Thank you for purchasing this Gast product. It is manufactured to the highest standards using quality materials. Please follow all recommended maintenance, operational and safety instructions and you will receive years of trouble free service.

IMPORTANT: PLEASE READ THIS MANUAL AND SAVE FOR FUTURE REFERENCE.

Product Use Criteria:

• Pump only clean, dry air.
• Operate at 32°F - 104°F (0°C - 40°C).
• Protect unit from dirt & moisture.
• Do not pump flammable or explosive gases or use in an atmosphere that contains such gases.
• Protect all surrounding items from exhaust air. This exhaust air can become very hot.
• Corrosive gases and particulate material will damage unit. Water vapor, oil-based contaminants or other liquids must be filtered out.
• Consult your Gast Distributor/Representative before using at high altitudes.
• This pump is oil-less and requires NO lubrication.
• Laboratory units may be used for both pressure and vacuum.
Motor Control

It is your responsibility to contact a qualified electrician and assure that the electrical installation is adequate and in conformance with all national and local codes and ordinances.

Select fuses, motor protective switches or thermal protective switches to provide protection. Fuses act as short circuit protection for the motor, not as protection against overload. Incoming line fuses must be able to withstand the motor’s starting current. Motor starters with thermal magnetic overload or circuit breakers protect motor from overload or reduced voltage conditions. If additional information is required, please consult your Gast Distributor/Representative.

The wiring diagram supplied with the product provides required electrical information. Check that power source is correct to properly operate the dual-voltage motors.

Correct installation is your responsibility. Make sure you have the proper installation conditions and that installation clearances do not block air flow.

Blocking air flow over the product in any way can cause the product to overheat.

Mounting
This product can be installed in any orientation. Mounting the product to a stable, rigid operating surface and using shock mounts will reduce noise and vibration.

Electrical Shock Hazard

Electrical Connection

This product must be properly grounded. Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.

If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with insulation that is green with or without yellow stripes is the grounding wire.

Check the condition of the power supply wiring. Do not permanently connect this product to wiring that is not in good condition or is inadequate for the requirements of this product.

Failure to follow these instructions can result in death, fire or electrical shock.
It is your responsibility to operate this product at recommended pressures or vacuum duties and room ambient temperatures. Do not start against a vacuum or pressure load.

**Start Up**
If motor fails to start or slows down significantly under load, shut off and disconnect from power supply. Check that the voltage is correct for motor and that motor is turning in the proper direction.

**Injury Hazard**
Install proper safety guards as needed.
Keep fingers and objects away from openings and rotating parts.
When provided, motor terminal covers must be in place for safe operation.
Product surfaces become very hot during operation, allow product surfaces to cool before handling.
Air stream from product may contain solid or liquid material that can result in eye or skin damage, wear proper eye protection.
Wear hearing protection. Sound level from motor may exceed 70 dBA.
Failure to follow these instructions can result in burns, eye injury or other serious injury.

**Grounded Plug**
120-volt grounded connectors shown. 220/240-volt grounded connectors will differ in shape.

**WARNING**
An undersized cord is a potential fire hazard, and will cause a drop in line voltage resulting in loss of power causing the product to overheat. The table indicates the correct size cord for length required and the ampere rating listed on the product nameplate. If in doubt, use the next heavier gage cord. The smaller the gage number, the heavier the wire gage.

### Minimum gage for extension cords

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<th>250</th>
<th>500</th>
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</tr>
</tbody>
</table>

**OPERATION**

Model with a power supply cord:
This product must be grounded. For either 120-volt or 220/240-volt circuits connect power supply cord grounding plug to a matching grounded outlet. Do not use an adapter. (See DIAGRAM A)

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 may be equipped with a power supply cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if you are not sure whether the product is properly grounded. Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Model that is permanently wired:
This product must be connected to a grounded, metallic, permanent wiring system, or an equipment grounding terminal or lead on the product.

Power supply wiring must conform to all required safety codes and be installed by a qualified person. Check that supply voltage agrees with that listed on product nameplate.

Extension cords:
Use only a 3-wire extension cord that has a 3-blade grounding plug. Connect extension cord plug to a matching 3-slot receptacle. Do not use an adapter. Make sure your extension cord is in good condition. Check that the gage wire of the extension cord is the correct size wire to carry the current this product will draw.

MAINTENANCE

**WARNING**
Electrical Shock Hazard
Disconnect electrical power supply cord before performing maintenance on this product.
If product is hard wired into system, disconnect electrical power at the circuit breaker or fuse box before performing maintenance on this product.
Failure to follow these instructions can result in death, fire or electrical shock.
SERVICE KIT INSTALLATION

Disconnect electrical power supply cord before installing Service Kit.

It is your responsibility to:
- Regularly inspect and make necessary repairs to product in order to maintain proper operation.
- Make sure that pressure and vacuum are released from product before starting maintenance.

Check intake and exhaust filters after first 500 hours of operation. Clean filters and determine how frequently filters should be checked during future operation. This one procedure will help to assure the product's performance and service life.

Solvent Cleaning
Use only Gast AH255B Solvent or other non-petroleum based solvent. Do Not use kerosene or ANY other combustible solvent to clean product.

1. Remove the four screws in the top of the product. Remove the top plate.
2. Remove filters and clean with Gast AH255B solvent or other non-petroleum based solvent. Use compressed air to dry filters and make sure that all moisture is removed. Reinstall filters.
3. Inspect head and O-ring for damage.
4. Reinstall head and valve plate with four screws.

Check that all external accessories such as relief valves and gauges are attached to cover and are not damaged before re-operating product.

DISASSEMBLY

1. Disconnect plumbing.
2. Operate product for at least 5 minutes without plumbing.
3. Run at maximum vacuum for 10 to 15 minutes.
4. Repeat step 2.
5. Disconnect power supply.
6. Plug open ports to prevent dirt or other contaminants from entering product.

1. Remove the two Phillips-head screws then the retainer plate and diaphragm.
2. Install the new diaphragm over the ring on the connecting rod. Place the pattern side up.
3. Apply Loctite® 222MS thread locker to the screws. Replace the retainer plate and attach with the two screws. Torque the screws to 30 in-lbs. Remove any excess Loctite®.
Replacing Leaf Valves
1. Separate head from valve plate. Remove then discard O-ring and filter elements.
2. Remove slotted valve screw. Remove valve limiter, leaf valves and valve retainer. Discard all valve components except the valve plate. **Do Not damage the valve plate.**
4. Place valve plate so that the O-ring groove and raised valve seat are facing down.
5. Using thumb and middle finger, gently flex valve to find its natural inner curve. Place valve on valve seat with the natural inner curve facing down. Valve will only work correctly when the inner curve faces down on the valve seat.
6. Place valve retainer with sharp side up and notch away from valve.
7. Insert pan head screw through retainer, leaf valves and valve plate.
8. Support screw while turning over valve plate assembly. While holding screw in place, place leaf valve (inner curve over raised valve seat) over screw. Start valve limiter on threads of screw.
9. Align valve components and tighten screw to 12 to 13 in-lbs.

Reassembly
1. Place molded O-ring in valve plate O-ring groove. Make sure O-ring doesn’t slip out of the groove.
2. Replace (2) filter elements in head with one element inside each open port chamber.
3. Set head on top of valve plate so O-ring is properly compressed and locating pin on head fits in locating hole on valve plate.
4. Remove the cooling fan grill. Rotate fan by hand until rod and diaphragm are at top dead center. Align and reinstall shims on top of pump body.
5. Install head and valve assembly on pump. Reinstall handle. Install the fasteners that hold the handle and head assembly in place and hand tighten. In a criss-cross torque pattern, run fasteners and nuts to 100 in-lbs.
6. Reinstall gauges and plumbing.

Check that all external accessories such as relief valves and gauges are attached to cover and are not damaged before re-operating product.

If pump still does not produce proper vacuum or pressure, send unit to a Gast Authorized Service Facility for repair.

---

**WARRANTY**

Gast finished products, when properly installed and operated under normal conditions of use, are warranted by Gast to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase from Gast or an authorized Gast Representative or Distributor. In order to obtain performance under this warranty, the buyer must promptly (in no event later than thirty (30) days after discovery of the defect) give written notice of the defect to Gast Manufacturing Incorporated, PO Box 97, Benton Harbor Michigan USA 49023-0097 or an authorized Service Center (unless specifically agreed upon in writing signed by both parties or specified in writing as part of a Gast OEM Quotation). Buyer is responsible for freight charges both to and from Gast in all cases.

This warranty does not apply to electric motors, electrical controls, and gasoline engines not supplied by Gast. Gast’s warranties also do not extend to any goods or parts which have been subjected to misuse, lack of maintenance, neglect, damage by accident or transit damage.

**THIS EXPRESS WARRANTY EXCLUDES ALL OTHER WARRANTIES OR REPRESENTATIONS EXPRESSED OR IMPLIED BY ANY LITERATURE, DATA, OR PERSON. GAST’S MAXIMUM LIABILITY UNDER THIS EXCLUSIVE REMEDY SHALL NEVER EXCEED THE COST OF THE SUBJECT PRODUCT AND GAST RESERVES THE RIGHT, AT ITS SOLE DISCRETION, TO REFUND THE PURCHASE PRICE IN LIEU OF REPAIR OR REPLACEMENT.**

**GAST WILL NOT BE RESPONSIBLE OR LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, however arising, including but not limited to those for use of any products, loss of time, inconvenience, lost profit, labor charges, or other incidental or consequential damages with respect to persons, business, or property, whether as a result of breach of warranty, negligence or otherwise. Notwithstanding any other provision of this warranty, BUYER’S REMEDY AGAINST GAST FOR GOODS SUPPLIED OR FOR NON-DELIVERED GOODS OR FAILURE TO FURNISH GOODS, WHETHER OR NOT BASED ON NEGLIGENCE, STRICT LIABILITY OR BREACH OF EXPRESS OR IMPLIED WARRANTY IS LIMITED SOLELY, AT GAST’S OPTION, TO REPLACEMENT OF OR CURE OF SUCH NONCONFORMING OR NON-DELIVERED GOODS OR RETURN OF THE PURCHASE PRICE FOR SUCH GOODS AND IN NO EVENT SHALL EXCEED THE PRICE OR CHARGE FOR SUCH GOODS. GAST EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE WITH RESPECT TO THE GOODS SOLD. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTIONS SET FORTH IN THIS WARRANTY, notwithstanding any knowledge of Gast regarding the use or uses intended to be made of goods, proposed changes or additions to goods, or any assistance or suggestions that may have been made by Gast personnel.**

Unauthorized extensions of warranties by the customer shall remain the customer’s responsibility.

**CUSTOMER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF GAST PRODUCTS FOR CUSTOMER’S USE OR RESALE, OR FOR INCORPORATING THEM INTO OBJECTS OR APPLICATIONS WHICH CUSTOMER DESIGNS, ASSEMBLES, CONSTRUCTS OR MANUFACTURES.**

This warranty can be modified only by authorized Gast personnel by signing a specific, written description of any modifications.
Please reference the exploded view on the next page for the following model and parts table.

### DOA SERIES

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∆ Denotes parts included in the Service Kit.

The service kit may contain parts for more than one model or style diaphragm pump.

Parts not needed may be discarded.

Parts listed are for stock models. For specific OEM models, please consult the factory.

When corresponding or ordering parts, please give complete model and serial numbers.
Valve Plate Assembly (available separately)

Valve Plate Assembly also includes items 10 & 13 (not shown)
<table>
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<tr>
<th>Low Vacuum</th>
<th>High Vacuum</th>
<th>Pump Overheat</th>
<th>Motor Overload</th>
<th>Excess Noise</th>
<th>Reason and remedy for problem</th>
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<td>• At Pump</td>
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<td>Filter dirty. Clean or replace.</td>
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<td>•</td>
<td>• At pump</td>
<td>•</td>
<td>•</td>
<td>Muffler dirty. Clean or replace.</td>
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<tr>
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<td>•</td>
<td>•</td>
<td>• At pump</td>
<td>•</td>
<td>Valves dirty or valves bent. Clean or replace.</td>
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<tr>
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<td>•</td>
<td>Worn diaphragm. Repair or replace.</td>
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<tr>
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<td>•</td>
<td>•</td>
<td>Relief valve set too high. Inspect and adjust.</td>
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<tr>
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<td>•</td>
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<td>Relief valve set too low. Inspect and adjust.</td>
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<td>•</td>
<td>• At pump</td>
<td>• At pump</td>
<td>•</td>
<td>Plugged vacuum/pressure line. Inspect and repair.</td>
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<td>• At pump</td>
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<td>Collapsed vacuum line. Inspect and repair.</td>
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<td>Voltage wrong. Check power source.</td>
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<tr>
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<td>•</td>
<td>•</td>
<td>Worn diaphragm. Replace.</td>
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<tr>
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<td>•</td>
<td>•</td>
<td>Leaky hose or check valve. Replace.</td>
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<tr>
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<td>Dirt or liquid on top of diaphragm. Inspet and clean.</td>
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<tr>
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<td>•</td>
<td>•</td>
<td>Motor not wired correctly. Check wiring diagram/line voltage.</td>
</tr>
</tbody>
</table>

**Authorized Service Facilities**

Gast Manufacturing Inc.
2550 Meadowbrook Road
Benton Harbor, MI 49022
TEL: 269-926-6171
FAX: 269-926-8268
www.gastmfg.com

Gast Manufacturing Inc.
505 Washington Avenue
Carlstadt, NJ 07072
TEL: 201-933-6444
FAX: 201-933-5545
www.gastmfg.com

Air-Oil Products Corp.
301 30th Street NE, #112
Auburn, WA 98002
TEL: 800-282-5672
FAX: 877-808-4601
www.air-oil.com

Brenner Fiedler & Assoc.
13824 Bentley Place
Cerritos, CA 90701
TEL: 660-443-5558
FAX: 310-404-2721
FAX: 310-404-7975
www.brenner-fiedler.com

D & F Distributors
1144 Indy Court
Evansville, IN 47725
TEL: 812-867-2441
FAX: 812-867-6852
www.df distributor.com

Hydraulic & Pneumatic Sales
11100 Park Charlotte Blvd.
Charlotte, NC 28273
TEL: 704-588-3234
FAX: 704-588-1599
www.hpsalesinc.com

Kinequip, Incorporated
365 Old Niagara Falls Blvd.
Buffalo, NY 14228-1638
TEL: 716-894-5000
FAX: 1-800-982-8894
www.kinequip.com

James E. Watson & Co.
29 Doran Ave.
Marietta, GA 30060
TEL: 770-422-1154
www.jewatsonco.com

Wainbee Limited
5789 Coopers Avenue
Mississauga, Ontario
Canada L4Z 3S6
TEL: 905-568-1700
FAX: 905-568-0083
http://www.wainbee.ca

Wainbee Limited
215 boul Brunswick
Pointe Claire, Quebec
Canada H9R 4V7
TEL: 514-697-8810
FAX: 514-697-3070
http://www.wainbee.ca

Compliance with ISO 9001 & 14001 Standards

**GAST**
A Unit of IM Corporation

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