

Suction Pump-VacPro Quick Service Guide

REV – 1.1

APEX Medical Corp.

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Device and Key Parts Outline —



Front View



Rear View






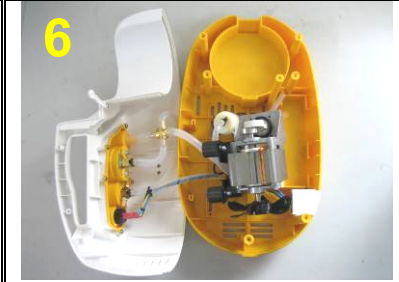
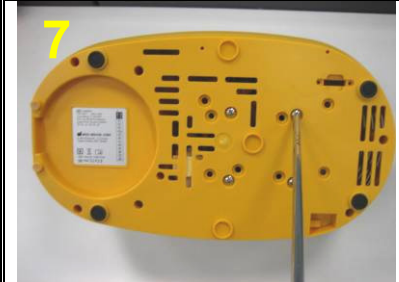
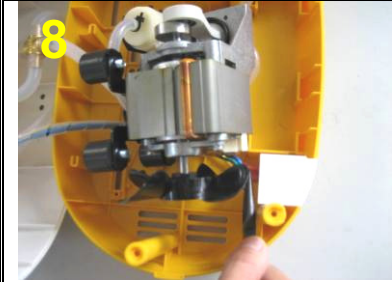
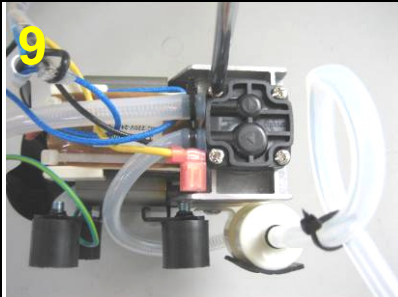
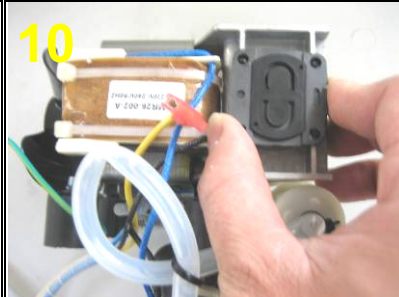
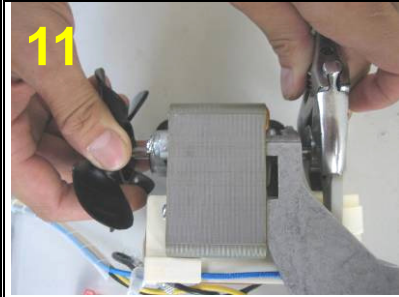

Explosion Lineup :



Key Parts List :

No.	Part Description
1	Rear cover with tampon x 1
2	Front cover subassembly, includes: ● Control panel x 1 ● Vacuum Gauge x 1 ● Pressure Regulator Knob x 1 ● Power switch x 1 ● Power switch cover x 1
3	Bottom subassembly, includes: ● Coaster x 1 ● Screw x 8 ● Electrical outlet x 1
4	Cylinder head subassembly, includes : ● Cylinder head x 1 ● Valve plate x 2 ● Screw x 4
5	Connecting rod subassembly, includes : ● Connecting rod x 1 ● Compressing ring x 1 ● Counterweight x 1 ● Set screw x 1
6	● Motor subassembly x 1

Disassembly Procedure — Please follow up below standard procedures PROPERLY when proceeding inspection, and trouble shooting.

			
<p>Remove the tampon from rear cover.</p>	<p>Loose the screw which secured the covers.</p>	<p>Loose 7 screws from the bottom.</p>	<p>Remove the coaster.</p>
			
<p>Apart the rear cover, with one hand secures the other.</p>	<p>Disconnect the tubing and wire cables, and removed the front cover.</p>	<p>Loose 4 lock screws from the bottom which connect to Motor.</p>	<p>Disconnect the terminal between motor and outlet.</p>
			
<p>Loose 4 lock screws, and remove cylinder head.</p>	<p>Remove cylinder and valve plate.</p>	<p>Hold the counter weight with a spanner. Turn the cooling fan with the other hand, Connecting rod can be removed.</p>	<p>Loose the lock screw, remove the compressing ring and the counter weight.</p>

* Assembly procedure should be carried out in the exact reverse sequence as the disassembly.



Cause and Effect Matrix –

		Possible Cause and Part Correlation							
		Bearing	Power Switch	Silicone tube	Air filter	Screw	Vacuum Gauge	Cooling fan	Other(TBD)
No.	Effect								
1	Device is incapable of starting up.	●	●						○
2	Device is working with low vacuum or no vacuum.			●	●		○		○
3	Device is working loudly with irregular sound or noise.	●				●		○	○

● : Major cause ○ : Minor cause

Trouble Shooting Guide —

Phenomenon A : Device is incapable of starting up.

<u>Possible Cause</u>	<u>Inspection Procedure</u>	<u>Trouble Shooting</u>
1. Power cord damaged or wrong power input.	1.1 Check if any break-apart, damage, scratch, and over-bend happened to the power cord. 1.2 Plug in the power cord and use a Multimeter to gauge the input voltage. It depends on the device rating specified, the measurement should be $110 \pm 10V/60Hz$ or $230 \pm 10V/60Hz$ accordingly. If wrong input voltage connect, please check if the fuse burn out. ; refer to Fig A1.2.1~A1.2-2 for detail.	1.1.1 If any, replace with a new power cord and re-start up the device again. 1.2.1 If any, correct it or replace a new fuse, and re-start up the device again.
<div style="display: flex; justify-content: space-around;">   </div>		
<div style="display: flex; justify-content: space-around;"> [Fig A1.2-1] Fuse location [Fig A1.2-2] Fuse </div>		
2. Wire cables damaged.	2.1 Make sure all wires inside motor should be good and without break-apart, damage, scratch, over-bend...etc; refer to Fig A2.1-1 for detail of the wires inside motor. 2.2 Make sure all wires are placed correctly and securely. °	2.1.1 If any, replace with a new wire cable and re-start up the device again. 2.2.1 Well place in all cables correctly and securely and re-start up the device again.
<p>[Fig A2.1] Wire cables inside motor</p>		

Possible Cause

3. Power switch failed.



[Fig A3.1-1]

Multimeter mode setting.

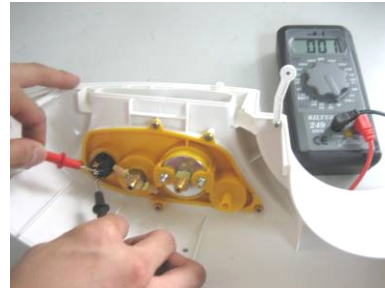
Inspection Procedure

3.1 Use a Multimeter to gauge the conductivity between 2 switch pins should be good, refer to below figures and criteria.



[Fig A3.1-2]

Conductive if switch on.



[Fig A3.1-3]

Disconnect if switch off.

Trouble Shooting

3.1.1 If the abnormal conductivity between 2 switch pins, replace with a new power switch, and re-start up the device again.



[Fig A3.1-4]

Power switch

4. Connecting rod malfunction.

4.1 Remove the cylinder block and turning the cooling fan, The connecting rod should have the vertical movement up and down; refer to Fig A4.1~A4-2 for detail..

4.2 Also, check if any irregular defects happened to connecting rod; such as break-apart, damage, rusty, scratch...etc; refer to Fig A4.3~A4-4 for detail.

4.1.1 If anything irregular found, replace a new piston set and try again.

Note. If the device is not working well yet after all above processes implemented, please return it to APEX for further analysis.

Possible Cause

Inspection Procedure

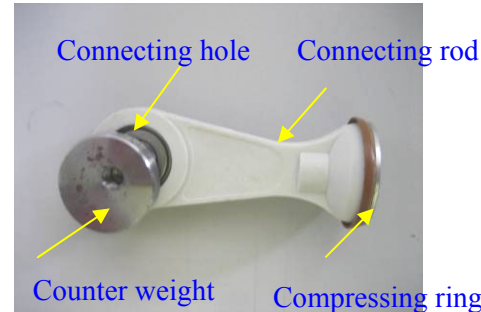
Trouble Shooting



[Fig A4.1] Vertical movement up and down.



[Fig A4.2] Rotate the connecting rod.



[Fig A4.3] Front view of connecting rod.

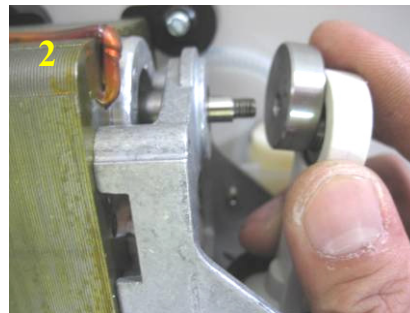


[Fig A4.4] Rear view of connecting rod.

[Tip] 3 steps to fix the Connecting rod to the Pump Shaft securely :



The flat cut on pump shaft is for fix the counter weight screw.



Keep the counter weight screw horizontal. Turn the flat cut to face the air hole. Fix the piston set to the pump shaft.



Connecting rod work checking to see normal working after secured.

Phenomenon B : Device is working with low vacuum or no vacuum.

Possible Cause

1. Vacuum gauge failed

2. Tubing broken or obstruction.

Inspection Procedure

- 1.1 Switch on the device and check the vacuum gauge, if any irregular vibration happened to the gauge indicator.
- 1.2 Also, gradually turn up the vacuum adjuster to check if the vacuum indicator changes accordingly.

- 2.1 Check all silicone tubing for broken or obstruction.
Refer to Fig B2.1 for detail.



[Fig B2.1] Tubing inside motor and battery

3. Air leaking due to valve plate broken.

- 3.1 Remove the cylinder head, and check if the valve plate
Refer to Fig B3.1~B3.2 for detail.



[Fig B3.1] Cylinder



[Fig B3.2] Cylinder & valve plate

Trouble Shooting

- 1.1.1 If anything irregular found, replace with a new vacuum gauge and try again.

- 2.1.1 If any, replace new silicone tubing and try again.

- 3.1.1 If anything irregular found, replace with a new diaphragm and try again.

Note. If the device is not working well yet after all above processes implemented, please return it to APEX for further analysis.

Phenomenon C : Device is working loudly with irregular sound or noise.

Possible Cause

1. Connecting rod malfunction.

Inspection Procedure

1.1 Remove the cylinder block and turning the cooling fan, The connecting rod should have the vertical movement up and down; refer to Fig C1.1~1-2 for detail.

1.2 Also, check if any irregular defects happened to connecting rod; such as break-apart, damage, rusty, scratch etc; refer to Fig C1.3~1.4 for detail.

Trouble Shooting

1.1.1 If anything irregular found, replace a new piston set and try again.

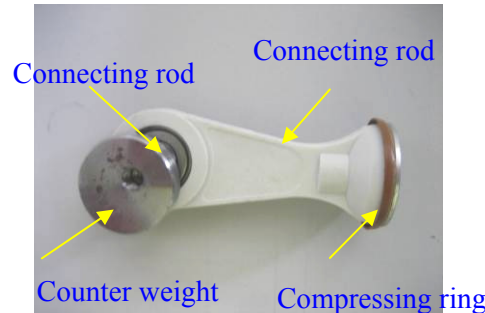
Note. If the device is not working well yet after all above processes implemented, please return it to APEX for further analysis.



[Fig C1.1] Vertical movement up and down.



[FigC1.2] Rotate the connecting rod.



[Fig C1.3] Front view of connecting rod.



[Fig C1.4] Rear view of connecting rod.

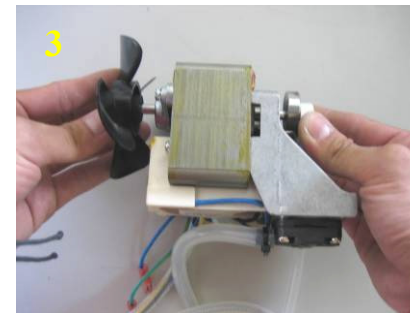
[Tip] 3 steps to fix the Connecting rod to the Pump Shaft securely :



The flat cut on pump shaft is for fix the counter weight screw.



Keep the counter weight screw horizontal. Turn the flat cut to face the air hole. Fix the piston set to the pump shaft.



Connecting rod work checking to see normal working after secured.

Service Report — We need you to fill-in with all the details for APEX to bettering total satisfaction of quality and service



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Website : <http://www.apexbrand.com>

Requested Date:

Completed Date:

SERVICE REPORT

———Service for———	———Warranty Details———	———Product Details———
Name:	Purchased Date:	Product:
Address:	Expired Date:	Model Name:
TEL:	From:	Model No.:
	Order No.:	Lot No.:
	Contact:	Serial No.:
Defect Reported:		
Phenomenon Detected:		
Service Performed:		
Parts Replaced:		
Amendment Verified:		
Authorized by:		