



Reliance Foundry Series R-9001 Semi-Automatic Bollard

# **Technical Service Manual**

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## Introduction to retractable bollards

Retractable bollards are access control devices that make a stylish but strong statement on streetscapes. When erected, they deter access to restricted areas. When retracted, they allow entry. R-9001 Zero Gravity Semi-Automatic retractable bollards are the perfect solution for communicating the changing access requirements of any site. They are mechanical assemblies that require the same care and attention as any other mechanical device.

### Important information before purchasing or installing

1. Retractable bollards are susceptible to environmental demands, and site selection is very important. Retractable bollards are susceptible to oxidation or rusting in high-saline environments, as well as areas where street de-icing chemicals and compounds are frequently used. Reliance Foundry uses 316 stainless steel, which is more resistant to corrosion than the more common 304 stainless steel. However, depending on the environmental demands that will be placed on the bollard, even Reliance Foundry's 316 stainless steel bollards may be at risk for corrosion. Note: All Reliance Foundry stainless steel bollards are housed in a hot-dip galvanized steel receiver that sits below the concrete surface.
2. Adequate drainage is critical for the long-term success of retractable bollards. Inadequate drainage may cause damage, accelerate corrosion, and require more frequent maintenance.
3. Retractable bollards must be installed with significant care and attention to detail, ensuring that adequate foundation support and significant drainage is available. For technical details on installing removable bollards, see Reliance Foundry's Installation Instructions: R-9001 Bollards.
4. Retractable bollards can malfunction if water builds in the receiver and freezing temperatures occur. Retractable bollards can still be installed in cold climates, but if water freezes in the bollard's mechanical components it may become stuck in the raised or lowered position for prolonged periods of time. To prevent this, proper attention to drainage and maintenance is necessary.
5. The major mechanical features of these bollards are enclosed below ground, making dust and dirt likely to interfere with critical components. These bollards require routine maintenance and cleaning to keep them in optimal working condition, and such maintenance is demanded more often in significantly dusty or dirty areas.

### Service equipment

Various equipment, as well as cleaning and lubricating agents are necessary for the installation, disassembly, and routine care of retractable bollards.

#### What you will need

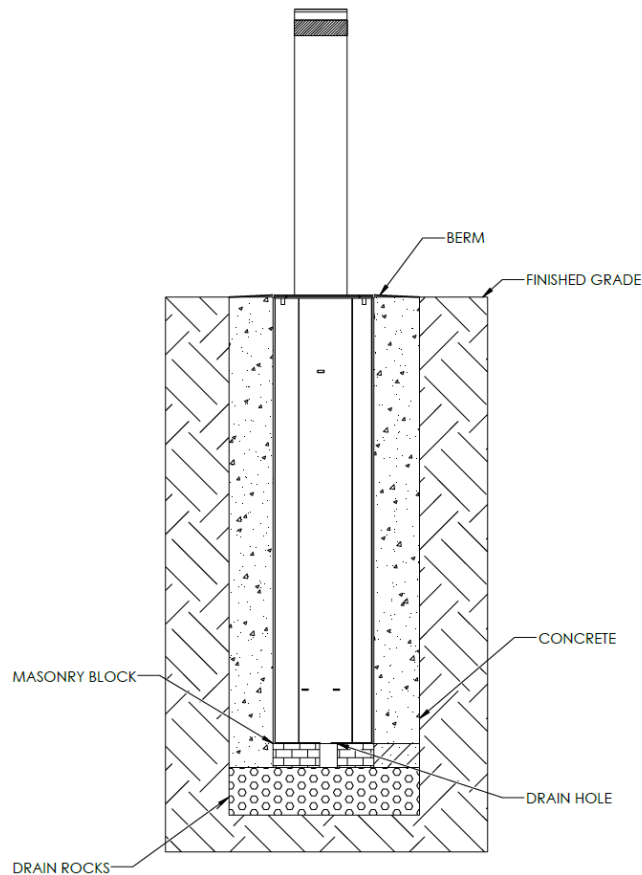
Bollard Lock Key	Compressed Air Duster or Vacuum
Tamper-Resistant Key (M10)	Hose / Pressure washer
Standard Hex Key (M10)	Assembly Grease
All-Purpose Lubricant	Lock De-Icer
Wrench set	Rag

**Note:** *If you require a replacement bollard key or tamper-resistant key, please contact Reliance Foundry's Sales Department.*

### R-9001 Zero Gravity Overview

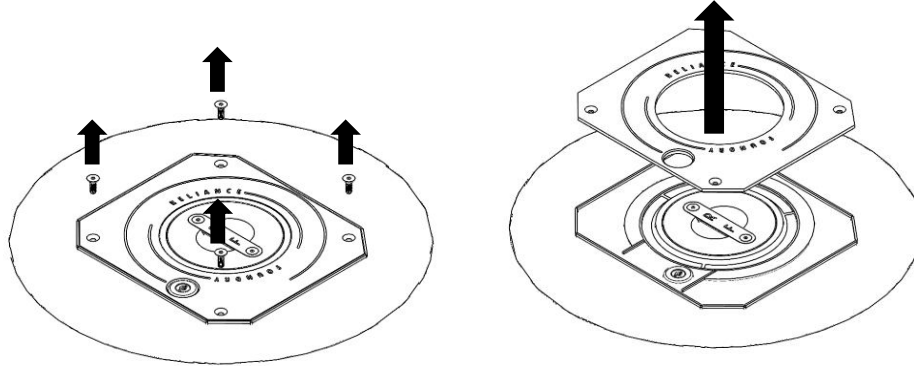
The R-9001 Zero Gravity Bollard comes fully assembled, and the unit is embedded in concrete. The bollard can be telescoped in and out to allow or restrict vehicle access to the surrounding area. At the bollard's top plate is a locking mechanism operated by inserting a key into the lock. The locking mechanism allows the bollard to be locked in the extended (36") and retracted positions. Once the bollard is set in the concrete substrate, it cannot be moved.

To function properly, a retractable bollard must be installed with adequate drainage. The buildup of moisture can lead to many service issues, especially in cooler climates. Series R-90001 retractable bollards can operate effectively in cold environments, but moisture must not be allowed to build up in the receiver. Buyers should review the installation site and ensure that an adequate level of drainage can be provided for each retractable bollard.

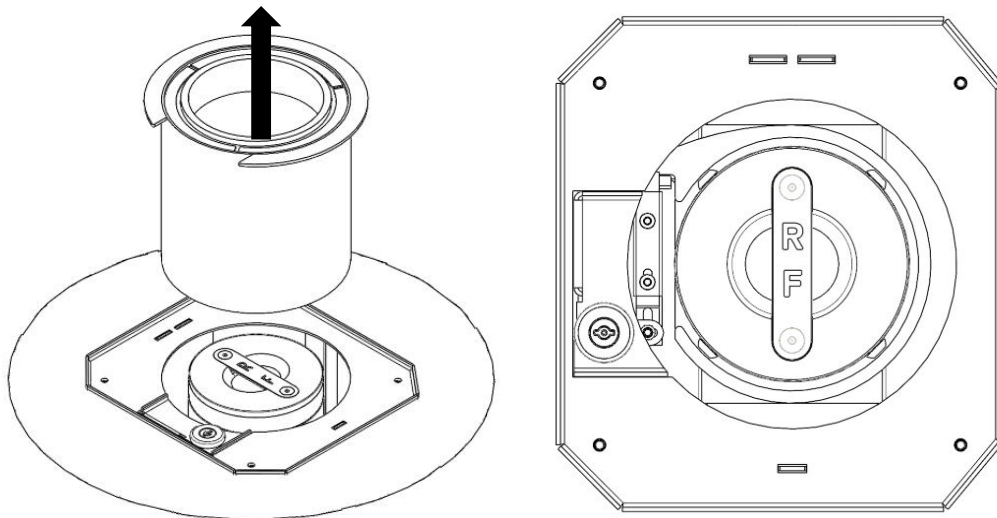


### Disassembling the bollard

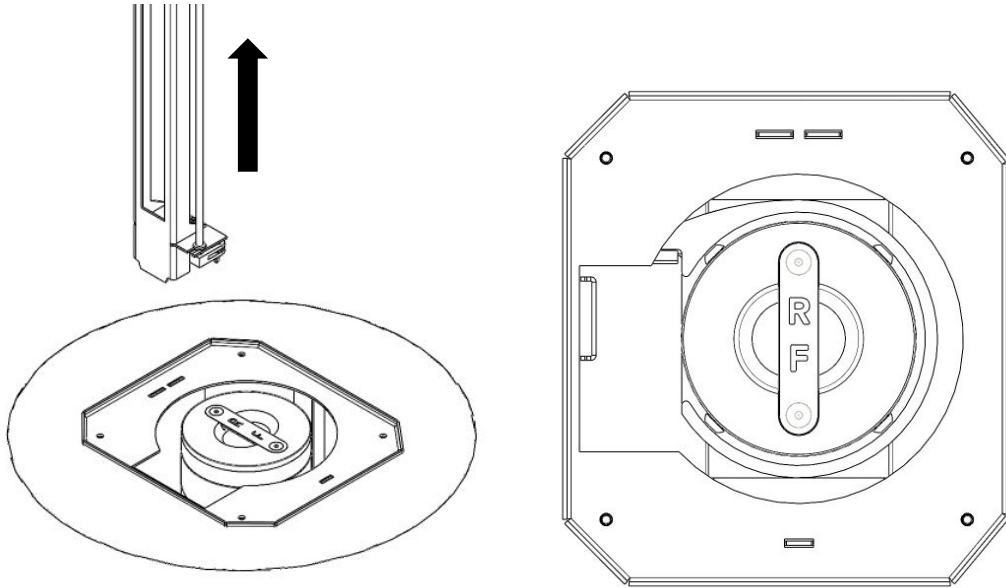
1. Use the tamper-resistant hex key to loosen the 4 tamper resistant bolts on the top plate and remove the bolts and stainless-steel cover. Use a screwdriver or similar to lift the plate off. Clear debris as needed.



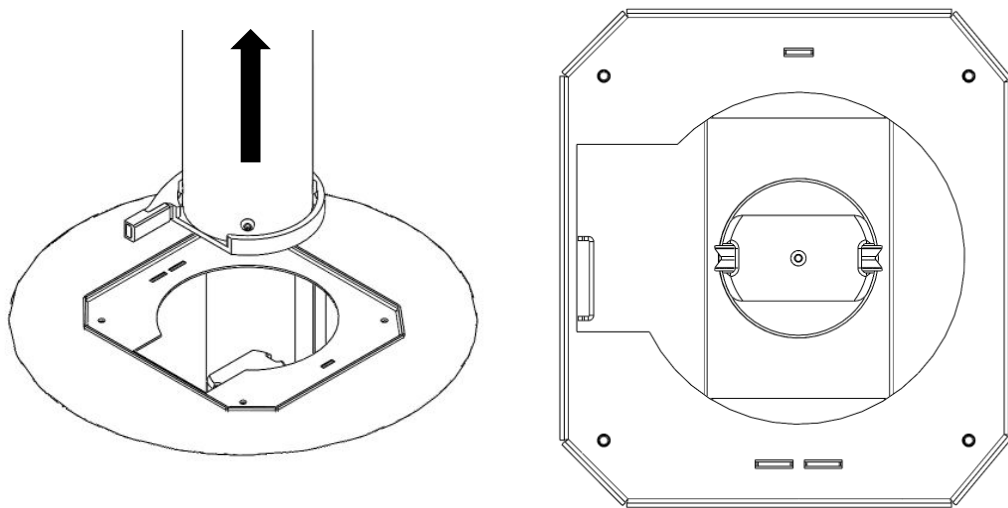
2. Using a screwdriver, remove the housing assembly. Clean the assembly especially on the bushing – bollard surfaces.



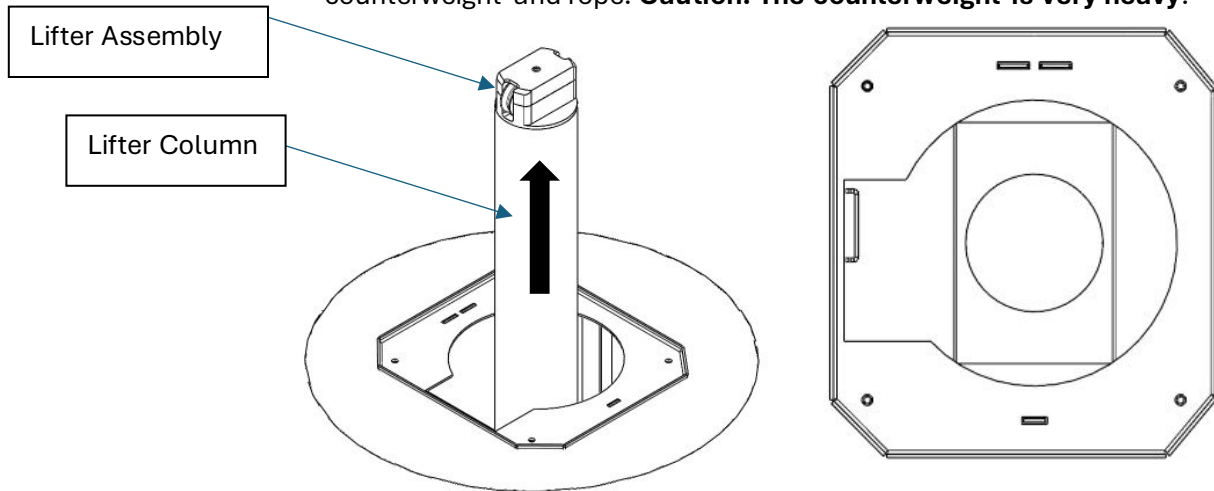
3. Lift out the locking assembly



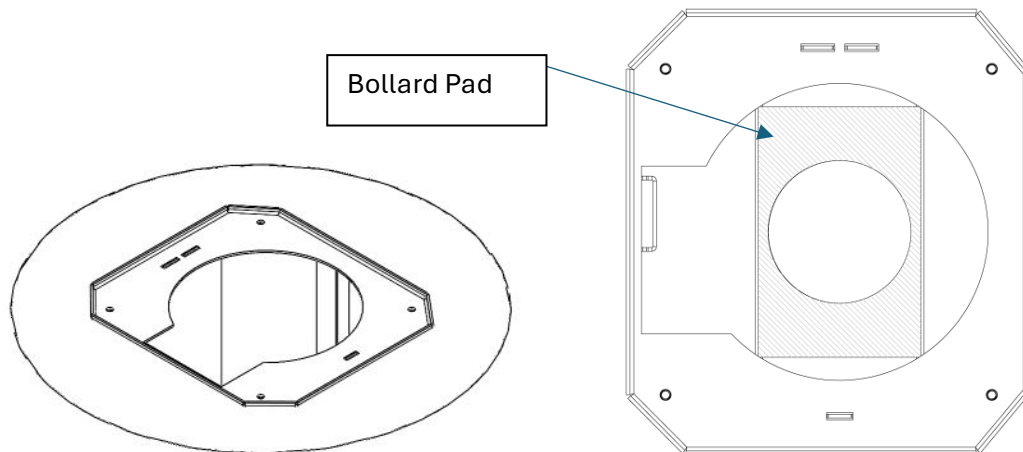
4. Remove the bollard assembly and lay it on the side to remove the rope from the bollard. Tie the loose ends of the rope together and secure it to prevent it from falling in.



5. Separate the lifter column from the lifter assembly. Remove the lifter assembly with counterweight and rope. **Caution: The counterweight is very heavy.**



6. Clean out the interior of the bollard shell with a pressure washer, and vacuum out the debris if drainage is not working. **Note:** The proper position of the bollard pad.



7. Reassemble in reverse order once done.

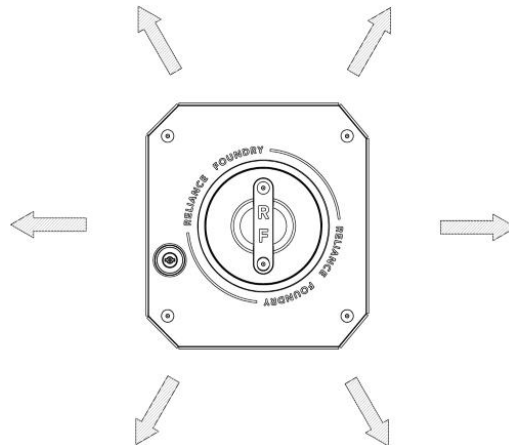


### Bollard maintenance

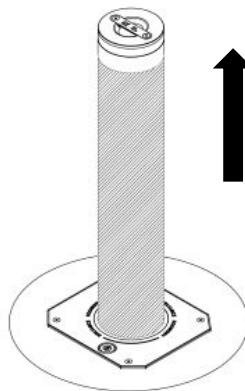
Maintenance of retractable bollards is required at least once a year to maintain good working order and prevent deterioration of bollard surfaces.

#### Surface Maintenance

1. Keep the surface surrounding bollard free from debris and standing water. Use a broom to remove sand, gravel, or debris. Brush in an outward motion, away from the bollard. Sand and debris that fall through small gaps may eventually cause the retractable bollard to seize. If sand or debris does accumulate in the receiver, remove the bollard and use a vacuum to extract the blockage.

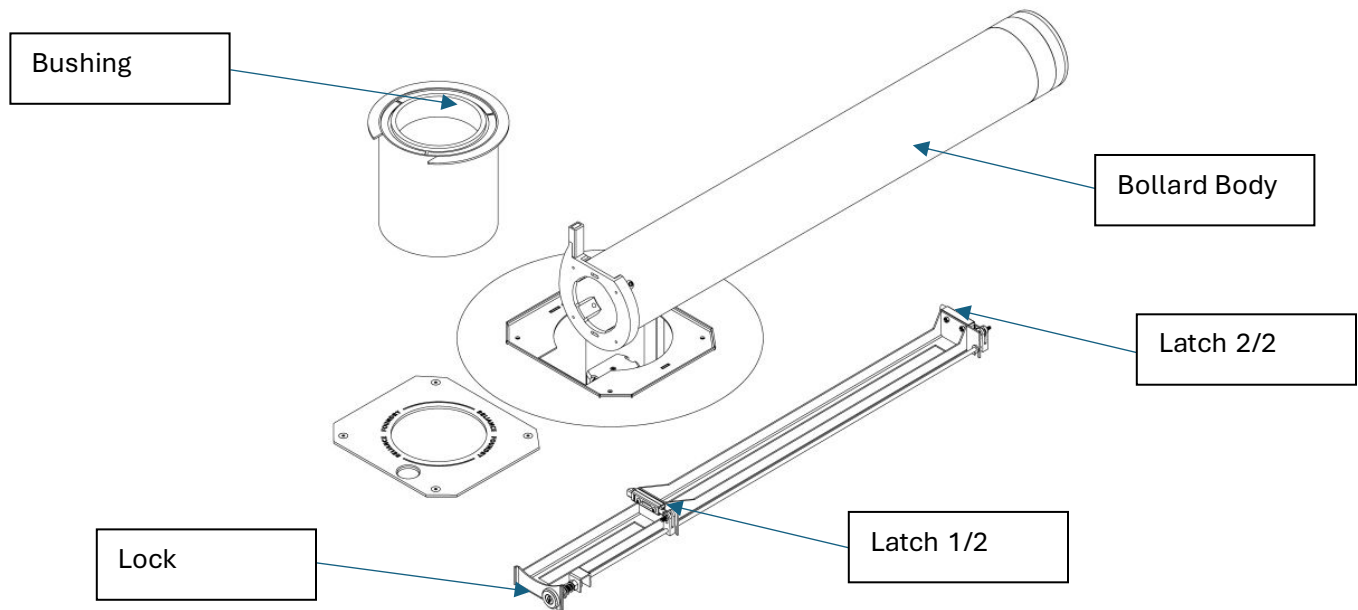


2. Extend bollard to the “up” position and use a rag to wipe the bollard body. Remove any debris that may have accumulated on the bollard body and bushings. Look for signs of rust or staining.



### Extended Maintenance

1. Disassemble the bollard as per section “Disassembling the bollard”.



2. Ensure that all components are clear of dirt and debris using a damp wet cloth. For build up inside the receiver body, use a pressure washer and vacuum.
3. Use a rag to apply a small amount of all-purpose lubricant such as WD-40 to the following:
  - a. Entire surface of the bollard body.
  - b. Bushing surfaces
  - c. Lock (be sure to apply a good amount to the keyhole)
  - d. Latches

**Note:** Remove rust as soon as possible with an all-purpose lubricant and a synthetic scouring pad. To avoid scratching the surface of the bollard, scrub in a lateral motion. Once the rust is removed, apply an all-purpose lubricant to the entire surface of the bollard immediately. *For more detailed instructions on maintaining stainless steel products, see Reliance Foundry's Stainless-Steel Care and Maintenance Guide.*

## Troubleshooting

### Problems with inserting the key

**Debris:** Check the lock for debris. Remove anything that is blocking the passage of the key. For fragments that are difficult to remove, use a compressed air duster or flush the debris out with a dry graphite lubricant.

**Ice:** If the lock is frozen, clear the keyhole using a small screwdriver and lightly tapping the lock area with a rubber mallet. If available, apply a generous amount of lock de-icer to the key and gently wiggle it into the lock.

### Problems with turning the lock

If the ambient temperature is too low (-40 deg), moisture in the air may have condensed on the lock surface and latch assemblies. Lightly tap the lock surface with a rubber mallet to loosen the assembly and try rotating the lock. If lock is still jammed, refer to section “Extended maintenance” to remove the locking assembly for further maintenance.

### Problems with retracting / extending bollard

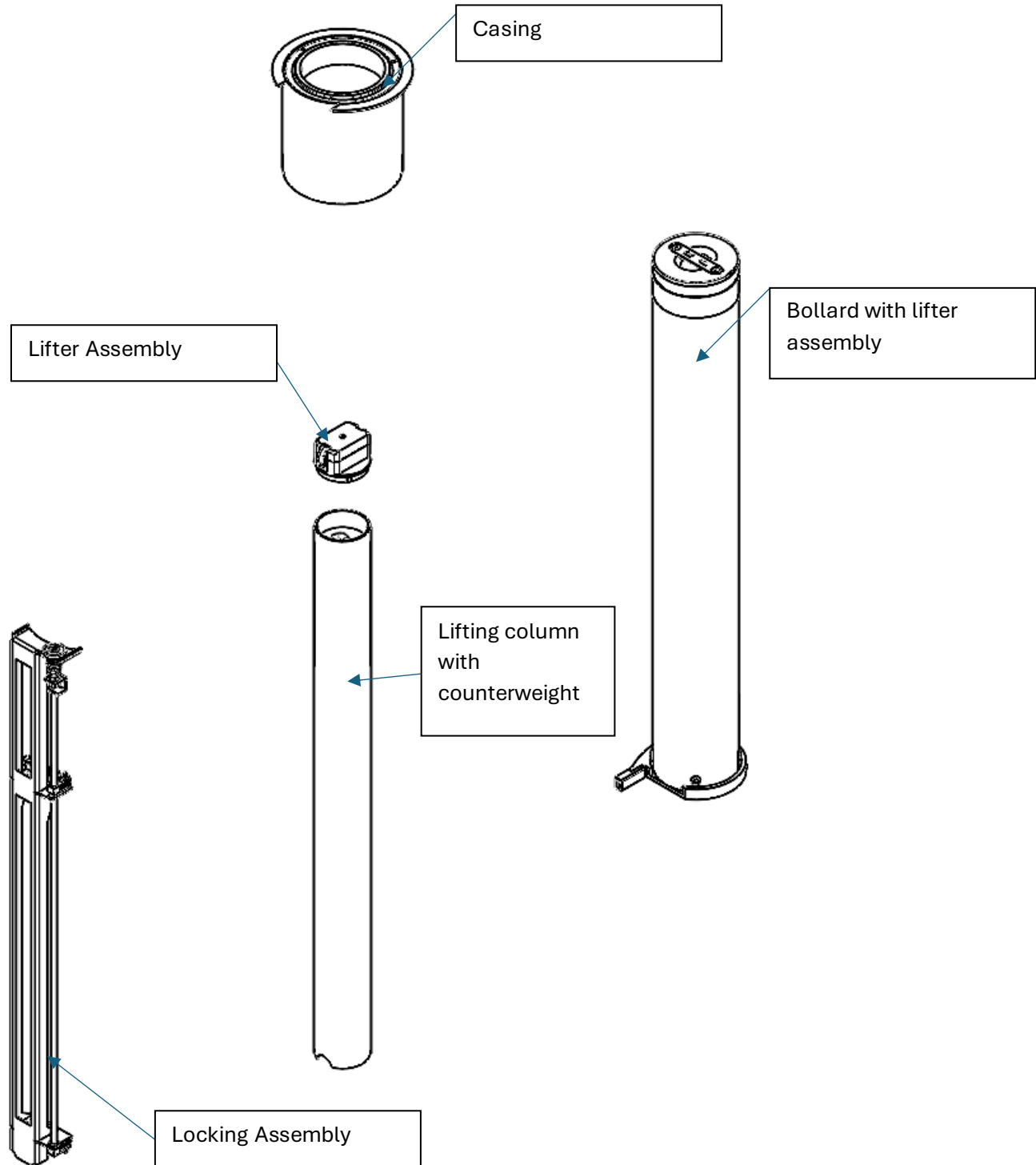
If the ambient temperature is too low (-40 deg), moisture in the air may have condensed on the bollard and bushing surface. Lightly tap the bollard and bushing interface with a rubber mallet to loosen the assembly and try again. If bollard is still jammed, refer to section “Extended maintenance” to remove the bollard for further maintenance.

## More Troubleshooting tips

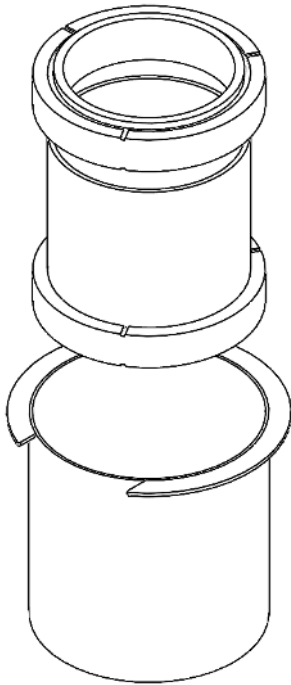
- Inspect all parts of the retractable bollard, and clean and lubricate where necessary.
- Note any areas where it may be possible for water to enter the receiver—take preventative measures to restrict water from entering the receiver.
- Remove any visible rust or stains immediately (refer to <https://www.reliance-foundry.com/bollard/maintenance-bollards> for more information)

Reliance Foundry is committed to providing the information and technical resources necessary to support its industry-leading bollards. If you have questions or would like more information on Reliance Foundry's innovative bollards or their applications, please visit [www.reliance-foundry.com](http://www.reliance-foundry.com) or call the Sales Department at 1-877-789-3245.

### Appendix

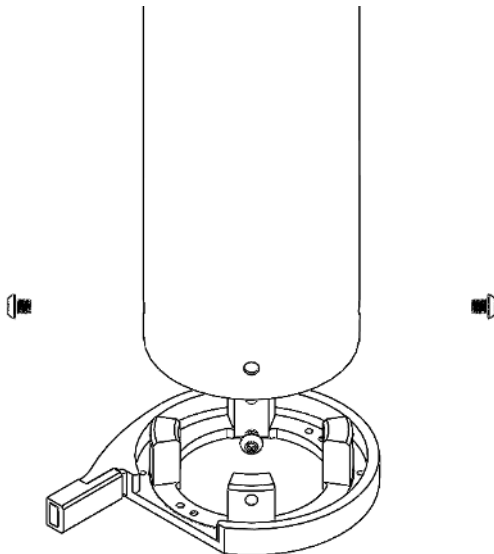


### Casing



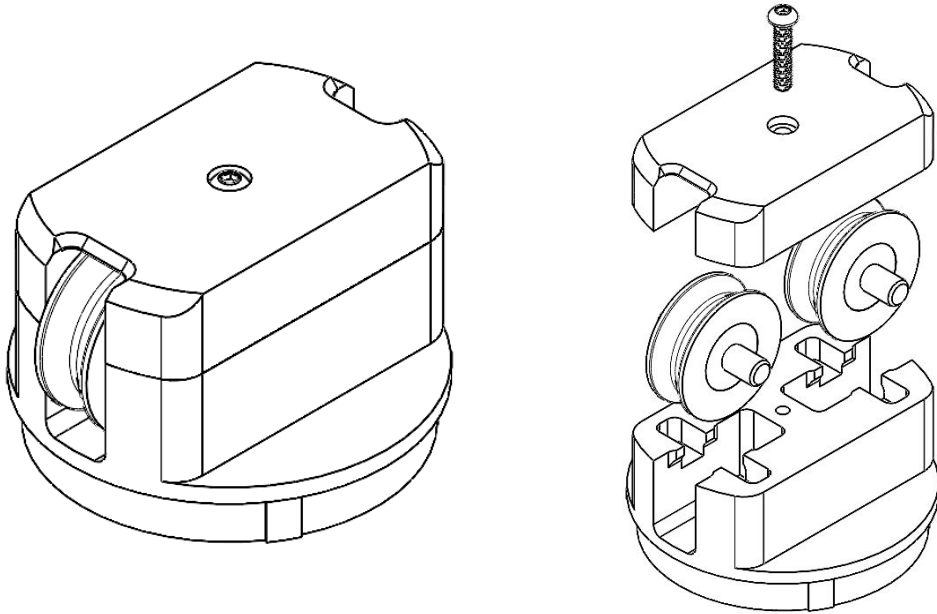
Casing assembly consists of 2 bushings and one support

### Bollard with lifter assembly



Bollard is attached to lifter with 4 button head screws

### Lifter Assembly (pulleys)



### Lifer assembly – rope routing

