



Operation and Maintenance Manual

# 87R Riser-Mount Dry Pipe Sprinkler Compressor

# **GAST**<sup>®</sup>

A UNIT OF IDEX CORPORATION

Dear Customer:

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.

 **WARNING**



PLEASE READ THIS MANUAL COMPLETELY BEFORE INSTALLING AND USING THIS PRODUCT.  
SAVE THIS MANUAL FOR FUTURE REFERENCE AND KEEP IN THE VICINITY OF THE PRODUCT.

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## PRODUCT USE CRITERIA, AND PURPOSE

- Pump only clean, dry air.
- Operate at 39°F to 104°F [4°C to 40°C].
- Protect unit from dirt and 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.
- This compressor is intended to be installed in accordance with the Standard for Installation of Sprinkler Systems, NFPA 13.

**Your safety and the safety of others is extremely important.**

**We have provided many important safety messages in this manual and on your product. Always read and obey safety messages.**



**This is the safety alert symbol. This symbol alerts you to hazards that can kill or hurt you and others. The safety alert symbol and the words “DANGER” and “WARNING” will precede all safety messages. These words mean:**

### DANGER

**You will be killed or seriously injured if you don't follow instructions.**

### WARNING

**You can be killed or seriously injured if you don't follow instructions.**

**All safety messages will identify the hazard, tell you how to reduce the chance of injury, and tell you what can happen if the safety instructions are not followed.**

## INSTALLATION



### WARNING



#### Electrical Shock Hazard

**Disconnect electrical power at the circuit breaker or fuse box before installing this product.**

**Install this product where it will not come into contact with water or other liquids.**

**Install this product where it will be weather protected.**

**Electrically ground this product.**

**Failure to follow these instructions can result in death, fire, or electrical shock.**

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



### WARNING

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

## MOUNTING/PLUMBING

1. Unpack the system. Remove all literature. Remove all accessories (hose whip, mounting rail, pipe clamps, and intake filter).
2. Find the top strut channel section in the packaging and install using the proper sized clamps for the riser pipe diameter. 2", 2-½", 3", and 4" clamps are included with every unit. Use appropriate socket & adjustable wrench to secure clamp bolt & nut (2", 2-½", & 3" = ½" & 4" = 9/16").
3. Ensure there is enough space between the bolt head and strut channel to allow the system frame to mount in-between.
4. Grasping the system by the hand cutouts, carefully hang the frame on the strut channel. Ensure both tabs on the frame are secured between the bolt heads and strut channel.
5. Using a 3/4" socket or wrench, tighten both bolts. Confirm the frame is securely attached to the strut channel.
6. Slide the bottom pipe clamps into the strut channel already

attached to the system. Use appropriate socket & adjustable wrench to secure clamp bolt & nut.

7. If using, attach the supplied hose whip to the 3/4" threaded outlet. Secure flange nut on hose whip using adjustable wrench. Remove the blue plug from the compressor head and install the intake filter, hand tightening.
8. Complete the installation by having a certified electrician make the electrical connections. This compressor system provides standard electrical conduit connection.

Once finished, turn the system on and ensure it pressurizes the system and turns off once pressure setting is reached. If needed, the pressure switch can be adjusted using the provided instructions.

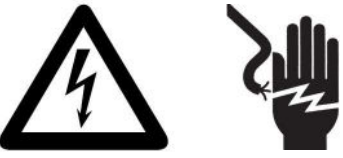
## ELECTRICAL

**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.**

Determine the correct overload setting required to protect the compressor (see motor starter manufacturer's recommendations). Select fuses, motor protective switches or thermal protective switches to provide protection. Fuses act as short circuit protection for the compressor, not as protection against overload. Incoming line fuses must be able to withstand the compressor's starting current. Motor starters with thermal magnetic overload or circuit breakers protect motor from overload or reduced voltage conditions.

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


**WARNING**



**Electrical Shock Hazard**

**This product must be properly grounded.**

**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.**

## GROUNDING

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.

## OPERATION


**WARNING**

**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 the 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.**

It is your responsibility to operate this product at recommended pressures and room ambient temperatures. Do not start against a pressure load.

## Start Up


**WARNING**

**This motor is thermally protected and may restart after cooling.**

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. Check the switch for damage. If so equipped, the thermal protection switch has tripped, the motor can restart after cooling.

## PRESSURE SWITCH

Factory set: 30 psi cut in / 40 psi cut out

Minimum differential: 5 psi

|                    |                         |                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| To change settings | Standby                 | Press and hold the -OK- button for 3 seconds. Display will show a dash [-] and the system will not run.                                                                                                                                                                                                                                                                                  |
|                    | Adjust cut in pressure  | Press the down arrow once. The P On light will flash. Press the -OK- button once. The P On light will stop flashing and the display should show 8 8 8. Press and hold the down button for 3 seconds. The current cut in pressure will be displayed and start to flash. Use the up or down arrows to set the switch to the desired pressure. Press the -OK- button to save the setting.   |
|                    | Adjust cut out pressure | Press the up arrow once. The P Off light will flash. Press the -OK- button once. The P Off light will stop flashing and the display should show 8 8 8. Press and hold the - UP - button for 3 seconds. The current cut in pressure will be displayed and start to flash. Use the up or down arrows to set the switch to the desired pressure. Press the -OK- button to save the setting. |
|                    | Standby off             | Press and hold the -OK- button for 3 seconds. The system will start to run and show current pressure.                                                                                                                                                                                                                                                                                    |

## MAINTENANCE

### WARNING



#### Electrical Shock Hazard

**Disconnect electrical power supply 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.**

### WARNING

#### Injury Hazard

**Product surfaces become very hot during operation, allow product surfaces to cool before handling.**

**Air stream from the product may contain solid or liquid material that can result in eye or skin damage, wear proper eye protection.**

**Clean this product in a well-ventilated area.**

**Failure to follow these instructions can result in burns, eye injury, or other serious injury.**

**It is your responsibility to:**

- **Regularly inspect and make necessary repairs to product in order to maintain proper operation.**
- **Make sure that pressure is released from product before starting maintenance.**

Check intake and exhaust filters after six months 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.

1. Remove filter cover.
2. Check filter felt. Replace felt if it is covered with contamination or shows signs of increasing differential pressure.
3. Reinstall felt and filter cover.

Consult your Gast distributor/representative to purchase.



**Item: Intake Filter\***  
**PN: B300A**

\*Included with system.  
Recommended annual replacement.



**Item: Floor Mount Kit**  
**PN: K1022**

To convert riser mount to floor placement.



**Item: Sound Shield**  
**PN: SSP-87R6-01**

Reduce sound levels further with this kit.

# Technical Data and Specifications

|                                      |         | 87R-1             |
|--------------------------------------|---------|-------------------|
| Voltage                              | VAC     | 120               |
| Frequency                            | HZ      | 60                |
| System Capacity,<br>40 psi in 30 min | gallons | 298               |
| Current                              | amps    | 6.0               |
| Weight                               | lbs     | 42                |
| Noise Level                          | dB(A)   | 63                |
| Dimensions (LxWxH)                   | in      | 13.8 x 9.9 x 20.2 |
| Motor                                | HP      | 1/2               |
| Max Pressure                         | psi     | 55                |
| Tank Size                            | liters  | 2                 |
| Thermal Protection                   |         | Yes               |
| Duty Cycle                           |         | 100%              |
| Relative Humidity %                  |         | 20 - 80%          |
| Ambient Temperature                  |         | 4/40 C            |

## UNDERSTANDING YOUR PART NUMBER

**87R-1    0    0    S    X**

Compressor  
Series

Voltage  
1 - 120  
2 - 230

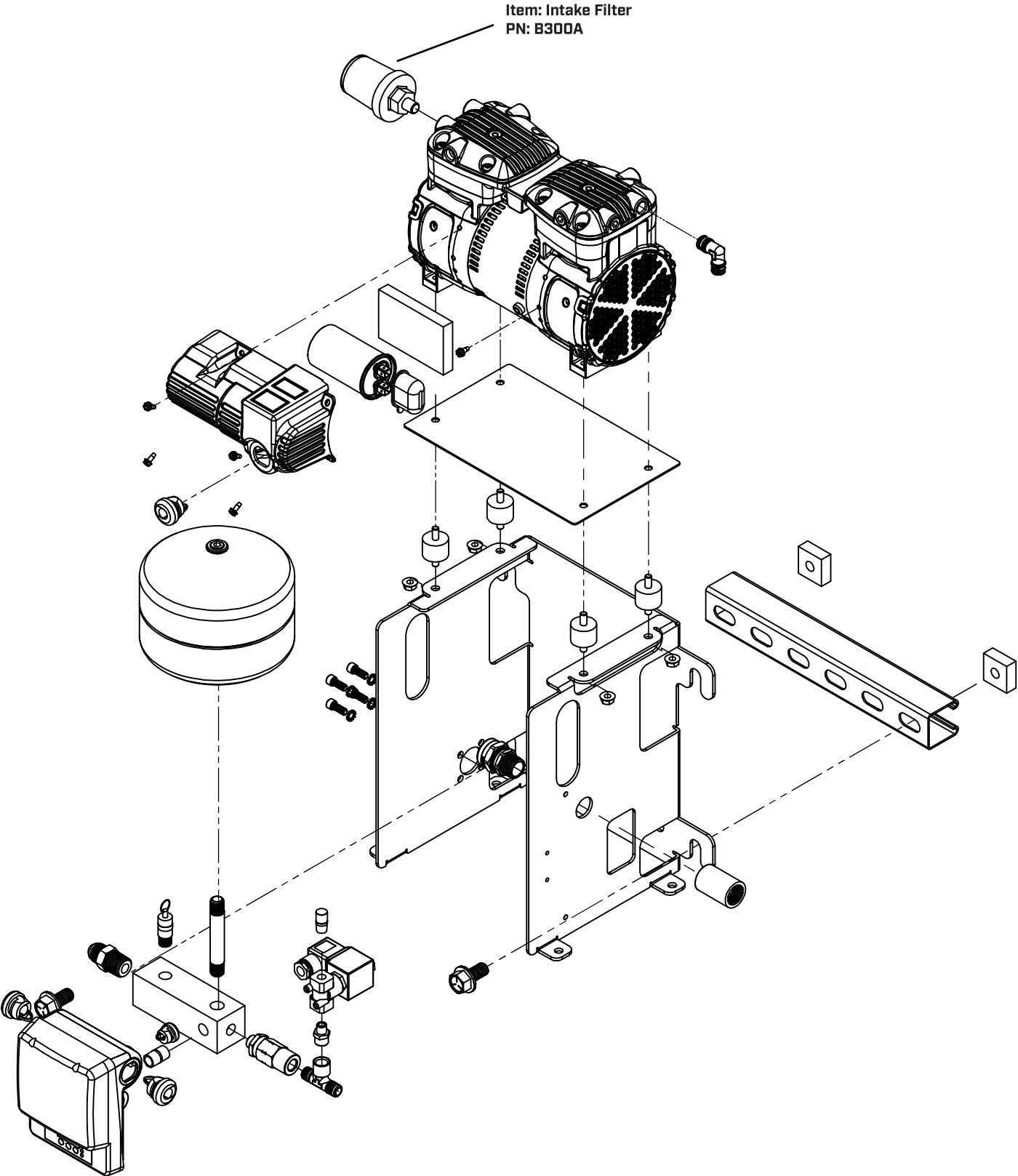
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WiFi  
0 - No  
1 - Yes

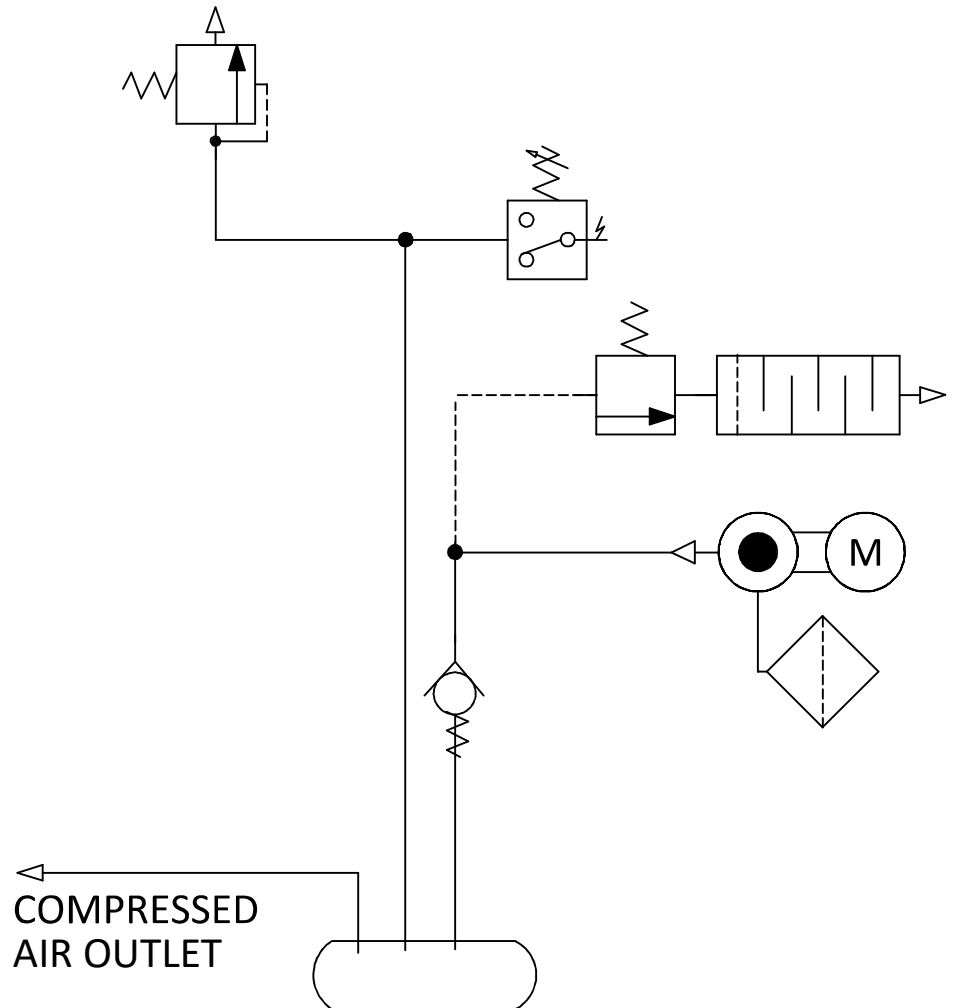
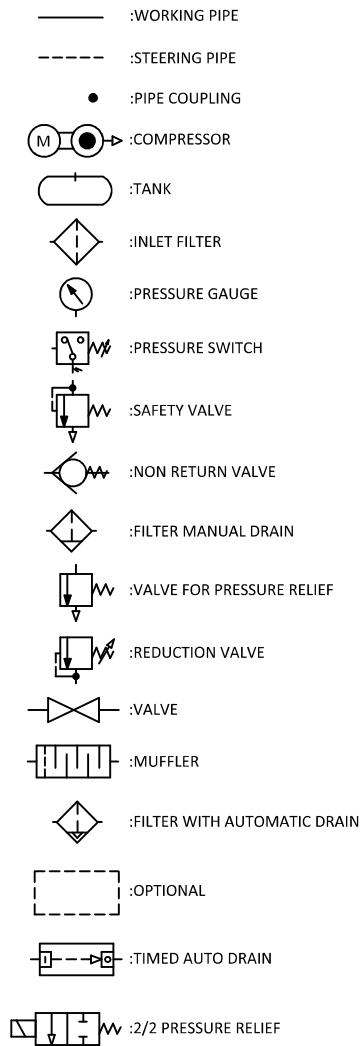
Riser Mount

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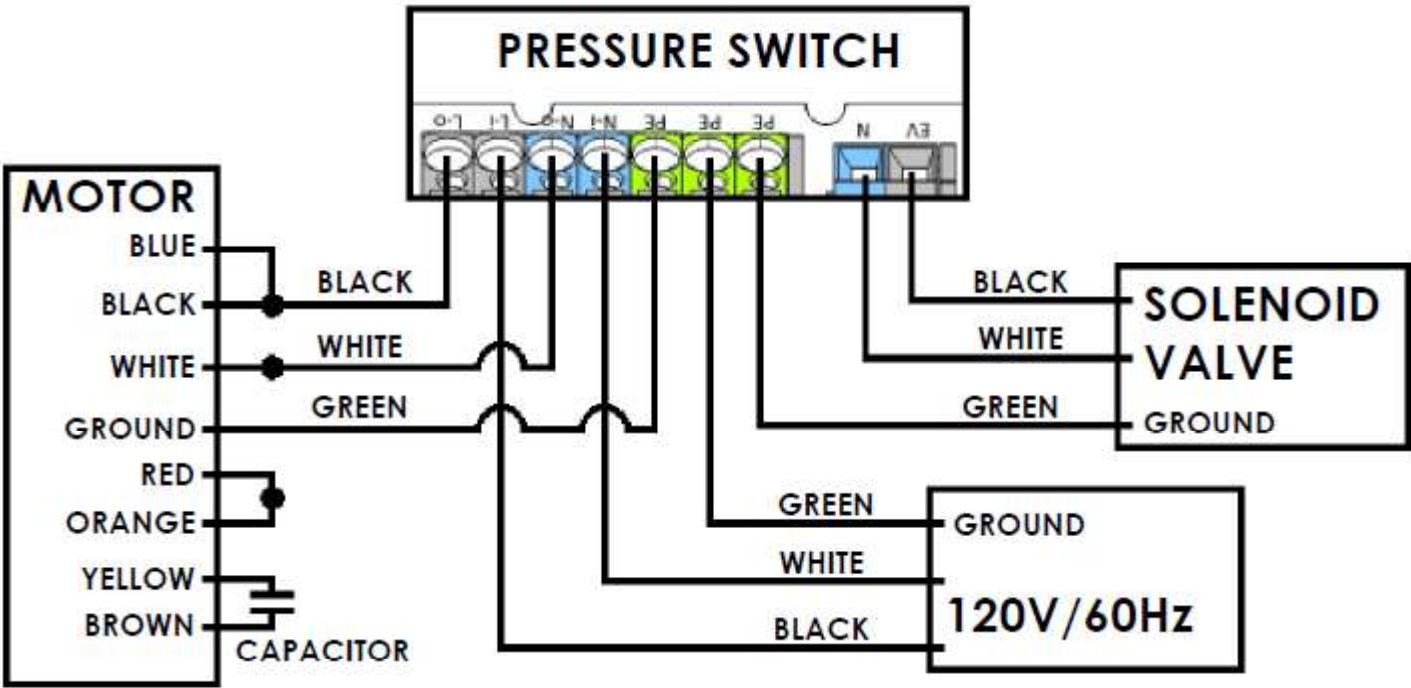
EXPLODED PRODUCT VIEW



# PNEUMATIC SCHEMATIC



ELECTRICAL SCHEMATIC



**TROUBLESHOOTING CHART**

| Problem                   | Possible Cause[s]                                  | Possible Solution[s]                                                                          |
|---------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1. System will not start  | A. No/poor electrical connection/voltage           | A. Confirm proper electrical connection and voltage                                           |
|                           | B. System pressure not below cut in (ON) pressure  | B. Verify cut in (ON) pressure                                                                |
|                           | C. Breaker tripped                                 | C. Confirm proper breaker size is used and not tripped                                        |
|                           | D. Voltage is too low                              | D. Check system voltage while it is running. Verify voltage is above the minimum of 110 volts |
|                           | E. Plugged inlet filter                            | E. Remove filter and clean or replace as necessary                                            |
|                           | F. Start up unloader is not functioning            | F. Verify the unloader is purging on start up. If not, replace start up unloader              |
|                           | G. Unit is overheated                              | G. Verify voltage. Relocate system installation                                               |
|                           | H. Check valve leaking                             | H. Clean or replace the check valve                                                           |
|                           | I. Loose wiring                                    | I. Verify all wiring is tight                                                                 |
|                           | J. Pressure Switch is in "Stand By" Mode           | J. Press and hold the -OK- button for 3 seconds to take the unit out of "Stand By"            |
| 2. Unit will not shut off | A. System pressure is below cut out (off) pressure | A. Verify the cut out (off) pressure is correct                                               |
|                           | B. Plugged inlet filter                            | B. Remove filter and replace as necessary                                                     |
|                           | C. Sprinkler system leaks                          | C. Identify and repair any system leaks                                                       |
| 3. Excessive noise        | A. Compressor cup worn                             | A. Install a service kit on the compressor                                                    |
|                           | B. Leaking hose connection                         | B. Tighten hose connection. Verify no other leaks                                             |
|                           | C. Vibration                                       | C. Confirm the riser clamps are tight                                                         |

**SERVICE AND MAINTENANCE CHART**

| Date | Problem | Technician | Notes |
|------|---------|------------|-------|
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## **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.

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