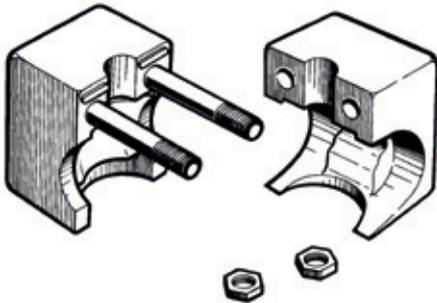




# PENBERTHY SERIES 300 AND 400 GAGECOCK JACKETS

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

Before installation these instructions must be read fully and understood



### TABLE OF CONTENTS

Product warranty .....	1
1. About the manual .....	1
2. Introduction .....	2
2.1 Features and specifications .....	2
2.2 Design ratings .....	2
2.3 Application data .....	2
3. Inspection .....	2
3.1 Receiving inspection .....	2
3.2 User's rating inspection .....	2
4. Installation .....	2-3
4.1 Mounting .....	3
5. Operation .....	3
5.1 Pre-operational check .....	3
5.2 Hydrostatic test .....	3
5.3 Operation .....	3
6. Maintenance .....	3-4
6.1 Preventative maintenance .....	3
6.2 Maintenance procedures .....	4
7. Removal - disassembly - reassembly .....	4
7.1 Disassembly .....	4
7.2 Reassembly .....	4
8. Disposal at end of useful life .....	4
9. Telephone assistance .....	4
10. Exploded parts diagram .....	5
<b>Figures</b>	
Figure 1 Mounting .....	3
Figure 2 Exploded parts diagram .....	5

### Product warranty

Emerson warrants its Penberthy products as designed and manufactured to be free of defects in the material and workmanship for a period of one year after the date of installation or eighteen months after the date of manufacture, whichever is earliest. Emerson will, at its option, replace or repair any products which fail during the warranty period due to defective material or workmanship.

Prior to submitting any claim for warranty service, the owner must submit proof of purchase to Emerson and obtain written authorization to return the product. Thereafter, the product shall be returned to Emerson with freight paid.

This warranty shall not apply if the product has been disassembled, tampered with, repaired or otherwise altered outside of Emerson's factory or if it has been subject to misuse, neglect or accident.

The responsibility of Emerson hereunder is limited to repairing or replacing the product at its expense. Emerson shall not be liable for loss, damage or expenses related directly or indirectly to the installation or use of its products, or from any other cause or for consequential damages. It is expressly understood that Emerson is not responsible for damage or injury caused to other products, buildings, personnel or property, by reason of the installation or use of its products.

*This is Emerson's sole warranty and in lieu of all other warranties, expressed or implied which are hereby excluded, including in particular all warranties of merchantability or fitness for a particular purpose.*

This document and the warranty contained herein may not be modified and no other warranty, expressed or implied, shall be made by or on behalf of Emerson unless made in writing and signed by the company's general manager or director of engineering.

### 1 ABOUT THE MANUAL

This manual has been prepared as an aid and guide for personnel involved in installation or maintenance. All instructions must be read and understood thoroughly before attempting any installation, operation or maintenance.

### CAUTION

*Failure to follow any instruction could possibly result in a malfunction of the gagecock jacket, or the gagecocks to which it may be attached, resulting in leakage, property damage or physical injury.*

# PENBERTHY SERIES 300 AND 400 GAGECOCK JACKETS

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

---

### 2 INTRODUCTION

---

#### 2.1 Features and specifications

Penberthy gagecock jackets are manufactured for use on Penberthy Series 300 and 400 gagecocks. They are designed for heat transfer of the gagecock body to or from a secondary heating or cooling fluid. They offer quick installation and ease of accessibility for servicing the gagecock without jacket removal. Heat transfer is accomplished without a need for heat transfer cement, further simplifying installation.

#### 2.2 Design ratings at maximum and minimum operating temperatures

The gagecock jacket minimum allowable operating pressure is 150 psig (1030 kPaG) at -20°F (-29°C) to +500°F (260°C).

To determine the maximum allowable working pressure for a specific temperature within the design limits stated above, the user should refer to relevant technical data sheets or, when provided, the specifically stated design limits on a product proposal.

#### 2.3 Application data

**Note:** for specific application data, the user should consult the product proposal for the specific gagecock jacket, or should request the supply of the applicable technical data sheet.

#### WARNING

*Under no circumstances should these design ratings or application data be exceeded. Exceeding design ratings or application data may cause severe physical injury or property damage.*

### 3 INSPECTION AND PERFORMANCE CONFIRMATION

---

#### 3.1 Receiving inspection

On receipt of 300/400 gagecock jacket set, check all components carefully for damage incurred during shipping. If damage is evident or suspected, do not attempt installation. Notify the carrier immediately and request a damage inspection.

#### 3.2 User's rating inspection

The user should confirm that:

1. The gagecock jacket model, part number, and pressure/temperature rating stamped on nameplate (163) conforms to the description on the user's purchase order.
2. The operating conditions described in the purchase order agree with the actual operating conditions at the installation site.

3. The actual operating conditions at the installation site are within the application data shown on the relevant technical data sheet or product proposal referred to previously.
4. The materials of construction of the gagecock set are compatible with both the contained fluid and the surrounding atmosphere in the specific application.

#### SAFETY INSTRUCTIONS

*If the size, model, or performance data of the 300/400 gagecock jacket set as received does not conform with any of the criteria above, do not proceed with installation. Contact an authorized Penberthy distributor for direction.*

### 4 INSTALLATION

---

Installation should only be undertaken by qualified personnel who are familiar with this equipment and have read and understood all of the instructions in this manual. The user should refer to applicable technical data sheets or product proposal to obtain dimensional information for the specific size and model gagecock jacket.

Recommendations on gagecock jacket installations are necessarily related to the installation of liquid level gagecocks. Follow all installation instructions for the specific liquid level gagecock set as there are many points to consider.

#### WARNING

*Failure to follow any of the liquid level gage or gagecock installation instructions could result in malfunction or failure of the gage or gagecocks with resulting sudden release of pressure, leakage of contained fluid, severe personal injury or property damage.*

#### CAUTION

*Do not proceed with installation of gagecock jacket unless the gagecock assembly has been relieved of all pressure or vacuum, has been allowed to reach ambient temperature, and has been drained or purged of all fluids. Failure to do so can result in a sudden release of pressure causing personal injury or property damage.*

During system shut down, the gagecocks should be left open to allow the gage to reach ambient temperature and lose pressure with the system. Keeping the gagecocks closed during shut down can trap high pressure fluid in the gage.

Check exploded view Figure 2 for location of piping connections to assure correct hook up.

# PENBERTHY SERIES 300 AND 400 GAGECOCK JACKETS

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

### 4.1 Mounting

1. Prior to actual installation, loosen and remove nuts and separate the two jacket halves.
2. Join the jacket halves around each gagecock and secure jacket halves together with nuts. (Do not over tighten locknuts.) Refer to Figure 1.
3. Use PTFE tape or equivalent on all male tapered pipe thread connections.
4. Do not impose system piping loads on gagecock jackets. Jackets are not designed to be a load bearing component. Heating/cooling piping must be supported and aligned with the gagecock jacket connections to reduce the possibility of stresses imposed on the gagecock jackets. Short flexible jump-overs may be installed as an alternative.

### 5 OPERATION

#### 5.1 Pre-operational check

1. Assure that all installation procedures have been completed.
2. Check to determine that all connections are pressure tight.

#### 5.2 Hydrostatic test

1. Take all precautions necessary to handle the possibility of leakage.
2. Hydrostatic pressure test heating/cooling fluid line to at least 100 psig (690 kPaG) and correct any leakage before proceeding.

#### 5.3 Operation

#### SAFETY INSTRUCTIONS

Gages should be brought into service slowly. The glass used in Penberthy gages is tempered and can stand minimal thermal shock or mechanical stress. To avoid excessive thermal shock or mechanical stress on the glass, the connecting gagecocks should be opened slightly and the gage temperature and pressure allowed to equalize slowly with the vessel. If the gage is equipped with gagecocks which have a ball check, the gagecocks must be opened all the way to permit operation of the automatic ball check in the event of failure.

### 6 MAINTENANCE

Maintenance should only be undertaken by qualified, experienced personnel who are familiar with gagecock equipment and have read and understood all the instructions in this manual.

#### CAUTION

*Do not proceed with any maintenance unless the gage/gagecock assembly has been relieved of all pressure or vacuum, has been allowed to reach ambient temperature and has been drained or purged of all fluids. Failure to follow these instructions may cause a sudden release of pressure resulting in personal injury or property damage.*

#### 6.1 Preventative maintenance

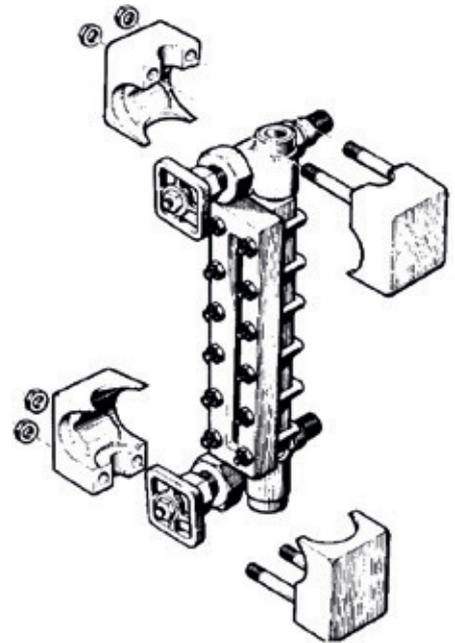
The user must create maintenance schedules, safety manuals, and inspection details for each specific installation of a 300/400 gagecock jacket set.

On all installations, the following items should be evaluated regularly by the user for purposes of maintenance:

1. Signs of leakage of fluid contained by the gagecock.
2. Signs of leakage at heating/cooling fluid piping connections.
3. Signs of internal or external corrosion.

The user must determine an appropriate maintenance schedule necessary for his or her specific application, upon evaluation of their own operating experience. Realistic maintenance schedules can only be determined with full knowledge of the services and application situation involved.

FIGURE 1



# PENBERTHY SERIES 300 AND 400 GAGECOCK JACKETS

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

---

### 6.2 Maintenance procedures

1. Signs of leakage of a gagecock set can be stopped by following the instructions in the installation instruction manual for the specific gagecock model.

**Note:** most servicing of gagecock sets can be done without removal of the gagecock jackets. If it is necessary to remove the gagecock jackets, follow procedures in Section 7.

### SAFETY INSTRUCTIONS

*Do not clamp on the gagecock jacket when disassembling or disconnecting a gagecock set from service. Gagecock jackets are not designed to carry mechanical loads.*

2. Signs of leakage at the gagecock jacket connection indicates a loose or damaged connection thread. Connection should be tightened or replaced as required.
3. Signs of internal or external corrosion are an indication of a misapplication. An investigation should be carried out immediately to determine the cause of the problem. It is the user's responsibility to choose a material of construction compatible with both the contained fluid and the surrounding atmosphere in the specific application.

### 7 REMOVAL - DISASSEMBLY - REASSEMBLY

---

#### CAUTION

*Do not proceed with removal of a gagecock jacket unless the liquid level gagecock assembly and gagecock jacket set has been relieved of all pressure or vacuum, has been allowed to reach ambient temperature and has been drained or purged of all fluids. Failure to follow instructions may cause a sudden release of pressure resulting in physical injury or property damage.*

#### 7.1 Disassembly

- a. Loosen and remove heating/cooling piping or jump overs.
- b. Loosen and remove nuts.
- c. Separate and remove jacket halves.

#### 7.2 Reassembly

Follow instructions in Section 4.

**Note:** when returning to service, follow instructions in Section 5.

### 8 DISPOSAL AT END OF USEFUL LIFE

---

Penberthy gagecock jackets are used in a variety of fluid applications. By following the appropriate federal and industry regulations, the user must determine the extent of preparation and treatment the gagecock jacket must incur before its disposal. A Material Safety Data Sheet (MSDS) may be required before disposal services accept certain components. Metal, glass and polymers should be recycled whenever possible. Refer to order and applicable technical data sheets for materials of construction.

### 9 TELEPHONE ASSISTANCE

---

If you are having difficulty with your gagecock jacket, contact your local Penberthy distributor. You may also contact the factory direct at (956) 430-2500 and ask for an applications engineer. So that we may assist you more effectively, please have as much of the following information available as possible when you call:

- Model #
- Name of the company from whom you purchased your gagecock jacket
- Invoice # and date
- Process conditions (pressure, flow rates, tank shape, etc)
- A brief description of the problem
- Trouble shooting procedures that failed

If attempts to solve your problem fail, you may request to return your gagecock jacket to the factory for intensive testing. You must obtain a Return Authorization (R.A.) number from Emerson before returning anything. Failure to do so will result in the unit being returned to you without being tested, freight collect. To obtain an R.A. number, the following information (in addition to that above) is needed:

- Reason for return
- Person to contact at your company
- 'Ship-to' address

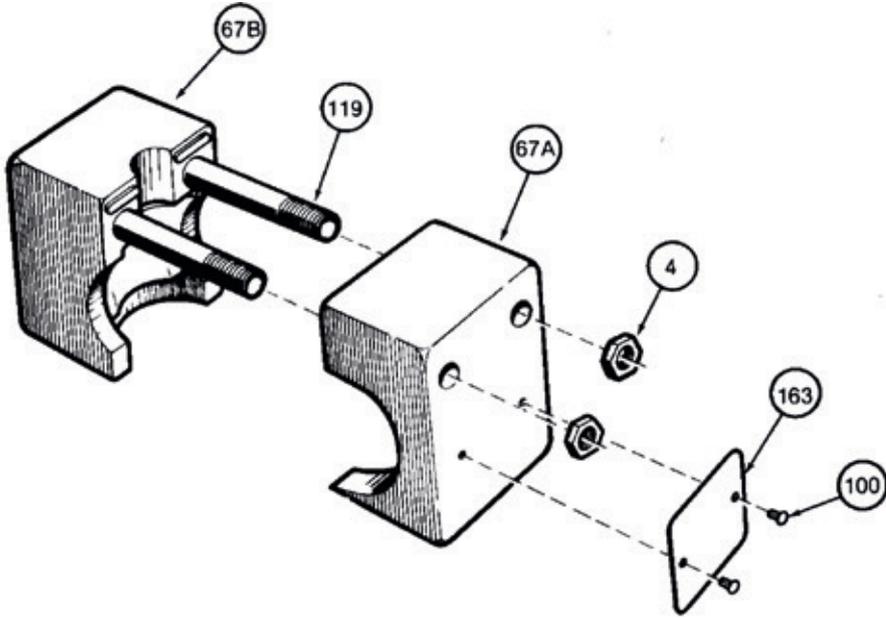
There is a minimum charge for evaluation of non-warranty units. You will be contacted before any repairs are initiated should the cost exceed the minimum charge. If you return a unit under warranty, but it is not defective, the minimum charge will apply.

# PENBERTHY SERIES 300 AND 400 GAGECOCK JACKETS

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

### 10 EXPLODED PARTS DIAGRAM

FIGURE 2



#### PARTS LIST

Item	Description
4	Nut
67A	Jacket
67B	Jacket
100	Screw
119	Pipe
163	Nameplate

Neither Emerson, Emerson Automation Solutions, nor any of their affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Penberthy is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. Emerson Automation Solutions, Emerson and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.