



Upswung Bollard Systems Corp.

**Upswung Bollard Systems
Installation Instructions and Scheduled
Maintenance
Fixed and Removable**

ver.0609



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Table of Contents

1. Introduction

2. Site Planning Considerations

2.1 Water Drainage

2.2 Excavation

2.3 Cold Climates

3. Safety Warnings and Cautions

3.1 Safety Warnings and Caution Overview

3.2 Maintenance, Service and Repair Warnings

3.3 Pedestrian and Personnel Safety Warnings

3.4 Vehicle Safety Warnings

3.5 Intrusion Incident Damage Caution

3.6 General Safety Precautions

4. Installation of Bollards

4.1 Excavation of Bollards

4.2 Slab Sizing

4.3 Slab Rebar

4.4 Place Drainpipe

4.5 Slab Pour

4.6 Wall Rebar

4.7 Install Drainage

4.8 Test Bollards

4.9, 5.10 Concrete Pour

5. Initial Startup and Operation

5.1 Bollard UP Procedure

5.2 WARNING!

5.3 Bollard DOWN Procedure

6. Bollard Annual Maintenance

6.1 – 6.3 Maintenance

WARNING

Improper use of this equipment constitutes negligence and may result in serious injury or death.

CAUTION

Warranty requires that the operation and maintenance requirements and instructions described in this manual be followed and records of all maintenance activities be kept. Records should be available upon request and may be required for warranty claims.

Failure to operate and maintain the equipment constitutes improper use and may void the warranty. Failed components and/or damaged parts requiring warranty service must be returned to Upswung Bollard Systems as requested.

1.0 Introduction:

- 1.1 Bollards shall generally be spaced at approximately 3.5 to 4.5 feet) center to center. Operation will be Manual lifting of bollard from receiver.

2.0 Site Planning Considerations:

2.1 Water Drainage

Bollards can be erected in vehicular laneways and access points supplied mechanically via manual force remove bollard. In any installation water drainage is very important.

First, the bollards must be located in a raised area where water drains away from the bollards. This can be created by placing bollards in a slightly raised concrete pad which directs water away from the bollards.

2.2 Excavation

All drainage and foundations for bollards must be BELOW the published frost line for the region where they are to be installed to avoid freeze lifting of the bollard foundation and freezing the drainage system below the bollard.

2.3 Cold Climates

All in-ground mechanical devices including removable bollards are subject to freezing of the interior components by water falling into the bollard as a liquid by day and freezing to a solid by night when it is colder. The accumulated ice will interfere with the operation of the bollard's removal. Heating of the bollard(s) may be accomplished by using a commonly available pavement radiant heating.

3.0 SAFETY WARNINGS AND CAUTIONS:

3.1 SAFETY WARNING AND CAUTION OVERVIEW

Recognize safety precautions at all times, including during operation, servicing and/or repairing bollard equipment. Warnings will be provided in this manual and will precede the text that is applicable. Failure to comply to these safety precautions can result in injury and/or damage to bollard equipment.

Comprehension of safety precautions is to be considered **mandatory**. Personnel associated with operation and/or maintenance of equipment must be familiar with the **system**. For safety, and damage protection on bollard equipment, all of the safety devices must be properly maintained.

The following safety precautions are in **accordance** with normal operating conditions. **supervisors or others in authority may find it necessary to issue supplementary or special precautions in order to cover local conditions and/or unusual circumstances**. Furthermore, if a supervisor deems conditions to be “unusual” such conditions creates the equipment to be unsafe, none of the safety precautions provided are to be understood as authorization for work to continue using these systems.

All **Caution** and **WARNING** notices that may appear throughout this manual are essential for safe use of bollard equipment.

WARNING notices are meant to protect personnel. Failure to comply can result in injury or death.

Caution notices are meant to warn personnel, intending to protecting the Barrier System equipment.

3.2 MAINTENANCE, SERVICE AND REPAIR WARNINGS

A trained and qualified Service Technician is required for all activities regarding maintenance, service, repair and/or adjustment is required and/or if the equipment is malfunctioning/non-operational.

3.3 PEDESTRIAN AND PERSONNEL SAFETY WARNINGS

The Operator and/or Service Technician is responsible for the safe operation of bollards at all times.

3.4 VEHICLE SAFETY WARNINGS

The Operator and/or Service Technician is responsible for the safe operation of bollards at all times.

Do not operate bollards in the presence of oncoming vehicle or pedestrian traffic, especially if a vehicle is in contact, or directly over bollard equipment. Vehicle passengers can sustain serious injury or death, if a vehicle makes contact or impacts bollard equipment at any speed. Also, damage can occur on vehicles striking the bollards, or if bollard equipment rises up making contact with the vehicle.

3.5 INTRUSION INCIDENT DAMAGE CAUTION

Bollards are deliberately created to prevent vehicle intrusion.

Vehicles can crash into or impact bollards equipment. ***Depending on the speed and weight of the vehicle, the bollards may sustain from little to severe damage.*** In some scenarios, the bollards can be ruined, or so damaged that it is rendered inoperable after being struck.

3.6 GENERAL SAFETY PRECAUTIONS

The following safety precautions are not specific to any procedure, but should be recognized when operating, maintaining, repairing bollard equipment. All applicable safety precautions relative to the equipment supported by this manual must be adhered to prevent accidental injury to the Operator and/or the Service Technician. These are the minimum precautions that personnel must understand and apply at all times.

4.0 Installation of Bollards

Bollard Foundations- concrete work

Install the bollard in an area where there is no running water. Otherwise, make sure that the bollard is protected by a draining channel connected to a drainage system.

It is important to set the barriers at 90 degrees to the surface or premature wear may occur. Bollards must be placed plumb by checking the sides of the bollard with a hand level.

6.1 Excavation of Bollards

Excavate bollard depth

The depth of the bollard excavation will vary. When calculating the depth of the excavation, determine the finish grade of the bollard **allowing for the proper drainage away from the bollard.**

1. add the actual length of the bollard in-ground portion.
2. add the thickness of the compacted gravel base rock
4. add any additional excavation cut necessary to make sure that the slab is below the frostline.

6.2 Slab Sizing:

Non roadway traffic- light vehicle traffic paths:

Pour a 24" X 24"X 18" slab on grade for each bollard or below the Frostline.

Roadway traffic- light vehicle traffic paths:

Pour a 24" X 24"X 24" slab on grade for each bollard or below the Frostline.

A long 24" continuous slab can be poured for multiple bollards placed in a row with the slab extending 18 inches on each side of the first and last bollard's center.

6.3 Slab Rebar:

Place #4 rebar at 12" O.C. or less in both directions in slab.

6.4 Slab Pour:

Slab is ready to pour with 4000 PSI or better concrete

6.0 Initial Startup and Operation

instructions refer to removable bollards

6.1 Bollard Removing Procedure:

1. Assuming bollard is in the locked in position,
2. Insert key and turn key to release bollard.
3. Wiggle the bollard up from the bollard receiver.
4. Install receiver cover and lock in by turning key.
5. Remove key.

6.2 WARNING!!!! ALWAYS INSTALL THE BOLLARD RECEIVER COVER TO PREVENT PEDESTRIANS FROM TRIPPING ON THE HOLE CREATED BY REMOVING THE BOLLARD FROM THE RECEIVER.

6.3 Bollard Replacing Procedure:

1. Remove receiver cover by turning the key to unlock
2. Wiggle the bollard in to the receiver while lining up the slot on the bollard with the receiver's pin.
3. Turn key to lock in the bollard, remove key.

6.0 Bollard Annual Maintenance:

Fixed bollards require no maintenance, instructions refer to removable bollards

6.1 Bollard Removing Procedure:

1. Assuming bollard is in the locked in position,
2. Insert key and turn key to release bollard.
3. Wiggle the bollard up from the bollard receiver

6.2 Bollard Cleaning:

1. Hose out the bollard receiver until clean.

6.3 Bollard Replacing Procedure:

1. Remove receiver cover by turning the key to unlock
2. Wiggle the bollard in to the receiver while lining up the slot on the bollard with the receiver's pin.
3. Install receiver cover and lock in by turning key.
4. Turn key to lock in the bollard, remove key.