



Model 52 Pressure Regulator Valve

Installation/Parts Manual

MDE-4645C

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Federal Communications Commission (FCC) Warning

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Approvals

Gasboy, Greensboro, is an ISO 9001:2000 registered facility.

Underwriters Laboratories (UL):

UL File#	Products listed with UL
MH4314	All dispensers and self-contained pumping units
MH6418	Power operated Transfer Pump Models 25, 25C, 26, 27, 28, 72, 72S, 72SP, 72X, 73 and 1820
MH7404	Hand operated Transfer Pump Models 1230 Series, 1243 Series, 1520 and 1720 Series
MH10581	Key control unit, Model GKE-B Series Card reader terminals, Models 1000, 1000P Site controller, Model 2000S CFN Series Data entry terminals, Model TPK-900 Series Fuel Point Reader System

New York City Fire Department (NYFD):

NYFD C of A #	Product
4823	9100A, 9140A, 9152A, 9153A, 9800A, 9840A, 9850A, 9852A, 9853A, 9140
4997	9822A, 9823A
5046	9100Q, 9140Q, 9152Q, 9153Q, 9800Q, 9840Q, 9852Q, 9853Q
5087	8753K, 8853K, 9153K, 9853K (restricted to diesel and non-retail gasoline sales)

California Air Resources Board (CARB):

Executive Order #	Product
G-70-52-AM	Balance Vapor Recovery
G-70-150-AE	VaporVac

National Conference of Weights and Measures (NCWM) - Certificate of Compliance (CoC):

Gasboy pumps and dispensers are evaluated by NCWM under the National Type Evaluation Program (NTEP). NCWM has issued the following CoC:

CoC#	Product	Model #	CoC#	Product	Model #	CoC#	Product	Model #
95-179A2	Dispenser	9100 Retail Series, 8700 Series, 9700 Series	91-019A2	Dispenser	9100 Commercial Series			
95-136A5	Dispenser	9800 Series	91-057A3	Controller	1000 Series FMS, 2000S-CFN Series			

Patents

Gasboy products are manufactured or sold under one or more of the following US patents:

Dispensers

5,257,720

Point of Sale/Back Office Equipment

D335,673

Additional US and foreign patents pending.

Trademarks

Non-registered trademarks

Atlas™
Consola™
Infinity™

Registered trademarks

ASTRA®
Fuel Point®
Gasboy®
Keytrol®
Slimline®

Additional US and foreign trademarks pending.

Other brand or product names shown may be trademarks or registered trademarks of their respective holders.

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1 – Introduction

Purpose

The Model 52 Pressure Regulator Valve Installation/Parts Manual is provided to assist the installer in installing and operating the unit and should be provided to the installer prior to the installation of conduit. Faulty installations are the major cause for unit malfunctions. The Model 52 Pressure Regulator Valve must be installed and operated as described in this manual. Ensure that you leave this manual with the owner after the installation is complete.

Note: Customers and installers who have queries pertaining to the installation should contact their Gasboy® distributor.

The Model 52 Pressure Regulator Valve is a unique control valve developed for use with suction-type island dispensers. The Model 52 Pressure Regulator can be used for Aboveground Storage Tank (AST) installations or in booster systems with a submersible pump in an Underground Storage Tank (UST).

The standard Model 52 Pressure Regulator Valve can be used in temperatures between -13 °F to 130 °F (-25 °C to 54 °C). The Model 52 is not for use with gasoline fuels containing methanol or ethanol blends greater than 10%.

The Model 52 Pressure Regulator Valve is rated for a single pumping unit only, limited to flow rate of less than 25 GPM.

Note: Do not use for UHF type installations.

Abbreviations and Acronyms

Term	Description
ASC	Authorized Service Contractors
AST	Aboveground Storage Tank
GPM	Gallons Per Minute
NEC®	National Electrical Code
NFPA	National Fire Protection Association
PSI	Pounds per Square Inch
UST	Underground Storage Tank

Warranty

For information on warranty, refer to *MDE-4255 Gasboy Warranty Policy Statement*. If you have any warranty-related questions, contact Gasboy's Warranty Department at Greensboro location.

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2 – Important Safety Information

Notes: 1) *Save this Important Safety Information section in a readily accessible location.*

2) *Although DEF is non-flammable, diesel is flammable. Therefore, for DEF cabinets that are attached to diesel dispensers, follow all the notes in this section that pertain to flammable fuels.*

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.

Preliminary Precautions

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.

Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

WARNING



The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.



You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.

Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gasboy equipment.

Evacuating, Barricading and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones or barricades at the affected unit(s)
- A total electrical shut-off of the affected unit(s)

Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call a Gasboy Authorized Service Contractor or call the Gasboy Support Center at 1-800-444-5529. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Health Administration (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

Replacement Parts

Use only genuine Gasboy replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gasboy replacement parts could create a safety hazard and violate local regulations.

Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury or damage to the equipment:



DANGER: Alerts you to a hazard or unsafe practice which will result in death or serious injury.



WARNING: Alerts you to a hazard or unsafe practice that could result in death or serious injury.



CAUTION with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.

CAUTION without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

Working With Fuels and Electrical Energy

Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF fluid lines.

Important Safety Information

No Open Fire



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

No Sparks - No Smoking



Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.



Gilbarco Veeder-Root encourages the recycling of our products. Some products contain electronics, batteries, or other materials that may require special management practices depending on your location. Please refer to your local, state, or country regulations for these requirements.

In an Emergency

Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

WARNING



Gasoline/DEF ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.

WARNING

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs. Keep airway open. Seek medical advice immediately.

WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

WARNING



Gasoline/DEF spilled on skin may cause burns. Wash area thoroughly with clear water. Seek medical advice immediately.

WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the work location. Seek medical advice/recommended treatment if DEF spills into eyes.

IMPORTANT: Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

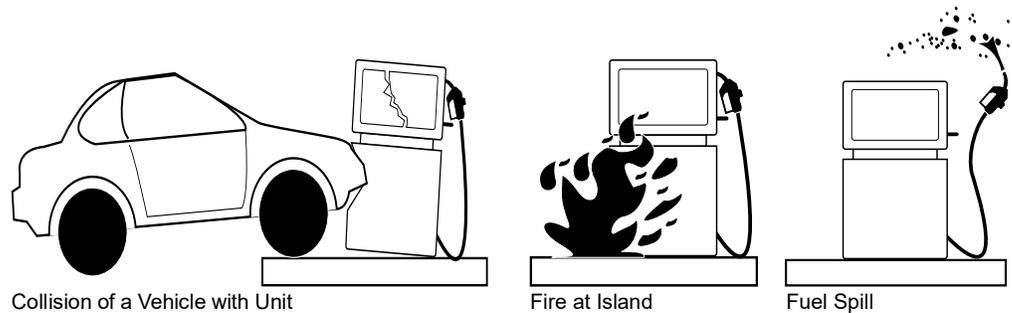
Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical, or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.

Hazards and Actions

 WARNING	
	Spilled fuels, accidents involving pumps/dispensers, or uncontrolled fuel flow create a serious hazard.
	Fire or explosion may result, causing serious injury or death. Follow established emergency procedures.

The following actions are recommended regarding these hazards:



- Do not go near a fuel spill or allow anyone else in the area.
- Use station EMERGENCY CUTOFF immediately. Turn off all system circuit breakers to the island(s).
- Do not use console E-STOP, ALL STOP and PUMP STOP to shut off power. These keys do not remove AC power and do not always stop product flow.
- Take precautions to avoid igniting fuel. Do not allow starting of vehicles in the area. Do not allow open flames, smoking or power tools in the area.
- Do not expose yourself to hazardous conditions such as fire, spilled fuel or exposed wiring.
- Call emergency numbers.

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3 – Installation

Installation Precautions

All tanks and installations must conform with all building/fire codes, all Federal, State, and Local codes, National Electrical Code (NEC), NFPA 70®, NFPA 30, Automotive and Marine Service Station Code (NFPA 30A), and NFPA 395 codes and regulations.

Plan your installation carefully. Dispensing troubles, which seem to be pump-related, are frequently traced to faulty installation. Review the following list of installation **DOs** and **DO NOTs** to avoid potential problems:

- **DO** read the “[Important Safety Information](#)” on [page 3](#). It contains important information regarding the safe use of fuel dispensing equipment.
- **DO** have the valve installed by a qualified installer.
- **DO** remove the shipping plug from the vent opening for proper operation of valve.
- **DO NOT** experiment with fuel dispensing equipment if you are not sure whether the installation is correct.
- **DO NOT** install any underground piping without proper swing joints. Always use shoulder nipples, never close nipples.
- **DO NOT** cover any lines until they have been both air and liquid-tested.
- **DO NOT** back-fill the tank or supply line with cinders or ashes. Back-fill with clean sand, crushed rock, or pea gravel.
- **DO NOT** use black iron pipe or fittings for underground installations. Use only new galvanized or fiberglass* pipe and fittings.
 - * Install all fiberglass pipe and fittings according to manufacturer’s specifications and requirements.
- **DO NOT** install the fill pipe to a tank where it can be submerged with standing water.
- **DO NOT** use the Gasboy fuel dispensing equipment to remove water ballast from the storage tank.
- **DO NOT** use gaskets on covers of explosion-proof type boxes. The sealing compound found at various locations within conduit is a requirement of the NEC and should not be disturbed. Tighten the Junction Box covers before replacing panels.

Valve Requirements

The requirements of the Model 52 Pressure Regulator Valve are as follows:

- It must conform with all building/fire codes, all Federal, State, and Local codes, NEC (NFPA 70), NFPA 30, Automotive and Marine Service Station Code (NFPA 30A), and NFPA 395 codes and regulations.
- It is designed to operate in fueling systems that have a maximum pressure of 50 psi.
- Installation must include thermal expansion relief valves. Thermal expansion can cause pressures in the system greater than 50 psi and can result in failure of the valve and loss of product to the environment.
- Installation must include a solenoid valve positioned adjacent to the shutoff valve at the tank. It's purpose is to prevent loss due to failure of the downstream piping or the system.

CAUTION

When a 52 valve is installed at the pump, never install a vacuum anti-siphon valve at the top of a tank. An electric solenoid valve is required.

- Installation must locate the shear groove at the same level as the top of the concrete island +1/2-inch (13-mm).
- Installation must include shutoff or gate valve to close the system and prevent product loss when the equipment utilized in the fueling system downstream from the AST is being serviced or replaced.
- The Model 52 Pressure Regulator Valve is rated for a single pumping unit only, limited to flow rate of less than 25 GPM.

Note: Do not use for UHF type installations.

Refer to [Figure 3-1](#) on [page 9](#), [Figure 3-2](#) on [page 9](#), [Figure 3-3](#) on [page 10](#), and [Figure 3-4](#) on [page 10](#) for additional requirements.

Troubleshooting

Refer to the parts drawing [Figure 4-1](#) on [page 12](#) for item references.

Problem	Possible Cause
Product leaking out valve vent and/or pumping unit vent.	<ul style="list-style-type: none"> • Diaphragm (11) has failed and an obstruction in the valve is holding open the poppet complete (12). • Gasket (7) and Diaphragm (11) have failed. • Pressure Relief Valve assembly (4) and Diaphragm (11) have failed.
No delivery when pump is turned on.	<ul style="list-style-type: none"> • Failed Diaphragm (11). • Valve vent blocked or shipping plug never removed.

Figure 3-1: Flow Chart Model 52 Pressure Regulator

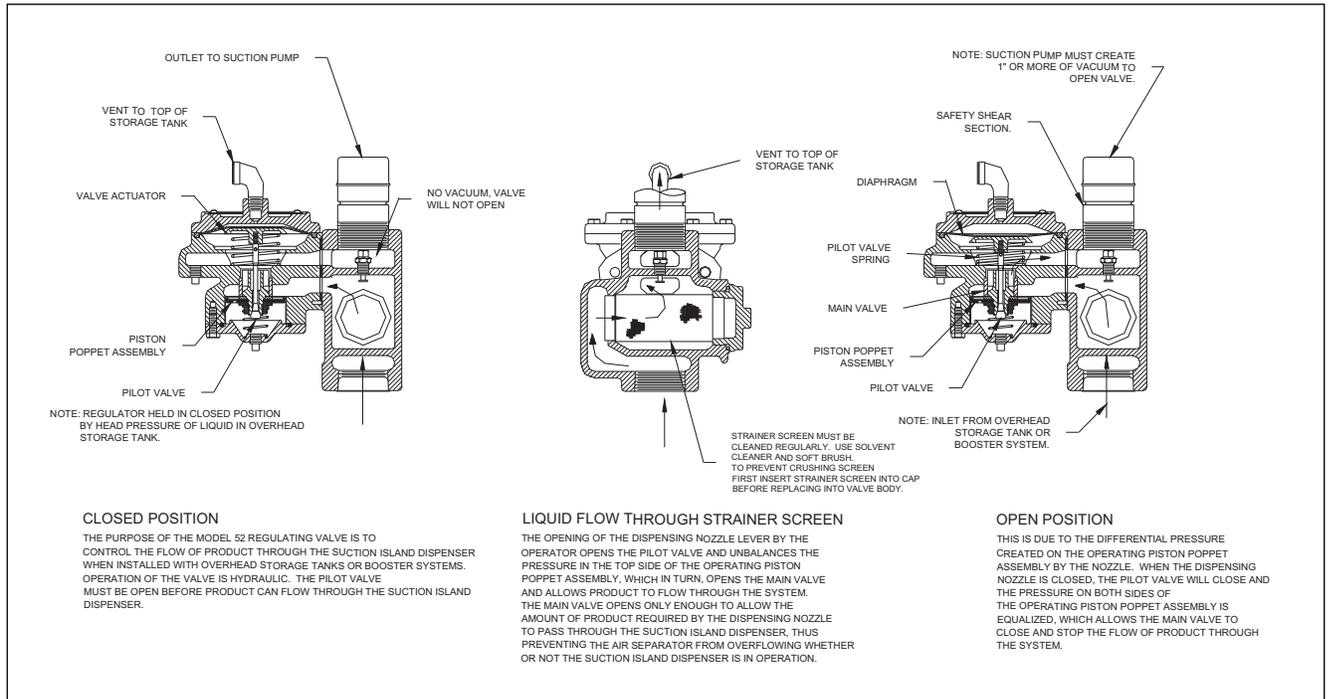


Figure 3-2: Schematic Piping Diagram

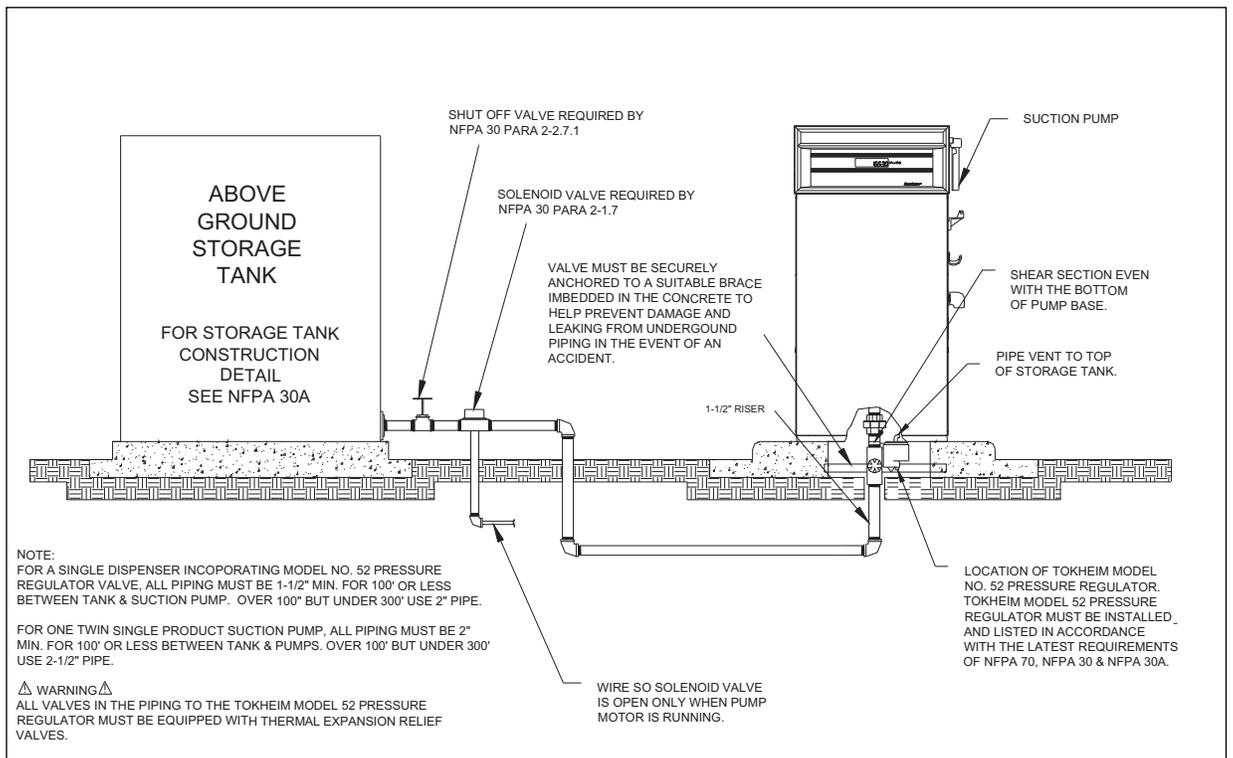


Figure 3-3: Booster System with Model 52 Pressure Regulators

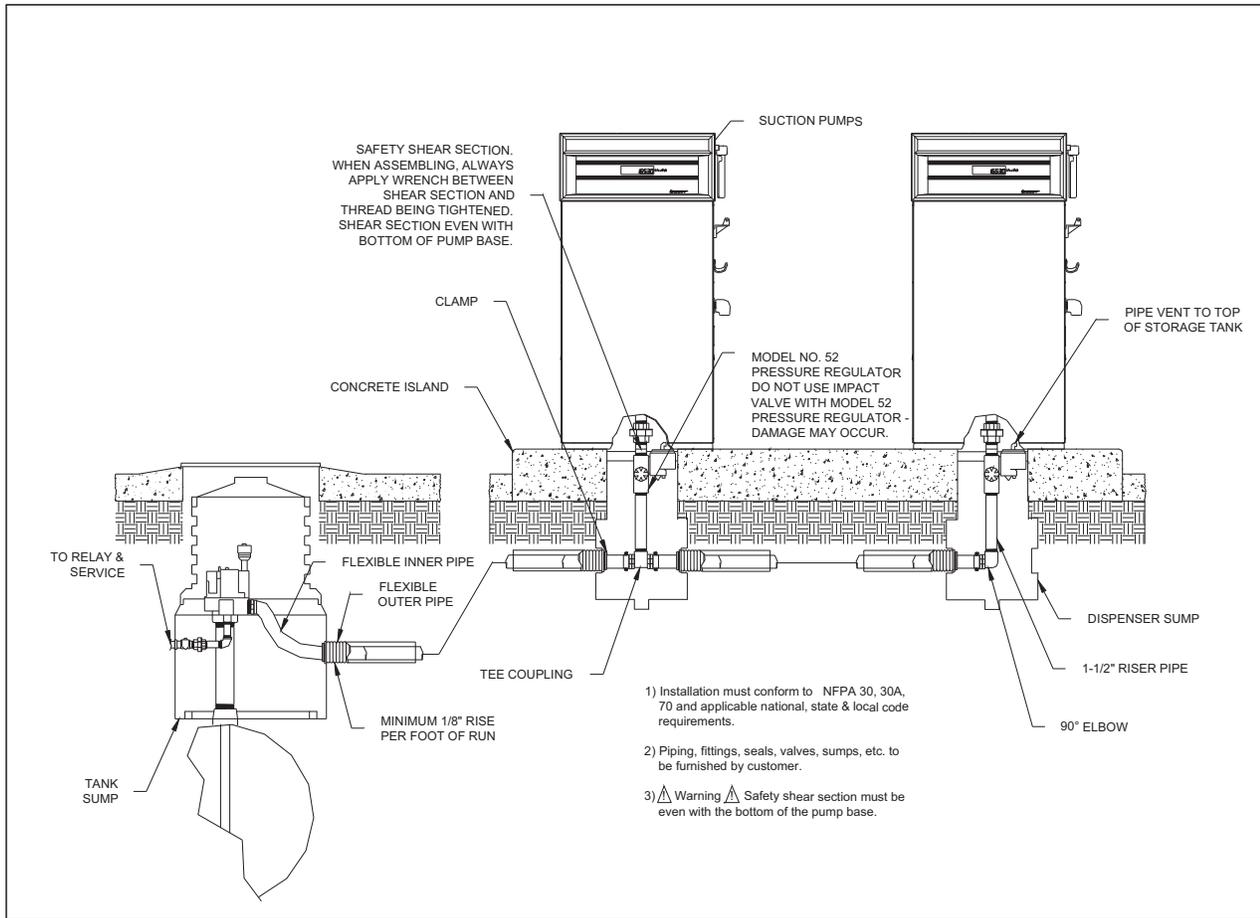
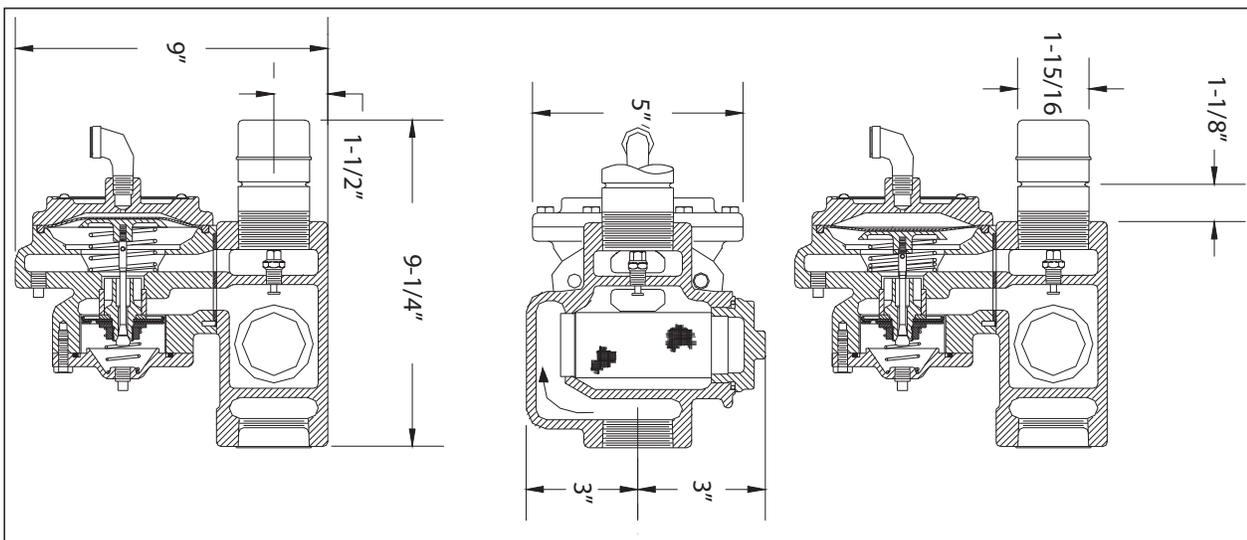


Figure 3-4: Approximate Overall Dimensions of Model 52 Pressure Regulator



4 – Parts

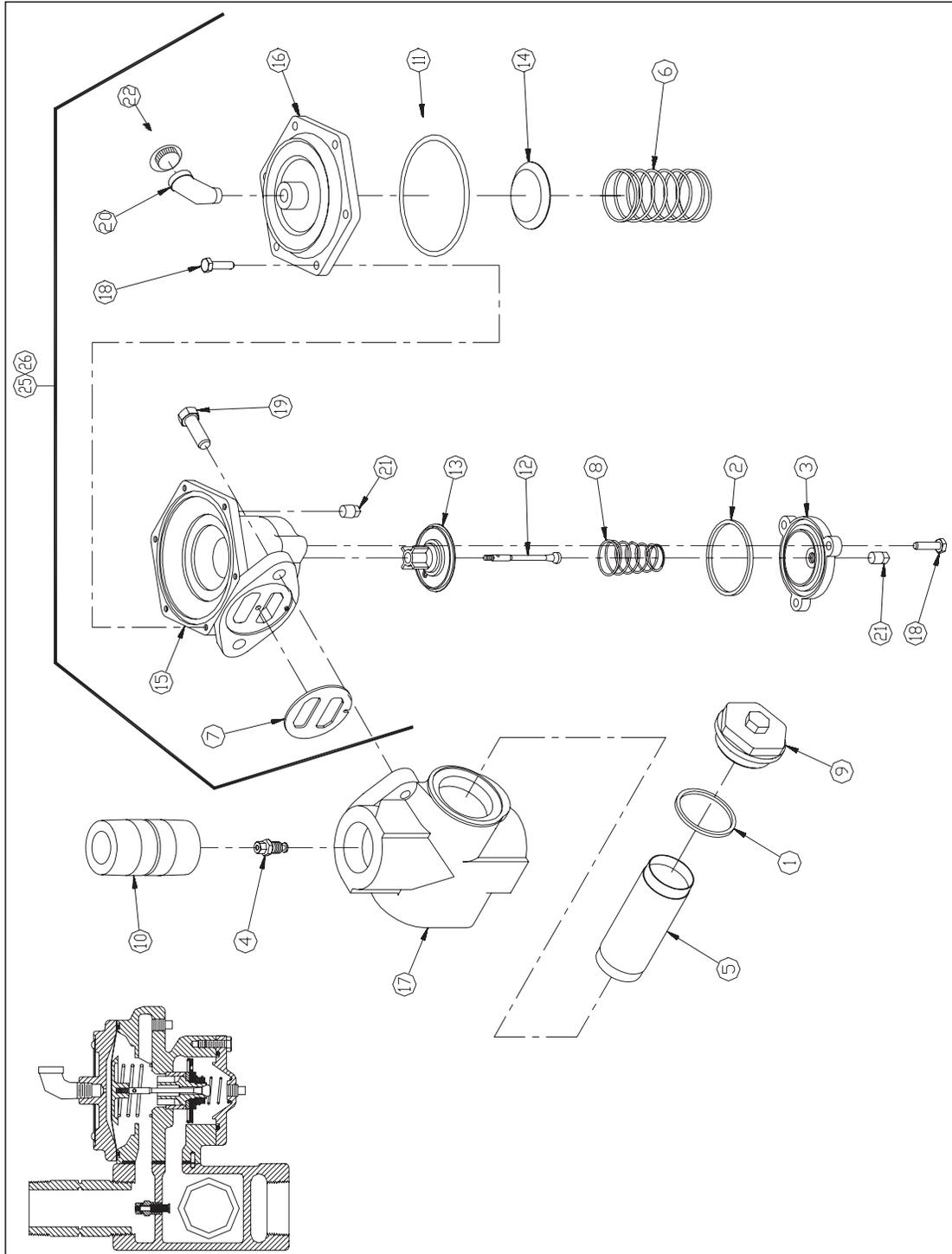
Using part numbers when you place an order will expedite your order and reduce the possibility of the wrong parts being shipped. When ordering replacement parts, ensure that you give the complete name and part number as shown in the appropriate parts lists.

Procedures that require the disassembly of portions of the fueling installation should be performed by qualified service personnel. Do not depend on a general mechanic for any repair service, unless the person is thoroughly familiar with the mechanism. Gasboy has a distributor network which services fuel dispensing equipment and management systems in every section of the country.

WARNING

To reduce the risk of electrical shock when servicing, turn off and lock out all power to the fuel dispensing system.

Figure 4-1: Model 52 Pressure Regulator Valve



Model 52 Pressure Regulator Valve Parts List

Note: For the complete Model 52 Valve Assembly, order Gasboy Part Number 048577PG8.

Item	Part Number	Description
1	026768	Square Ring
2	014273	Square Ring
3	014274	Valve Cover
4	014319	Pressure Relief Valve Assembly
5	063312	Suction Screen Complete, Gas
	063313	Suction Screen Complete, Diesel
6	014262	Pilot Valve Spring
7	014318	Gasket
8	014277	Valve Spring
9	063203	Suction Strainer Cap
10	014267	Safety Shear Section
11	014317	Diaphragm (for Model 52)
12	014276	Poppet Complete
13	014280	Poppet Assembly
14	014263	Valve Actuator
15	014320	Valve Body Assembly, Model 52 <i>Note: When replacing this assembly on a Model 52, the Model 52 Diaphragm is also required.</i>
16	014282	Diaphragm Cover
17	003433	Screen Adapter Coupling
18	K43625	1/4-20 X 3/4" Long Hex Head Cap Screw
19	K01914-75	7/16-14 X 1-1/4" Long Hex Head Cap Screw
20	K08674	90° Street Elbow
21	K02278	1/8" Plug Pipe
22	K78953-30	1/4" Plug, Protective Closure

Note: Gasboy has redesigned the Model 52 Pressure Regulator Valve by eliminating the need for a "cold weather" version of the valve. A new Diaphragm and standardized Diesel Strainer are now included with the standard valve making it appropriate for warm and cold weather conditions.



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