

KEEP FOR FUTURE REFERENCE

# SERVICE MANUAL



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 **INTENDED FOR USE BY SKILLED  
TECHNICAL PROFESSIONALS • READ  
AND UNDERSTAND BEFORE SERVICING**



**1 SCFM  
NOMINAL AIRFLOW  
SINGLE VACUUM SYSTEM  
DC-VOLTAGE POWER SYSTEM  
WITH MANUAL VALVE**

Stock number: 36110





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# BEFORE SERVICING LIFTER



**Disconnect battery when necessary to prevent electrical shock or other risks.**

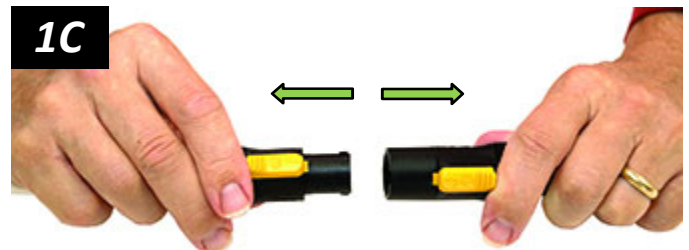
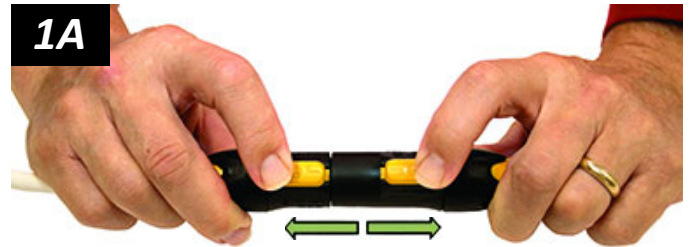
Whenever necessary, disconnect the electrical connectors for the battery (figs. 1A-C).

Service personnel must read and understand the lifter's *OPERATING INSTRUCTIONS* – especially the “INSPECTIONS AND TESTS” and “MAINTENANCE” sections – before servicing the vacuum lifter. Many of the following discussions assume knowledge of the *OPERATING INSTRUCTIONS*.

*Note: Wiring and/or hose-routing diagrams are provided in the lifter's OPERATING INSTRUCTIONS, for reference when servicing or troubleshooting the lifter.*

## SERVICE SCHEDULE

Service must be performed whenever a deficiency is indicated by routine inspections or tests. Follow the “INSPECTIONS AND TESTS” section of the *OPERATING INSTRUCTIONS*. Any service warranted must be performed before resuming normal operation of the lifter.



# SERVICE FEATURES

Components shown here are underlined> on their first appearance in each section to follow.



- |                            |  |  |
|----------------------------|--|--|
| 1 LIFT POINT               | 8 BATTERY TEST BUTTON                              | 14 LOW VACUUM WARNING BUZZER<br>(optional) |
| 2 LIFT BAR                 | 9 VACUUM GAUGE                                     | 15 BATTERY GAUGE                           |
| 3 INSTRUCTIONS CANISTER    | 10 CONTROL HANDLES                                 | 16 BATTERY                                 |
| 4 TILT RELEASE LEVER       | 11 AIR FILTER                                      | 17 BATTERY CHARGER                         |
| 5 ROTATION RELEASE LEVER   | 12 VALVE HANDLE                                    | 18 VACUUM RESERVE TANK                     |
| 6 PAD FRAME                | 13 Enclosure with VACUUM PUMP<br>and VACUUM SWITCH | 19 VACUUM PAD                              |
| 7 LOW VACUUM WARNING LIGHT |  |  |

*Note: A standard P11104DC is shown.<sup>1</sup>*

<sup>1</sup>..... Some components may not be relevant or they may have a different location, depending on the lifter in question.

# SERVICE PROCEDURES

## AIR FILTER MAINTENANCE – 1 OZ BOWL SIZE



**Inspect each air filter regularly, and service when necessary.**

Immediately remove liquid or other contaminants found in the filter bowl (A in fig. 1A), to prevent contact with the filter element (C in fig. 2A).



**Never use bowl drain (circled in fig. 1A) to remove liquid, because this could cause air leak.**

Replace the filter element whenever:

- It has an overall dirty appearance.
- There is a noticeable increase in the time required to attain full vacuum.

### Filter Service Procedure

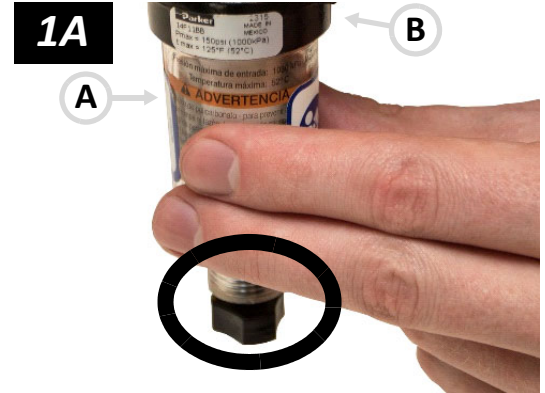
1) Unscrew the bowl (item A in fig. 1A) from the body (item B in fig. 1A) of the air filter.

*Note: To protect air-line fittings from damage, hold the body while turning the bowl.*

2) Determine whether the filter element (item C in fig. 2A) needs to be replaced (see above).

- *If so*, proceed to step 3.
- *If not*, remove any liquid or contaminants from the bowl; clean the old bowl seal (see step 4 on next page) with mild soap and water; and skip to step 6.

3) Carefully unscrew the element holder (item D in fig. 3A) and remove all internal parts (fig. 3B).



# SERVICE PROCEDURES

- 4) Identify the parts in the Filter Element Kit (#16134), including the element (item A in fig. 4A), element holder (B), lubricant (C), deflector (D), element gaskets (E), bowl seal (F). Then dispose of the corresponding old parts.



- 5) Place the new element gaskets, element and deflector on the element holder as shown in fig. 5A. Then screw the assembly back into the filter body.



*Note: Tighten gently – finger-tight.*

- 6) Clean the bowl, using mild soap and water only.

**Caution:** Do not use any other cleaning agents.

- 7) Lubricate the new or cleaned bowl seal using a mineral-based oil or grease, such as that provided in the filter element kit.

**Caution:** Do not use synthetic oils, such as esters, and do not use silicones.

Then place the bowl seal around the rim of the bowl.

- 8) Screw the bowl back into the body. Hand-tighten only.

**Caution:** Do not contaminate the filter element with lubricant from the bowl seal.

- 9) Perform the “Vacuum Test” to be certain the air filter does not leak (see “INSPECTIONS AND TESTS: TESTING” in the lifter's OPERATING INSTRUCTIONS).

*Note: Repeat this procedure for any other filter of the same type.*

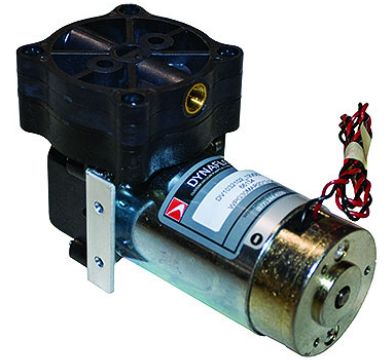
# SERVICE PROCEDURES

## VACUUM PUMP MAINTENANCE – MODEL DV1032102



**Disconnect power source before proceeding.**

If the vacuum pump takes too long to attain full vacuum, replace the diaphragm or the head assembly as necessary to obtain acceptable pump performance (fig. 1A). Then perform the “Vacuum Test” (see “INSPECTIONS AND TESTS: TESTING” in the lifter's *OPERATING INSTRUCTIONS*).

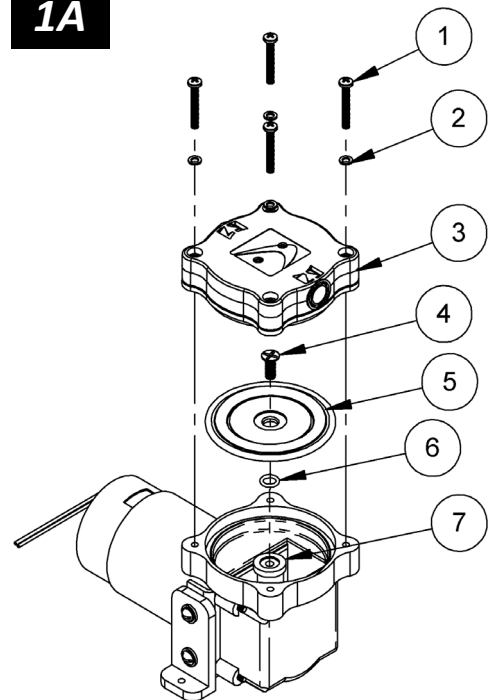


**Caution:** Do not overtighten the head screws, because this may damage the pump body's threads.

### Replacing the Diaphragm

- 1) Remove the four head screws (item 1 in fig. 1A) and lock washers (item 2), and remove the head assembly (item 3).
- 2) Remove the diaphragm retaining screw (item 4), diaphragm (item 5), rubber O-ring (item 6) and flat washer (item 7).
- 3) Replace the flat washer, rubber O-ring, diaphragm and diaphragm retaining screw.
- 4) Reverse these steps to reassemble the pump.

**1A**



- 1 HEAD SCREW
- 2 LOCK WASHER
- 3 HEAD ASSEMBLY (#66197AA)
- 4 DIAPHRAGM RETAINING SCREW
- 5 DIAPHRAGM (#66197AM)
- 6 RUBBER O-RING
- 7 FLAT WASHER

### Replacing the Head Assembly<sup>1</sup>

- 1) Remove the hose fittings from the head assembly, and carefully clean the threads. Be sure to note the fitting locations for reassembly.
- 2) Remove the four head screws (item 1 in fig. 1A), lock washers (item 2) and head assembly (item 3).
- 3) Replace the head assembly (reverse *step 2*).
- 4) Reinstall the hose fittings, using an appropriate thread sealant.

1..... **Caution:** Depending on the product, the head assembly (3) may be rotated to an orientation different from the one shown. When removing the head assembly, always take note of its orientation and install it the same way during reassembly.



# SERVICE PROCEDURES

## VACUUM SWITCH ADJUSTMENT (WITH RED WARNING LIGHT)

The vacuum switch turns the vacuum pump on and off as needed to maintain sufficient vacuum for lifting the maximum load weight, as shown on the vacuum gauge (see “Reading the Vacuum Gauge” in *OPERATING INSTRUCTIONS*).

*Note: The red low vacuum warning light turns on and off along with the vacuum pump, to signal a vacuum loss.*<sup>1</sup>

If the switch is adjusted correctly, the pump turns off only *after* vacuum becomes sufficient for lifting; and turns on again *before* vacuum becomes insufficient for lifting.<sup>2</sup> Adjust the vacuum switch when necessary:



**Lifting capacity decreases whenever vacuum switch is adjusted to maintain lower vacuum level.**

- 1) Use the 1/4" open-end wrench provided to turn the adjustment screw (circled in fig. 1A) about 1/6th turn at a time:

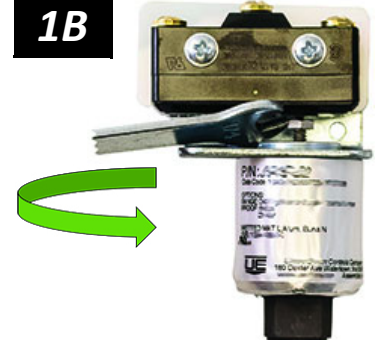
- To *increase* the vacuum level maintained by the lifter, turn the screw *counterclockwise* (fig. 1B).
- To *reduce* the vacuum level maintained by the lifter, turn the screw *clockwise* (fig. 1C).

- 2) Recheck pump activity in relation to the vacuum level.<sup>3</sup> Continue to make incremental adjustments until the vacuum switch is functioning correctly.

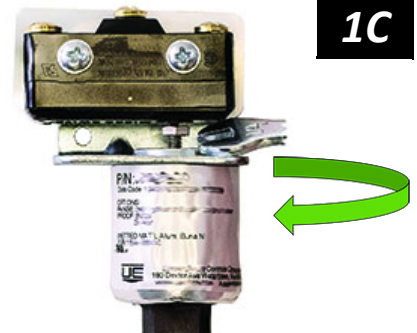
**1A**



**1B**



**1C**



1..... If the warning light does not turn on when the pump turns on, replace the bulb.

2..... In order to observe lifter functions while vacuum is decreasing, it may be necessary to create a controlled leak in the vacuum system.

3..... In order to test the adjustment accurately, release the vacuum pads completely before reattaching them to a test surface.

# REPLACEMENT PARTS

Stock No.	Description	Qty.
93220	Vacuum Pump – Diaphragm Type – 1-SCFM – 12 V DC	1
93215	Air Filter/Vacuum Control Valve with Handle and Fittings (for MRT4-DC)	1
93214	Vacuum Control Valve with Handle and Fittings (for other models)	1
66197AM	Pump Diaphragm Kit	1
66197	Pump Head Assembly	1
65211	Check Valve – 1/8 NPT	1
64752	Audio Alarm – 5-15 V DC – Panel Mount (for optional low vacuum warning buzzer)	1
64716	Battery Charger – 0.8 Amp – 240 V AC – Australian Type	1
64715	Battery Charger – 0.8 Amp – 240 V AC	1
64714	Battery Charger – 0.8 Amp – 100 / 120 V AC	1
64664	Battery – 12 V DC – 7 Amp-Hours	1
64590	Battery Gauge	1
64460	Circuit Breaker – 15 A	1
64283	Bulb – 13 V – Bayonet (for low vacuum warning light)	1
64251	Red Indicator Light – 12 V DC (aka, low vacuum warning light)	1
64236	Vacuum Switch – 1/4 NPT	1
64230	Roller-Lever Switch	1
64200	Push-Button Switch (for battery test button)	1
59086NC	Battery Connector – Twin Lead (for other models)	1
54392NC	Battery Connector – Twin Lead (for PF-DC, MT4/6/8-DC)	1
54390NC	Power Lead	1
20270	1/4" Open-End Wrench (for adjusting vacuum switch)	1
16134	Filter Element Kit – 1 oz Bowl Size	1
15910	Vacuum Gauge – 1/8 NPT – 2" Dial – CBM Type	1

See lifter's **OPERATING INSTRUCTIONS** for additional parts.

**SERVICE ONLY WITH IDENTICAL REPLACEMENT PARTS,  
AVAILABLE AT [WPG.COM](http://WPG.COM) OR THROUGH AN AUTHORIZED WPG DEALER**