

*DeVilbiss*<sup>®</sup> Suction Unit  
Model 7305 Series

*Service*

*Manual*



**CAUTION-Federal (U.S.A.) law  
restricts this device to sale by or  
on the order of a physician.**

 **SUNRISE  
MEDICAL**

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**INTRODUCTION**

The DeVilbiss AC/DC Suction Unit is a medical suction device that has been designed to provide reliable operation with high performance capability. The DeVilbiss Suction Unit is suitable for use in applications that require high suction and high rates of flow. Two collection bottle options give the choice between a long-term reusable 1200 cc canister and a disposable 800 cc canister.

Be sure that you read and understand the information in this service manual. By following the instructions and information given in this manual, you will be equipped to use this unit to provide the suctioning needs of your patients.

**GROUNDING INSTRUCTIONS**

**DANGER**—Improper use of the grounding plug can result in a risk of electric shock.

This product should be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with a grounding plug (see Fig. 1). The plug must be plugged into an outlet that is properly installed and grounded.

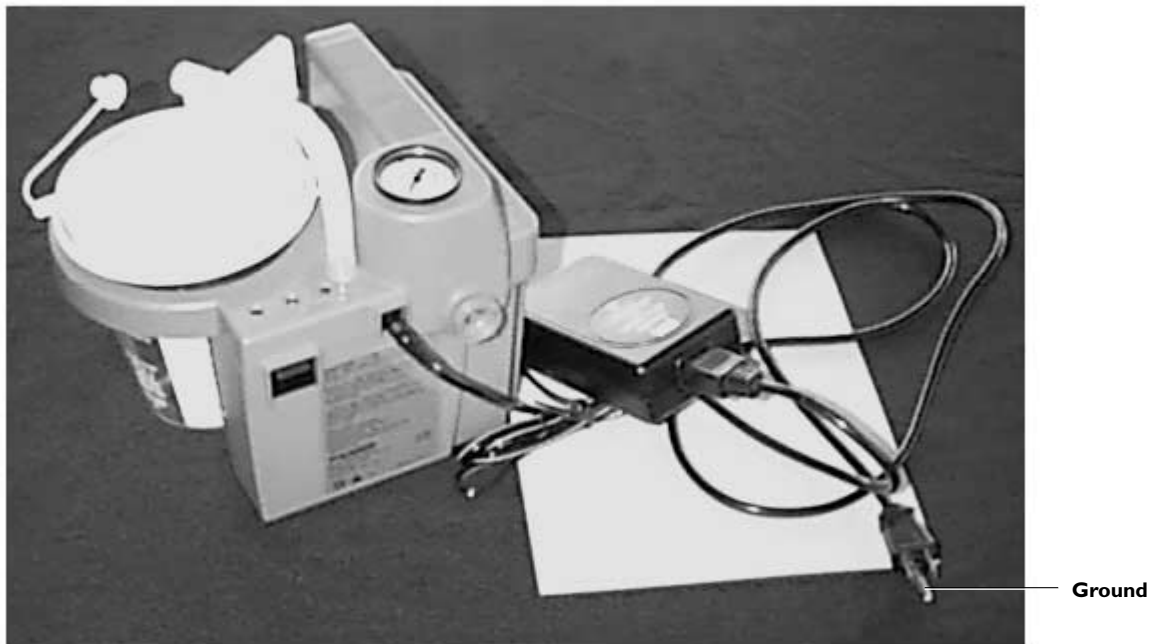


Figure 1


## GENERAL INFORMATION

### SPECIFICATIONS / CLASSIFICATIONS

<b>Model</b>	<b>7305D &amp; 7305P Series</b>	
<b>Size</b>	<b>9.0"w X 7.0"l X 8.0" h</b>	
<b>Weight</b>	<b>lbs (kg)</b>	
<b>7305D</b>	<b>3.8 (1.7)</b>	
<b>7305P</b>	<b>6.3 (2.9)</b>	
<b>External Electrical Requirements</b>	<b>See 7305 Model Matrix *</b>	
<b>Internal Rechargeable Battery</b>		
<b>7305D Series</b>	<b>Not Factory Equipped (Provider-Installed Option)</b>	
<b>7305P Series</b>	<b>Factory Equipped</b>	
<b>Power Consumption</b>	<b>33 Watts Maximum</b>	
<b>Vacuum Range</b>		
<b>7305D &amp; 7305P Series</b>	<b>80 to 550 mm Hg</b>	
	<b>Air Flow @ pump inlet: 27 LPM (free flow) typical (may be less when running from internal battery)</b>	
<b>Regulator/Gauge Accuracy</b>	<b>±5%</b>	
<b>Operating Temperature Range</b>	<b>32°F–104°F (0°C–40°C)</b>	
<b>Storage/Transport/Operating Relative Humidity</b>	<b>0–95%</b>	
<b>Operating Atmospheric Pressure</b>	<b>10.2 PSI (70kPA)</b>	
	<b>-15.4PSI (106kPA)</b>	
<b>Storage &amp; Transport Temperature Range</b>	<b>D&amp;P Models: -40°F – 158°F (-40°C – 70°C)</b>	
<b>Warranty:</b>		
<b>7305D Series</b>	<b>2 years limited (Excluding collection bottle)</b>	
<b>7305P Series</b>	<b>2 years limited (Excluding internal battery and collection bottle)</b>	
<b>Internal Battery</b>	<b>90 day</b>	
<b>Approvals</b>	<b>Meets RTCA/DI60D</b>	
<b>7305D, 7305P</b>	<b>CAN/CSA-C22.2</b>	<b>DO-160D-section 20 Category U</b>
	<b>No. 601.1-M90,</b>	<b>DO-160D-section 21 Category L</b>
	<b>UL 2601-I, CE</b>	<b>For battery operation only; Airline use</b>

**EQUIPMENT CLASSIFICATIONS**

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With respect to electrical shock	Class I
Degree of protection against electrical shock	Type BF Applied Parts 
Degree of protection against ingress of liquids	IPX2 and Ordinary Power Supply
Mode of Operation	Intermittent Operation: 30 minutes on, 30 minutes off
Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air or nitrous oxide.	
ISO Classification	7305P Series Only
Electrically powered medical suction equipment for field and transport use according to ISO 10079-1 : 1991	
High Flow/High Vacuum	

**\*7305 MODEL MATRIX**

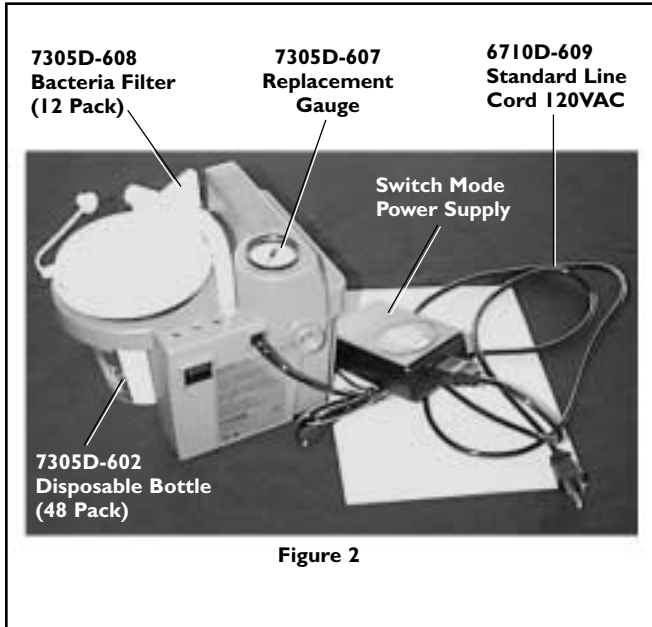
Series	Model	Electrical requirements		AC/DC Adapter	Line Cord	Battery
		AC/DC Adapter	DC Jack Input	Sunrise P/N	Sunrise P/N	Sunrise P/N
7305P	7305P-D	100-240 VAC,50/60 Hz	12-18 VDC	170-0005-033	180-0023-002	7305P-413
	7305P-F	100-240 VAC,50/60Hz	12-18 VDC	170-0005-033	180-0003-004	7305P-413
	7304P-G	100-240 VAC,50/60Hz	12-18 VDC	170-0005-033	180-0003-004	7305P-413
	7304P-I	100-240 VAC,50/60Hz	12-18 VDC	170-0005-033	180-0003-004	7305P-413
	7304P-U	100-240 VAC,50/60Hz	12-18 VDC	170-0005-033	180-0003-005	7305P-413
7305D	7305D-D	100-240 VAC, 50/60Hz	12-18 VDC	170-0005-033	180-0023-002	None
	7305D-I	100-240 VAC, 50/60 Hz	12-18 VDC	170-0005-033	180-0003-004	None

**PREVENTATIVE MAINTENANCE**

The following inspections should be performed once a year or between patients.

**Checklist:**

1. Change the in-line bacteria filter #7305D-608 as required or between patients.



2. Verify that the unit is not damaged and that it is clean.
3. Verify that the feet are not damaged or missing.
4. Using an independent vacuum gauge (#6305D-601 or 7304D-636), verify that the unit provides a maximum vacuum level of 550 mmHg. (Fig. 3)



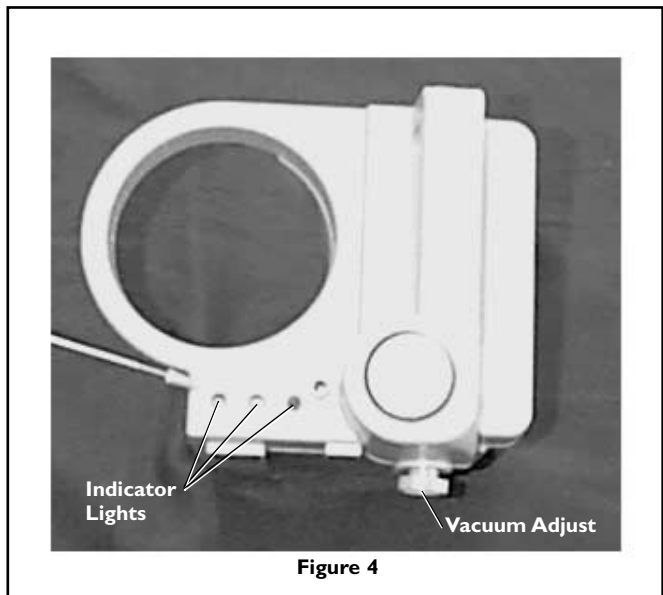
**Filter changing:**

1. Change the bacteria filter if overflow occurs or every two months, whichever comes first.
2. Remove the filter by disconnecting it from the suction unit and lid assembly.
3. Replace with a clean DeVilbiss bacteria filter (# 7305D-608 12/pack) and remount to suction unit and lid. Additional filters may be purchased from your authorized Sunrise Medical provider. (Fig. 2)

**NOTE:** Do not substitute any other material for this bacteria filter. Substitution may lead to contamination or poor performance; use only DeVilbiss filters.

**Battery Charging**

On 7305P series, the units are equipped with a factory-installed rechargeable battery. On model 7305D series the units are not factory equipped with a rechargeable battery. The unit will have light for low battery and charge indication. (Fig. 4)



On battery equipped units, connect the unit to the proper AC power source using the AC adapter. The green external power light shall be illuminated. The low charge indicator will be illuminated while the battery is charging. Verify that this illuminates when charging begins.

**NOTE:** A discharged battery will require 10-14 hours (depending on the level of discharge) to charge back to full capacity.

**NOTE:** Do not insert unit's AC power cord into an outlet controlled by a switch. This ensures that the outlet will always be powered.

**NOTE:** A fully charged battery on the 7305P Series will provide approximately 60 minutes of continuous operation at a zero vacuum level (free flow).

**NOTE:** If a unit is not in use for extended periods, battery should be recharged every 6 months.

**CAUTION**—Discharging the battery completely will shorten the life of the battery. Do not operate the unit more than a few minutes if the low battery indicator light is lit. Recharge as soon as possible.

**NOTE:** When charging the battery, the battery charging indicator light will remain lit. If your unit does not hold a charge, please be sure the model you are using has a battery installed. Verify that the charge light illuminates when the external power is applied with the switch in the "OFF" position.

**NOTE:** Units equipped with an internal rechargeable battery contain a sealed lead-acid battery which must be recycled.

**CARE AND CLEANING**

**Collection Bottle:**

1. Shut off unit using the power switch and allow vacuum to drop. Disconnect power source from the DC input receptacle on the unit.
2. With the collection bottle still in the holder, remove the lid. The bottle can now be taken out of the holder to be emptied. (Fig. 5)

**NOTE:** The collection bottle should be emptied after each use.

3. Collection bottle should be thoroughly cleaned after each use by one of the following three methods:

**All Models:**

Wash in a hot water/dishwashing detergent solution and rinse with hot tap water. Then wash in one part vinegar to three parts hot water solution. Rinse with hot tap water and air dry.

**Permanent Bottle only:**

Wash with rubbing alcohol and air dry.

**Permanent Bottle only:**

Wash with a commercial (bacterial-germicidal) disinfectant, follow disinfectant manufacturer's recommended instructions and dilution rates carefully.

This bottle is also dishwasher safe.

**Unit and Collection Lid:**

1. With the power switch in the "Off" position, disconnect the DeVilbiss Suction Unit from all external power sources.
2. Wipe the housing and lid with a clean cloth and any commercial (bacterial-germicidal) disinfectant.

**CAUTION**—Do not submerge in water as this will result in damage to the vacuum pump.

**Tubing:**

1. Disconnect the tubing from the unit.
2. The tubing should be rinsed thoroughly after every use by running hot tap water through it followed by a solution of one part vinegar to three parts hot water.

3. Rinse with hot tap water and air dry.
4. Keep the outer surface of the tubing clean by wiping with a clean, damp cloth.



Figure 5

**Servicing and Repair Procedures**

Tools Required:

- T-20 Torx screwdriver
- Flat blade screwdriver

**Top Cover Replacement:**

1. Remove the (4) Torx T-20 screws that hold the base of the unit to the top portion of the unit. (Fig. 6)
2. Remove the combination motor/piston assembly by pulling it away from lid and disconnecting motor wire connector from PC Board (Fig. 6)
3. Remove vacuum gauge by removing the (2) slotted mounting screws. (Fig. 6) Some units contain a snap-in gauge containing no screws.
4. Replace the lid/handle (top).
5. Replace the above items in the new cover in reverse order replace cover mounting screws.

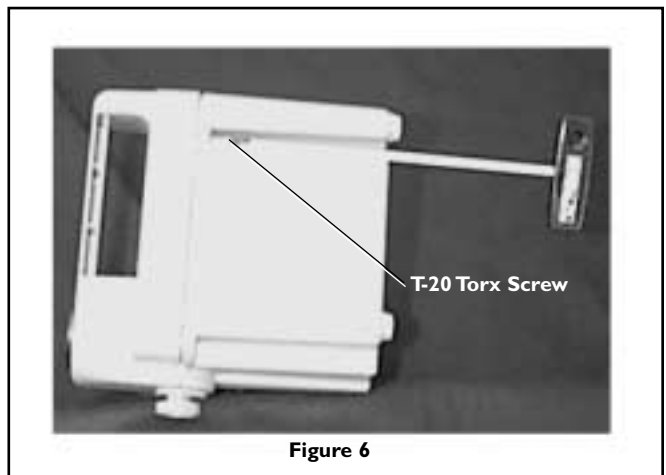


Figure 6

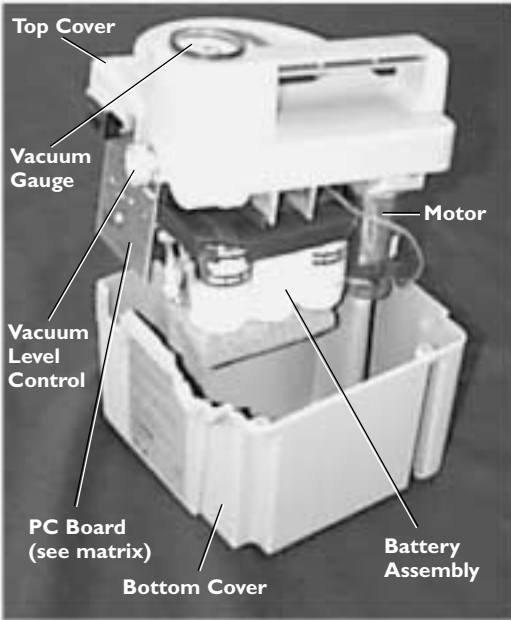


Figure 7

**Motor Mount replacement:**

1. Remove defective motor mounts by sliding them out of the holes in the motor bracket. (Fig. 8)
2. Install the new motor mounts by sliding them into the motor bracket holes.

**Battery and Printed Circuit Board replacement:**

1. Remove the top portion of the unit as described in the Top Cover Replacement section on page 7.
2. Disconnect motor wire connector from the Printed Circuit Board and set the top cover and motor assembly aside.
3. Lift the battery and Printed Circuit Board up and out of the base. (Fig. 7)
4. Disconnect the battery wire connector from the Printed Circuit Board. (Fig. 8)
5. Replace battery or Printed Circuit Board and reassemble by following the above in reverse order.

**NOTE:** To add a battery to the 7305D Model, the Printed Circuit Board must also be changed. Follow the instructions above to add the battery. Order Part number 7305P-620 for high capacity battery.



**PROBLEM**

**ACTION**

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Unit does not turn on.

1. Check power sources and connections.
  2. Ensure that the wall outlet is live.
  3. If operating from internal battery, ensure battery installation.
  4. If battery is installed, ensure full charge.
- 

Motor runs, no vacuum.

1. Verify tubing connection security.
  2. Check for leaks or tubing kinks.
  3. Ensure that float shut off is not activated.
  4. Check for bottle leaks and cracks.
- 

Low Vacuum

1. Use vacuum adjustment knob to increase vacuum level.
  2. Check system for leaks.
  3. Push vacuum adjustment knob and release.
- 

Battery will not hold charge

1. Ensure that unit is equipped with an internal battery.
2. Verify that the charge light turns on.
3. Check electrical connections during charging.
4. Ensure that the wall outlet is live.

**PARTS LIST**

**7305D-610  
7305P-610  
Circuit Board**

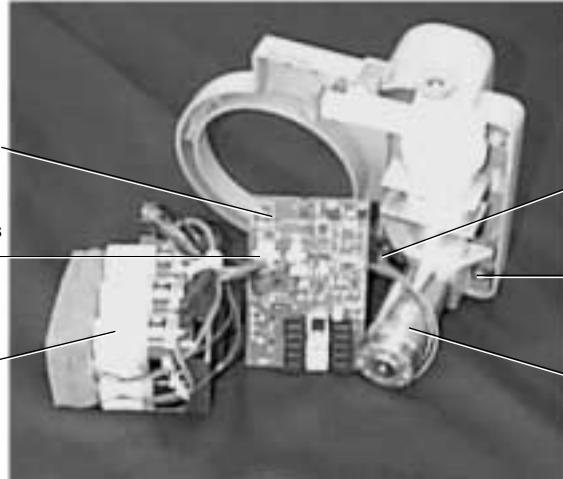
**Wire Harness  
Connector**

**7305P-614  
Battery**

**Motor  
Connector**

**Motor  
Mount**

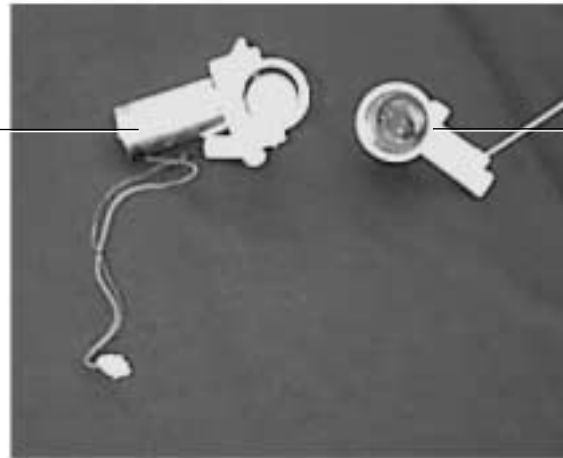
**Motor**



**Figure 8**

**Motor**

**Vacuum  
Head**



**Figure 9**

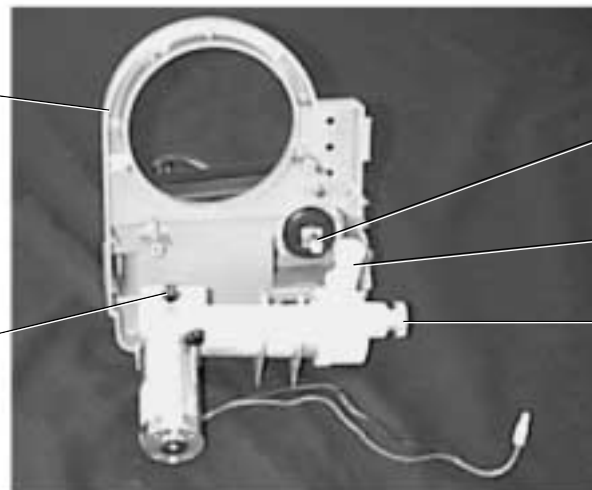
**Top Cover**

**Motor  
Mount**

**Vacuum  
Gauge  
Fitting**

**Manifold**

**Vacuum  
Level  
Control**



**Figure 10**



Figure 11

**Part Numbers**

- |  |  |
|--|--|
| 1. 7304D-619 DC Power Cord               | 10. 7305D-610 Circuit Board for Unit with No Battery |
| 2. 7305D-601 1200 ml Reusable Bottle*    | 11. 7305P-620 High Capacity Conversion Kits          |
| 3. 7305D-602 800 ml Bottle**             | 12. 7304D-636 Vacuum Gauge Test Fixtures             |
| 4. 7305D-613 Switch-Mode Power Supply    | 13. 099HD-614 Hospital Grade Line Cord (120 VAC)     |
| 5. 7305P-614 12VDC High Capacity Battery | 14. 6710D-609 Standard 120 VAC Line Cord 3 Conductor |
| 6. 7305D-606 Carrying Case               | 15. 7305P-630 Line Cord UK 3 Conductor               |
| 7. 7305D-607 Replacement Gauge           | 16. 7305P-631 Line Cord Cont. Europe 3 Conductor     |
| 8. 7305D-608 Bacteria Filter (12 Pack)   | 17. 7305P-632 Line Cord Australia 3 Conductor        |
| 9. 7305P-610 7305P Circuit Board         |  |

\* This bottle can be cleaned and reused (see cleaning instructions). The in-line bacteria filter should be used with this bottle.

\*\* This bottle is considered disposable and should be changed between patients. The bottle adapter and the in-line bacteria filter should be used with this bottle.



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