KEEP FOR FUTURE REFERENCE

SERVICE MANUAL

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

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AC-VOLTAGE POWER SYSTEM

Stock number: 35275

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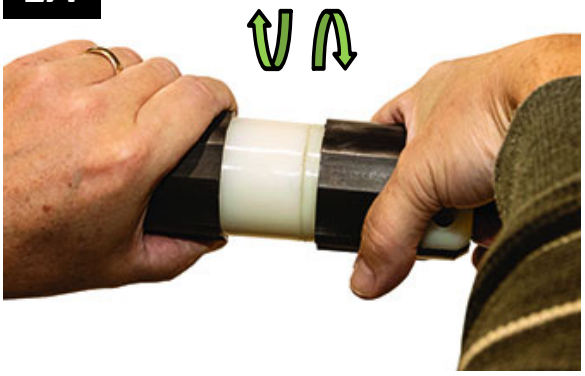
BEFORE SERVICING LIFTER

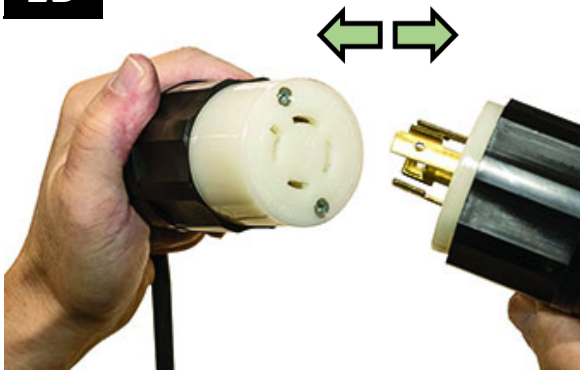
Disconnect power source as necessary to prevent electrical shock or other risks.

When necessary, disconnect the electrical connectors for the power cable (figs. 1A-B).

1A



1B



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

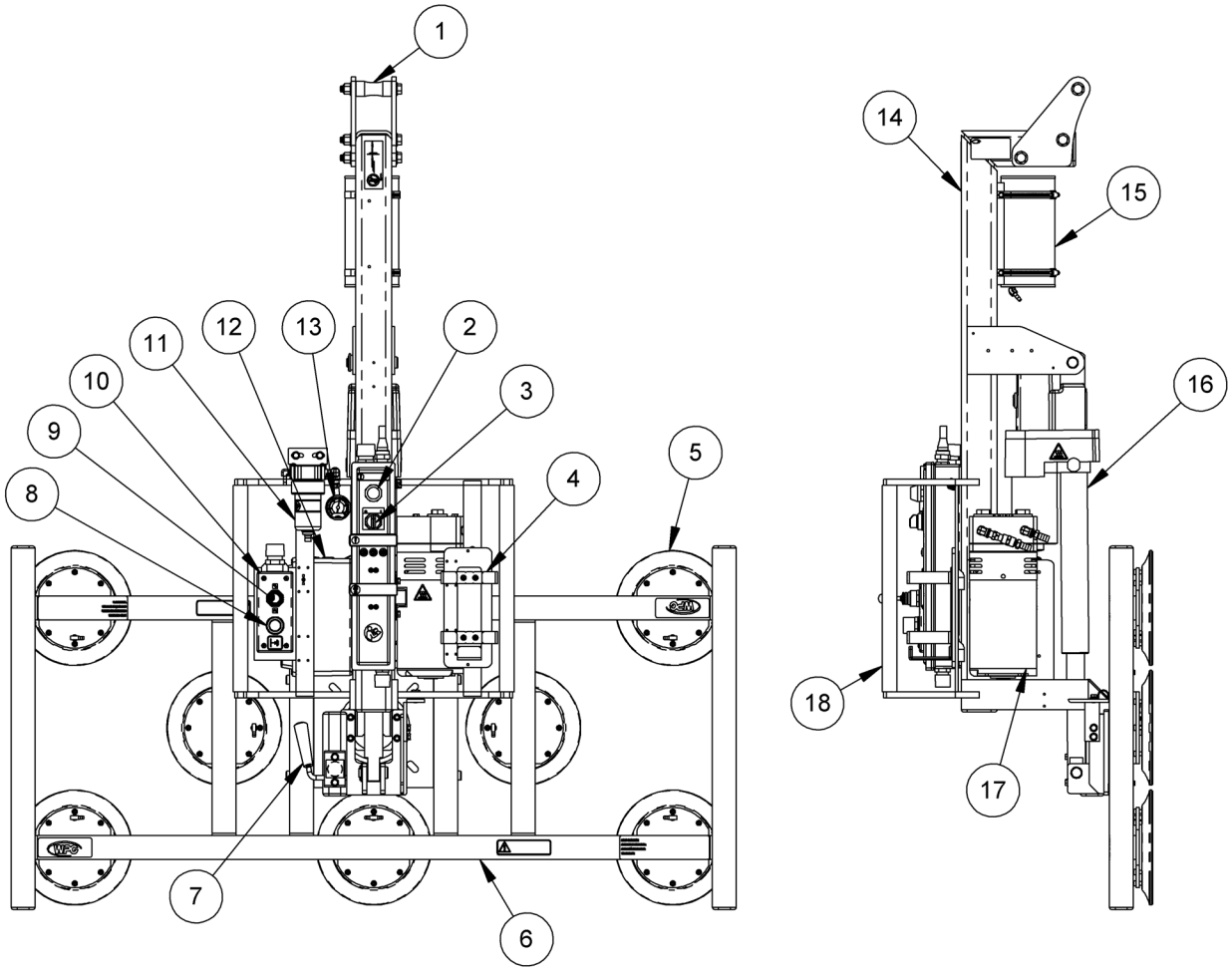
Note: Relevant ENGINEERING DRAWINGS are shown at the end of the lifter's OPERATING INSTRUCTIONS, for reference when servicing or troubleshooting the lifter.

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

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



1	LIFT POINT	2	VACUUM LIFT LIGHT	3	POWER SWITCH
4	PENDANT BASKET	5	VACUUM PAD	6	PAD FRAME
7	ROTATION RELEASE LEVER	8	VACUUM RELEASE BUTTON[1]	9	TILT TOGGLE SWITCH
10	MOVABLE CONTROL PENDANT	11	AIR FILTER	12	Enclosure w/ VACUUM SWITCH
13	VACUUM GAUGE	14	LIFT BAR	15	VACUUM RESERVE TANK
16	TILT ACTUATOR	17	VACUUM PUMP	18	CONTROL HANDLE

1..... Some lifters have a lever-style Vacuum Control Valve instead of a Vacuum Release Button.

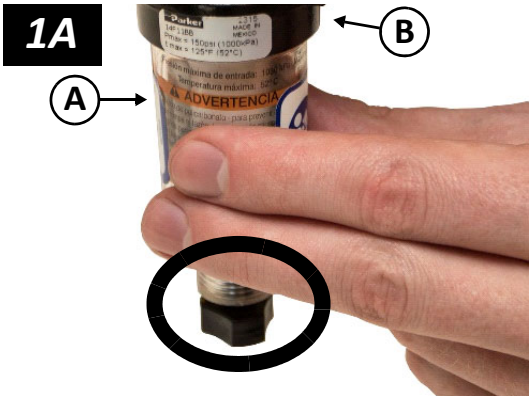
Note: A standard MRPT89AC is shown.[1]

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

AIR FILTER MAINTENANCE – 1 OZ BOWL SIZE

Inspect each <u>air filter</u> regularly, and service when necessary.

Immediately remove liquid or other contaminates 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.

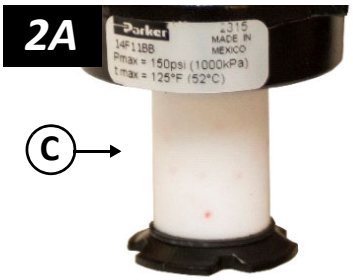
Filter Service Procedure

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

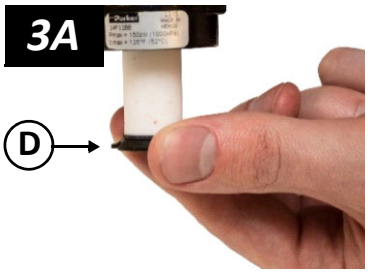
   Note: To protect air-line fittings from damage, hold the body while turning the bowl.

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 contaminates 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).



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.

4A

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.

5A

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.

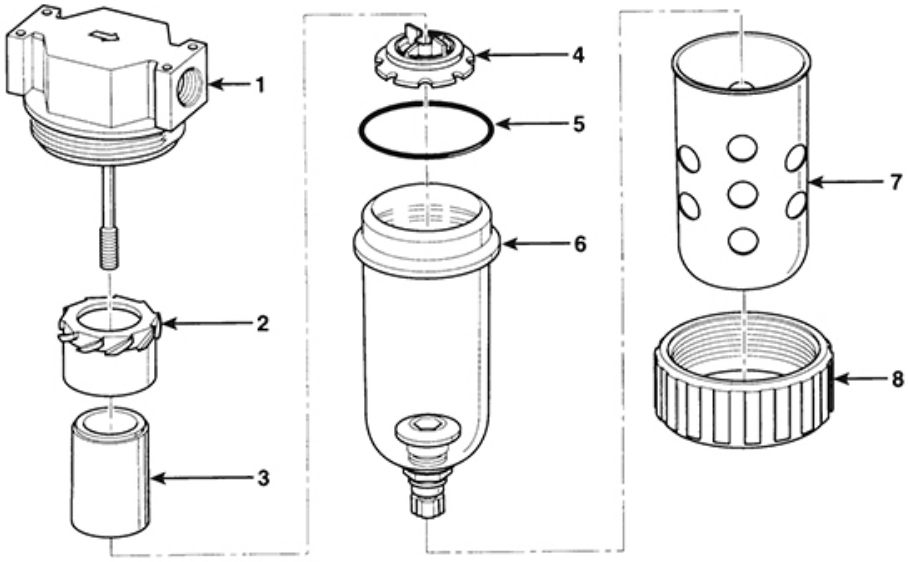
AIR FILTER MAINTENANCE – 4.4 OZ BOWL SIZE

Inspect each air filter regularly, and service when necessary.

Immediately remove liquid found in the filter bowl, to prevent contact with the filter element.

Never use bowl drain to remove liquid, because this could cause air leak.

1A



Replace the element whenever:

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

*Note: The Filter Element Kit **(#16132)** includes an element (item 3 in fig. 1A), a bowl seal (item 5) and lubricant (not shown).*

Filter Service Procedure

1) Unscrew the threaded collar (item 8 in fig. 1A) from the body (item 1) of the air filter.

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

2) Remove the bowl guard (item 7) and the bowl (item 6).
3) Determine whether the filter element (item 3) needs to be replaced (see above).
   - *If so*, proceed to *step 4*.
   - *If not*, remove any liquid or contaminates from the bowl; clean the old bowl seal (item 5) with mild soap and water; and skip to *step 8*.
4) Unscrew the baffle (item 4), and remove the element and deflector (item 2).
5) Discard the old element and bowl seal (item 5).

6) Clean the bowl and all remaining internal parts, using mild soap and water only.

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

7) Install the deflector and a new filter element. Then screw the baffle back on to hold the element in place.

   Note: Tighten gently – finger-tight.

8) 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.

9) Install the bowl back onto the body.

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

10) Install the bowl guard and the collar.

    Note: Tighten the collar with 28-32 in-lbs [316-362 N-cm] of torque.

11) 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.

VACUUM PUMP MAINTENANCE – MODEL 0523

> ⚠ ***Before proceeding with any maintenance, disconnect power source and allow pump to cool.***

Disassembly/Reassembly Procedure

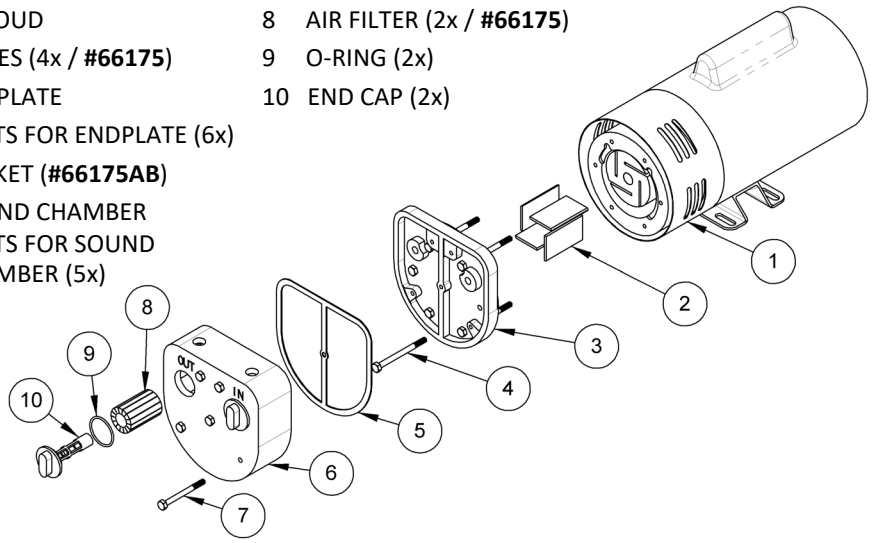
(includes replacing air filters, vanes and gasket; see "REPLACEMENT PARTS" on page 14)

1) Remove the end caps, O-rings and air filters from the sound chamber of the vacuum pump.

2) Remove the five bolts and remove the sound chamber.

   Note: If any liquid is discovered in the sound chamber, thoroughly dry all interior surfaces of the pump prior to reassembly.

1 SHROUD
2 VANES (4x / **#66175**)
3 ENDPLATE
4 BOLTS FOR ENDPLATE (6x)
5 GASKET (**#66175AB**)
6 SOUND CHAMBER
7 BOLTS FOR SOUND CHAMBER (5x)
8 AIR FILTER (2x / **#66175**)
9 O-RING (2x)
10 END CAP (2x)



3) Remove the six bolts from the endplate, and separate the endplate from the rotor housing. The shroud surrounding the rotor housing will loosen as well.

4) Note the orientation of the bevel on the vanes for step 5. Then remove the vanes by sliding them out the end of the rotor. If needed, rotate the rotor by hand to position the vanes for easier access.

5) Make sure that the rotor and housing are clean and free of debris. Orient the new vanes like the old ones by matching the bevel. Then insert the new vanes by sliding them into the empty slots in the rotor.

6) Reinstall the endplate and secure it with the six bolts previously removed.

7) Remove the gasket, and make sure that the contact surfaces between the endplate and sound chamber are clean. Install a new gasket and reinstall the sound chamber. Then secure the sound chamber with the five bolts previously removed.

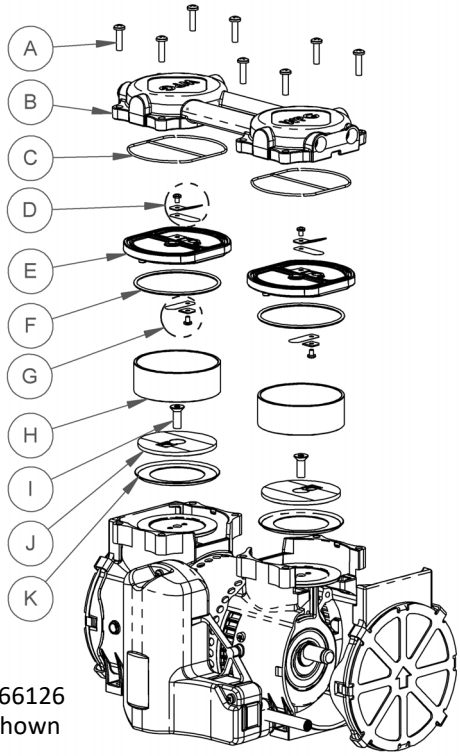
8) Replace the air filters. Then reinstall the O-rings and end caps.

VACUUM PUMP MAINTENANCE – MODEL MP27

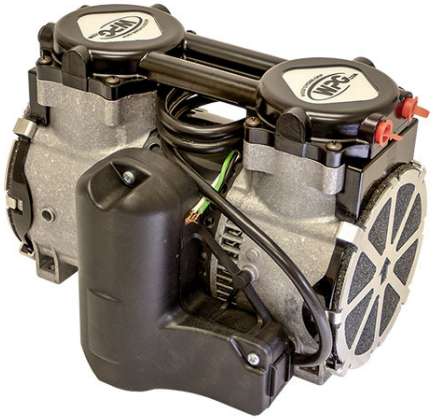
> ***Before proceeding with any maintenance, disconnect power source and allow pump to cool.***

If the vacuum pump takes too long to attain full vacuum, clean the exterior of the pump and replace worn parts as necessary to obtain acceptable pump performance (see "REPLACEMENT PARTS" on page 14).

#66143



#66126 shown



#66126

Reference	Availability	Qty. for #66143	Qty. for #66126	Description
A	☐	4	8	Head Screw
B	☐	1	2	Head
C	■	1	2	Head O-ring
D	■	1	2	Exhaust Valve Kit (valve flapper, restraint and screw)
E	☐	1	2	Valve Plate
F	■	1	2	Sleeve O-Ring
G	■	1	2	Intake Valve Kit (valve flapper, keeper and screw)
H	■	1	2	Cylinder Sleeve
I	■	1	2	Retainer Screw
J	☐	1	2	Retainer Plate
K	■	1	2	Piston Cup

☐ Nonstocked Item ■ Included in service kit **#66179AM**

SERVICE PROCEDURES

*Note: The steps in the sections below and on the following page describe procedures for servicing single-head pump **#66143**. Repeat each step when servicing dual-head pump **#66126**.*

Removing the Head and Valve Plate

1) Remove the head screws (A) and the pump head (B). Note the orientation of the head for reassembly.
2) Carefully separate the valve plate (E) from the bottom of the pump head (B) and the top of the cylinder sleeve (H). Note the orientation of the plate tabs for reassembly.
3) Remove the head O-ring (C) and sleeve O-ring (F), and discard them.

Replacing the Intake Valve and Sleeve O-Ring

4) Remove the old valve screw, keeper and flapper (G) and discard them.
5) Clean the lower surfaces of the valve plate (E) with a soft cloth.
6) Install the new valve flapper, keeper (so "X" is visible) and screw (G) as shown. Tighten the screw with 18 in-lbs [2 N-m] of torque.
7) Install new sleeve O-ring (F) in the valve plate (E). Make sure to seat the O-ring firmly in the groove.

Replacing the Exhaust Valve and Head O-Ring

8) Remove the old valve screw, restraint and flapper (D) and discard them.
9) Clean the upper surfaces of the valve plate (E) with a soft cloth.
10) Install the new valve flapper, restraint and screw (D) as shown. Tighten the screw with 18 in-lbs [2 N-m] of torque.
11) Install new head O-ring (C) in the valve plate (E). Make sure to seat the O-ring firmly in the groove, without any twists.

Disassembling the Piston Assembly

12) Remove the retainer screw (I) and discard it. Note the position of the recesses in the retainer plate (J) for reassembly.
13) Remove the cylinder sleeve (H), retainer plate (J) and piston cup (K). Discard the sleeve and cup.
14) Clean the retainer plate (J) and top of the piston rod.

Replacing the Sleeve and Cup

15) Place the new cylinder sleeve (H) over the piston rod.

16) Insert the new piston cup (K) into the sleeve (H) and push the cup down to the piston rod.

17) Reinstall the retainer plate (J) on the piston rod, making sure to position it correctly.

18) Install the new retainer screw (I) and tighten it with 55 in-lbs [6.2 N-m] of torque.

Installing the Valve Plate and Head

19) Make sure the cylinder sleeve (H) is seated firmly against the pump housing. Then place the assembled valve plate (E) in the correct orientation on the sleeve, making sure it fits into the O-ring groove.

20) Place the head (B) in the correct orientation on the valve plate (E), making sure the plate tabs fit in head notches.

21) Install the head screws (A) and tighten them with 55 in-lbs [6.2 N-m] of torque in a crisscross pattern.

VACUUM SWITCH ADJUSTMENT

The vacuum switch turns the vacuum lift light on and off as needed to indicate whether the lifter has attained sufficient vacuum for lifting the maximum load weight, as shown on the vacuum gauge (see "OPERATION: TO ATTACH THE PADS TO A LOAD: Reading the Vacuum Gauge" in the lifter's *OPERATING INSTRUCTIONS*).

If the switch is adjusted correctly, the lift light turns on only *after* vacuum becomes sufficient for lifting; and turns off again *before* vacuum becomes insufficient for lifting.[1,2] Adjust the vacuum switch when necessary:

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:

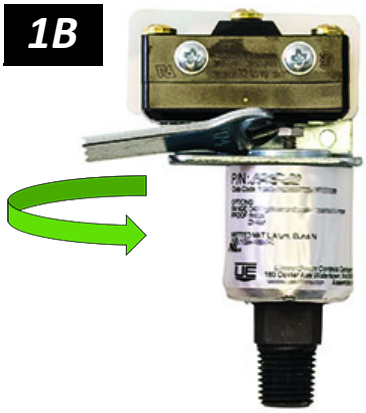
   - To make the lift light turn *off* at a *greater* vacuum level, turn the screw *counterclockwise* (fig. 1B).

   - To make the lift light turn *on* at a *lesser* vacuum level, turn the screw *clockwise* (fig. 1C).

2) Check lift light activity in relation to the vacuum level.[3] Continue to make incremental adjustments until the vacuum switch is functioning correctly.

1A

1B



1C

1..... If the lift light turns on *before* vacuum is sufficient for lifting, replace the air filter's element (see "AIR FILTER MAINTENANCE – 1 OZ BOWL SIZE" on page 4 or "AIR FILTER MAINTENANCE – 4.4 OZ BOWL SIZE" on page 6). If the lift light does *not* turn on *after* vacuum is sufficient for lifting, replace the light bulb (see "REPLACEMENT PARTS" on page 14).

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.

LINEAR TILT ACTUATOR ADJUSTMENT

The tilt actuator is prelubricated and should not require additional lubrication.[1]

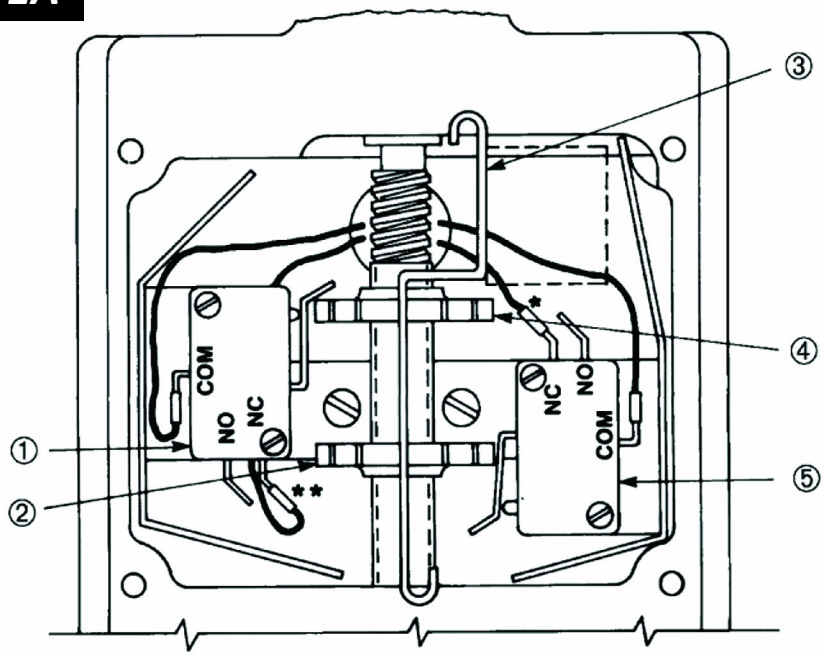
The actuator has an intermittent-duty type motor. If the actuator is operated more than 20% of the time or runs continuously for more than 5 minutes, a thermal overload relay will break the power circuit. It then takes about 10 minutes before the motor cools sufficiently for the thermal relay to close and restore power.

The brake is preset and should provide consistent braking for the tilt function. However, if the brake friction surfaces become worn (indicated by excessive drift), contact WPG for rebuilding.

The limit switches, which control the stroke length, also are preset and should not need adjustment. However, if adjustment is required, proceed as follows:

1) Remove the appropriate cover plate (on actuator head, facing screw shaft side) to expose the limit switches (items 1 and 5 in fig. 1A).
2) Engage the actuator until it reaches the correct retracted or extended position (depending on adjustment needed). Stop the actuator before any parts of the vacuum lifter come in contact with each other.
3) Remove the nut restrainer (item 3).

1A



4) Turn the appropriate limit switch nut (item 2 or item 4) as needed to activate the limit switch, allowing for drift.
5) Check actuator travel and readjust if necessary. Then reinstall the nut restrainer and cover plate.

1..... If the actuator is not used for a week or more at a time, oil may begin to separate from the lubricant and leak out. Although this condition is not detrimental to the actuator, you can avoid it by simply running the actuator for a few cycles each week.

REPLACEMENT PARTS

Stock No.	Description	Qty.
95500AM	Vacuum Pump – Rotary Vane Type – 4 SCFM – 100/120/240 V AC	1
66179AM	Pump Service Kit (for pumps 66126, 66126AM, 66143)	1
66175AB	Pump Gasket (for pump 95500AM)	1
66175	Pump Vanes/Filters Kit (for pump 95500AM)	1
66143	Vacuum Pump – Wobble Piston – 2.5 SCFM – 120 V AC	1
66126AM	Vacuum Pump – Wobble Piston – 5 SCFM – 240 V AC	1
66126	Vacuum Pump – Wobble Piston – 5 SCFM – 120 V AC	1
65277	Vacuum Control Valve with Lever (for MRTA8-AC)	1
65275	Vacuum Control Valve with Lever (for FLEX-AC, MR4-AC, MTA4/8-AC, PF-AC)	1
65264M	Valve Adapter (for MRTA6LP6FAC, MTA2-AC vacuum release buttons)	1
65261	Vacuum Control Valve – 4-Way (for MRTA6LP6FAC, MTA2-AC vacuum release buttons)	1
65258	Push Button (for MRTA6LP6FAC, MRTA6LP6FAC, MTA2-AC vacuum release buttons)	1
65234	Solenoid Valve – 240 V AC – 6 W (for FLEX-AC, MR4-AC, MTA2-AC, PF-AC)	1
65231	Solenoid Valve – 120 V AC – 6 W (for CFPT-9AC, MRPT89AC, VLGG-AC)	2
65226	Solenoid Valve – 120 V AC – 6 W (for FLEX-AC, MRTA6LP6FAC, MR4-AC, MTA2-AC, PF-AC)	1
65212AM	Check Valve – 1/4 NPT – 0.15 PSI (for MRTA6LP6FAC, MTA2-AC, PF-AC)	1
65212	Check Valve – 1/4 NPT – 1.00 PSI	1
65211AM	Check Valve – 1/8 NPT – 0.15 PSI	1
64952	Actuator – 1500 lbs – 12" Stroke – 120 V AC (for MRPT89AC, PT10/1410TAC)	1
64951	Actuator – 1500 lbs – 12" Stroke – 240 V AC (for MRPT89AC, PT10/1410TAC)	1
64950	Actuator – 1500 lbs – 6" Stroke – 120 V AC (for CFPT-9AC, PT4-AC)	1
64948	Actuator – 1500 lbs – 6" Stroke – 240 V AC (for CFPT-9AC)	1
64461	Circuit Breaker – 10 A	1
64459MZ	Circuit Breaker – 8 A	1
64459	Circuit Breaker – 5 A	1
64289	Bulb – 24 V – Bayonet (for vacuum lift light on CFPT-9AC, MRPT89AC, VLGG-AC, VLPL-AC)	1 / 2*
64284	Bulb – 6.3V – Bayonet (for vacuum lift light on MRTA8-AC)	1
64262	Green Lens (for vacuum lift light)	1 / 2*
64236	Vacuum Switch – 1/4 NPT	1
64191	Contact Block (for rotary power switch)	1
64176	Power Switch – On/Off Toggle (for MR4-AC, MRTA6LP6FAC, MTA2-AC, PF-AC)	1
56052	Valve Manifold Assembly – 24 V AC (for CFPT-9AC, MRPT89AC, PT4-AC, PT10/1410TAC, VLGG-AC, VLPL-AC)	1
20270	1/4" Open-End Wrench (for adjusting vacuum switch)	1
20050	Pad Ring Installation Tool	1
16134	Filter Element Kit (for 1 oz bowl size air filter)	1
16132	Filter Element Kit (for 4.4 oz bowl size air filter)	1
15930	Vacuum Gauge – 1/4 NPT – LM Type (for MTA2-AC, VLGG-AC, PF-AC)	1
15910	Vacuum Gauge – 1/8 NPT – CBM Type (for other models)	1
15650	360° Rotating Union – 1/4 NPT (for MR4-AC, MRPT89AC)	1

* Quantity of 1 for lifters with powered tilt.

*See **OPERATING INSTRUCTIONS** for additional parts.*

SERVICE ONLY WITH IDENTICAL REPLACEMENT PARTS,
AVAILABLE AT WPG.COM OR THROUGH AN AUTHORIZED WPG DEALER