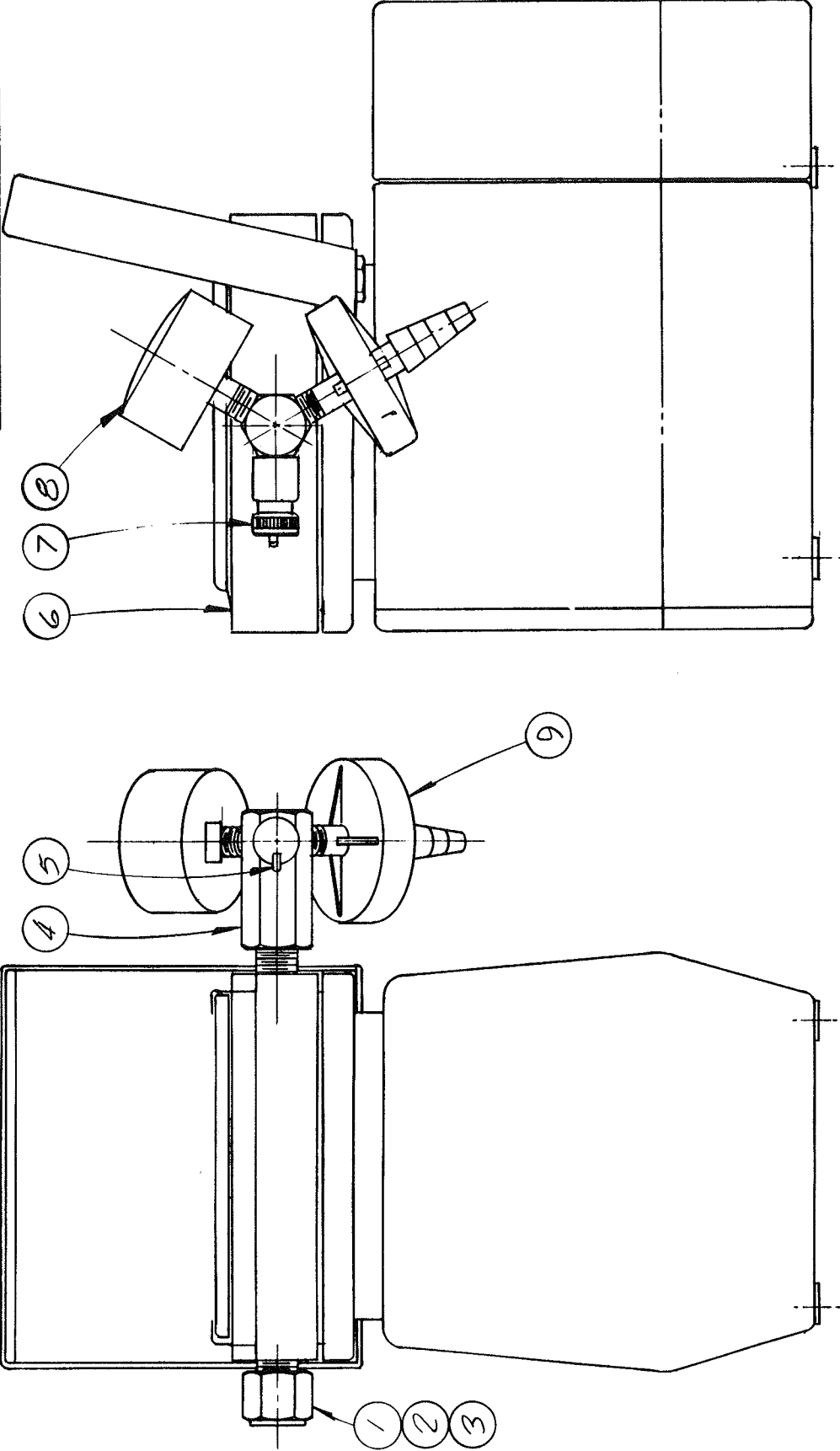
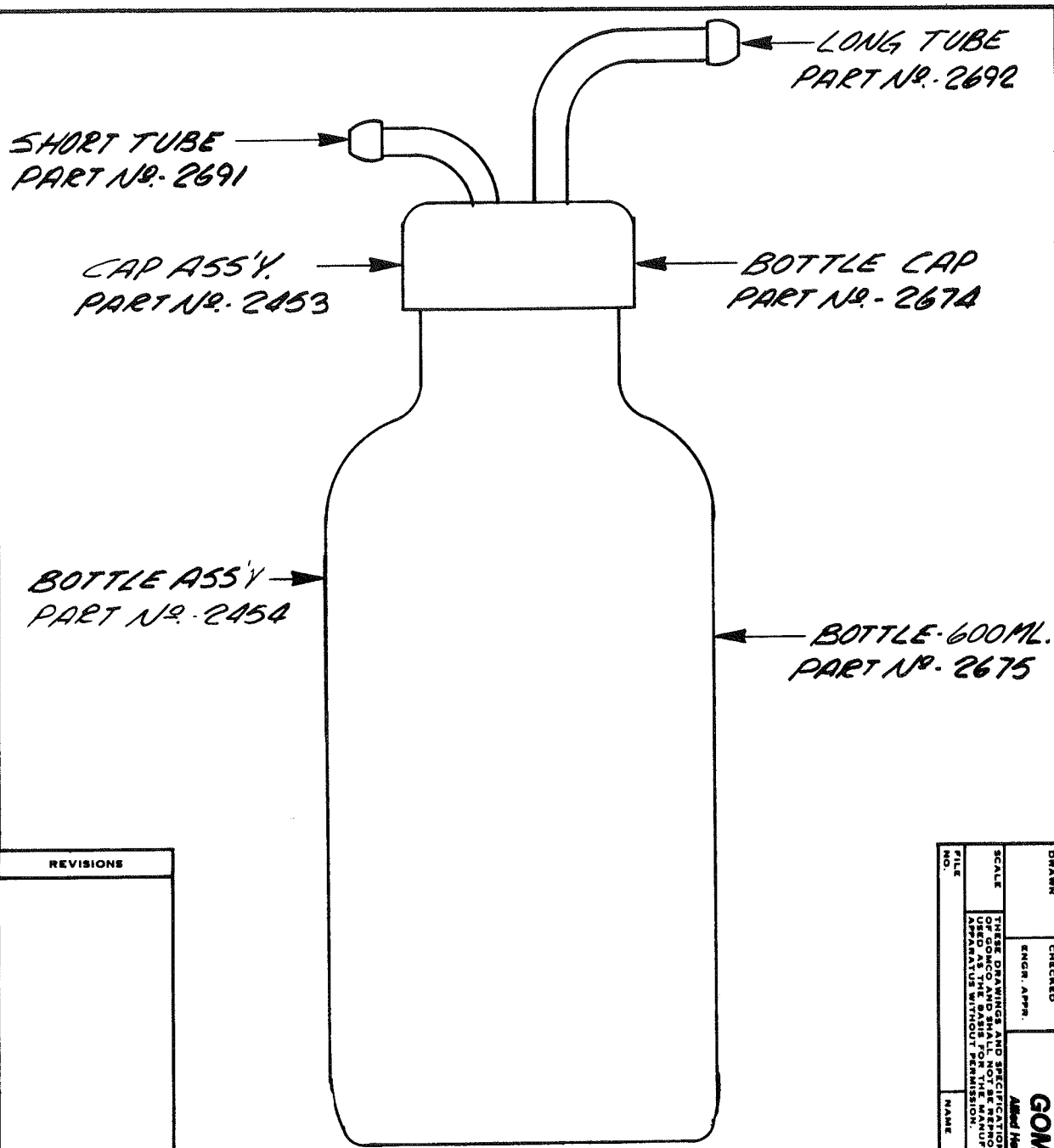


ILLUSTRATION NO. 2

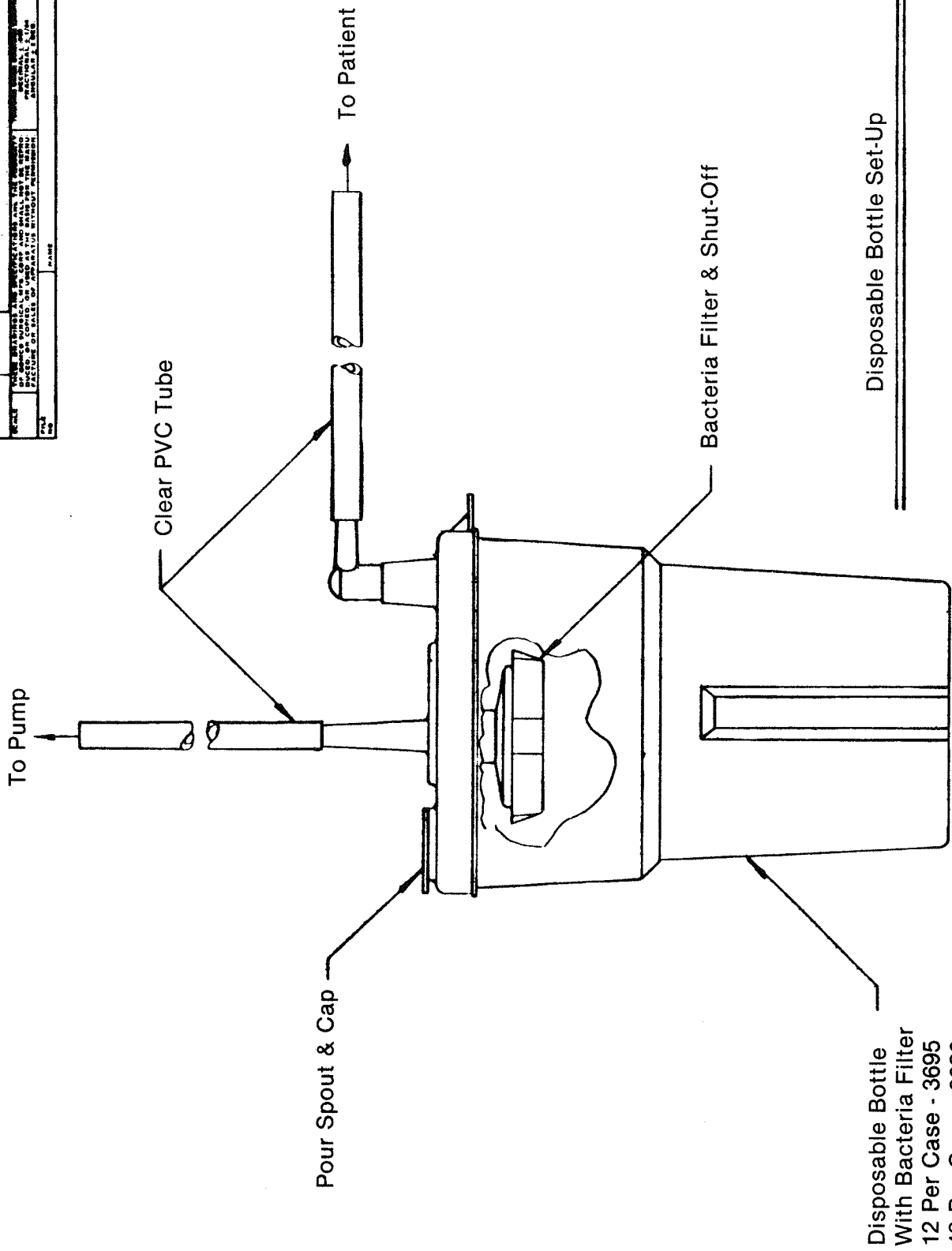
REVISIONS



REVISIONS
ILLUSTRATION NO. 3

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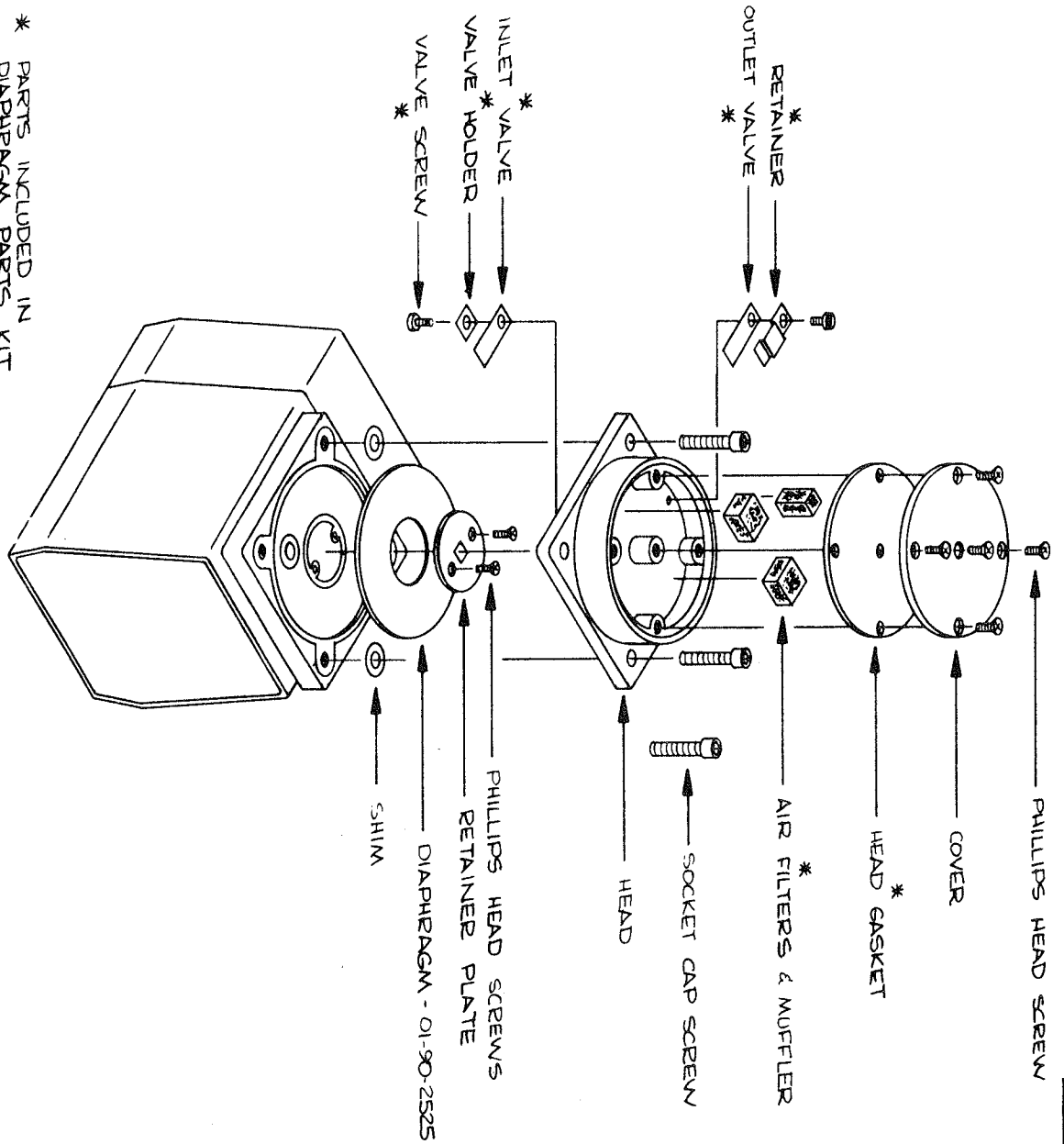


Disposable Bottle  
 With Bacteria Filter  
 12 Per Case - 3695  
 48 Per Case - 3696

Disposable Bottle Set-Up

ILLUSTRATION NO. 3A

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

DIAPHRAGM PUMP

REVISIONS	ILLUSTRATION NO. 4

## 8.0 TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
PUMP WILL NOT RUN WHEN SWITCH IS PUSHED "ON"	1. POWER SOURCE BAD OR INCORRECT VOLTAGE.	CHECK POWER OUTLET
	2. MOTOR BURNED OUT.	REPLACE MOTOR
	3. BACTERIA FILTER CLOGGED	REPLACE FILTER SEE 6.3
LOW SUCTION	1. LOOSE BOTTLE CAP OR TUBING CONNECTION.	CHECK ALL CONNECTIONS
	2. PUMP PERFORMANCE LOW	SEE 2.0 AND 6.0
	3. BACTERIA FILTER CLOGGED.	REPLACE FILTER SEE 6.3
	4. VACUUM REGULATOR LEAKING	REPLACE NEEDLE SEE ILLUS. NO. 2
PUMP RUNS, BUT NO SUCTION	1. DISCONNECTED VACUUM LINE.	CHECK ALL TUBING
	2. BACTERIA FILTER CLOGGED.	REPLACE FILTER SEE 6.3
	3. PUMP DIAPHRAGM TORN.	REPLACE DIAPHRAGM SEE 6.2.4

## 9.0

### REPLACEMENT PARTS LIST MODEL 300

		Ill. No.
01-90-2547	<b>Base Assembly</b>	
Base	01-90-3058	1
Bottle Bracket	01-90-2302	1
Rubber Grommet	01-90-2441	1
Screws for 2302	01-90-2305	1
01-90-2554	<b>Pump Assembly (115 V 60 Hz)</b>	
Pump	01-90-2553	2
Regulatory Assembly	01-90-3116	2
Vacuum Gauge	01-90-3059	2
Bacteria Filter (3 ea.)	01-90-3100	2
Muffler	01-90-3060	2
Muffler Cap	01-90-3136	2

01-90-3127	<b>Pump Assembly (230 V 60 Hz)</b>	<b>III. No.</b>
Pump	01-90-3129	
Regulator Assembly	01-90-3116	2
Vacuum Gauge	01-90-3059	2
Bacteria Filter (3 ea.)	01-90-3100	2
Muffler	01-90-3060	2
Muffler Cap	01-90-3136	2
01-90-3128	<b>Pump Assembly (220 V 50 Hz)</b>	
Pump	01-90-3130	
Regulator Assembly	01-90-3116	2
Vacuum Gauge	01-90-3059	2
Bacteria Filter (3 ea.)	01-90-3100	2
Muffler	01-90-3060	2
Muffler Cap	01-90-3136	2
01-90-3116	<b>Regulator Assembly</b>	
Needle Valve	01-90-3003	2
Stop Arm	01-90-3061	2
Regulator Body	01-90-3115	2
01-90-2454	<b>Collection Bottle Assembly</b>	
Cap Assembly	01-90-2453	3
600 ML Bottle	01-90-2675	3
01-90-2453	<b>Cap Assembly</b>	
Bottle Cap	01-90-2674	3
Short Tube	01-90-2691	3
Long Tube	01-90-2692	3
01-90-2345	Rubber Foot Assembly	1
01-90-2252	Cover for Pump Base	1
01-90-2471	Nylon Cable Clamp	1
01-90-2000	Tubing Package ( 15" and 6 ft. piece)	
01-90-2295	Repair Kit	4
01-90-2525	Diaphragm	4
01-90-3695	Disposable Collection Bottle 12/cs	3A
01-90-3696	Disposable Collection Bottle 48/cs	3A

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**NOTES:**

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***INSTRUMENTS OF CARE***

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