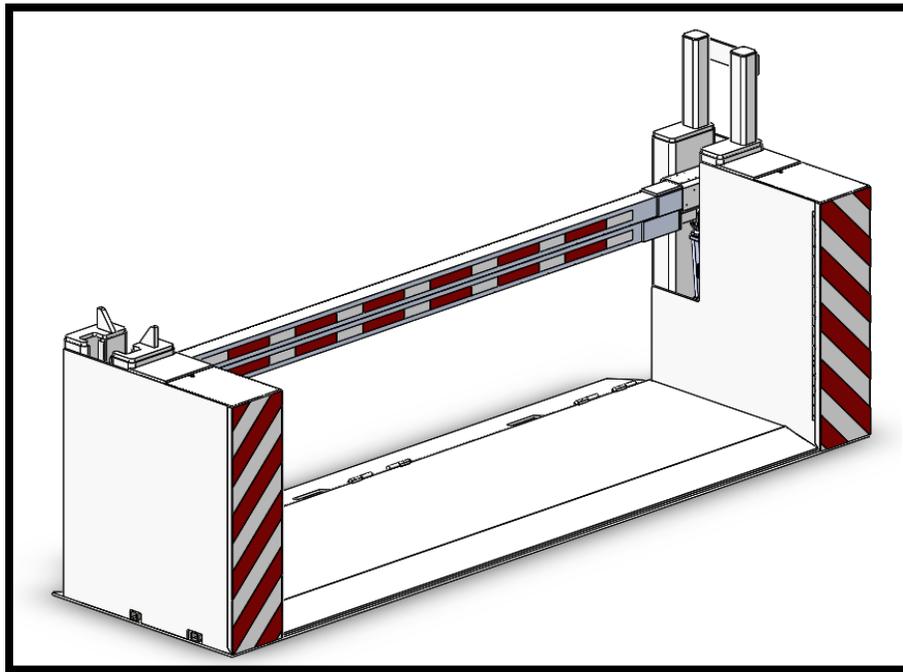




# Gibraltar G-4033P Portable Drop Arm Barrier Owner's Manual

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# G-4033P M30 P3 Portable Drop Arm Owner's Manual

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**Please Refer to Contract Plans and Documents for Specific Details.**

## 1. Introduction

This manual is intended as a supplement to project specific installation drawings and control system drawings.

Gibraltar's M30 P3 Portable Drop Arm Barrier was designed to meet the most stringent specifications and perimeter security standards for anti-ram vehicle barriers. The M30 P3 Portable Drop Arm Barrier system was tested by a certified independent testing laboratory in accordance with ASTM F2656-07, Impact Condition Designation M30, Penetration Rating P3, with capability of stopping a 15,000lb vehicle traveling at speeds up to 30mph. The M30 P3 Portable Drop Arm Barrier is listed and approved on the USACE Department of Defense (DOD) Anti-Ram Barrier list.

The Gibraltar M30 P3 Portable Drop Arm Barrier is a great option for rapid deployment at locations such as downtown corridors, festivals, stadiums, conventions, etc. that need hostile vehicle mitigation surrounding their perimeter.



G-4033P (Towable configuration shown)

## 2. System Description

The G-4033P M30 P3 Portable Drop Arm Barrier is designed in accordance with ASTM F2656-07 for an M30 P3 penetration rating with a blocking height of 43in (1092mm) from the roadway surface. It is a hydraulically operated unit powered by a 12V battery source.

The G-4033P M30 P3 Portable Drop Arm Barrier is capable of 200 complete up/down cycles per hour and can change direction when cycling. The cycle rate for opening and closing is adjustable.

The G-4033P M30 P3 Portable Drop Arm Barrier can be provided in a towable configuration as well. If provided, the towable unit has a drop-down tongue permanently fixed to the barrier and a removable trailer that can be towed separately for off-site storage or towing additional units.



**Your Safety is Important to Us!**

## 3. Safety

Gibraltar does not assume responsibility for injury to persons or property during loading, unloading, transporting or installation, but verbal guidance and additional written instructions are available upon request.

The installer is responsible for ensuring that the rigging and lifting gear is properly sized and attached when lifting heavy components. The M30 P3 Portable Drop Arm Barrier can weigh as much as 8,000lbs [2950kg]; use this weight for planning purposes. Equipment used to set system components must be capable of handling the components in an overhang position.



Before working on any part of the system, ensure the following:

- Power is removed from the system.
- Traffic should be controlled for the duration of work performed on the barrier and should not be permitted to drive through the system until all the control and safety functions have been verified and are working properly.
- Use caution when working around the arm hinge or the latch, these are both dangerous pinch points.

## 4. Inspection

Upon delivery, the barrier should be checked to ensure that no damage occurred during shipping, e.g. bent, misalignment, coating defects, weld defects.

## 5. Inventory

Upon receipt, check your packing slip to ensure all materials arrived. Some equipment may be stored in the barrier or tool cabinet.

## 6. Storage

The barrier shall be stored in such a manner to ensure proper ventilation and drainage, in addition to protect against damage, weather, vandalism or theft.

## 7. Environment

### 7.1. Environmental Capabilities

7.1.1. The M30 P3 Portable Drop Arm Barrier is designed to operate in an ambient temperature range of: 32 °F (0 °C) to 150 °F (65 °C).

## 8. Product Installation

### 8.1. Electrical

8.1.1. Power required for charging the battery system is 120VAC, 20A, 60Hz.

8.1.2. The M30 P3 barrier is capable of operating with on-board battery power only.  
(See 9.2.1 for more power information)

### 8.2. Roadway Preparation

8.2.1. Any debris must be cleared prior to placing the M30 P3 Portable Drop Arm Barrier in position.

### 8.3. Barrier Placement

8.3.1. The M30 P3 Portable Drop Arm Barrier was designed to be deployed on a relatively level concrete or asphalt roadway.

**8.3.2. NOTE: For trailered barrier deployment, recovery, and operation, see Appendix C instructions.**

### 8.4. Controls

8.4.1. Once barrier is in place, locate the two-button remote control and pull out the desired amount of cable.

## 9. System Operation

### 9.1. Barrier Operation

9.1.1. Gibraltar provides a basic two-button wired remote control capable of controlling a single barrier. More complex control panels can be custom made at an additional cost.

9.1.2. Basic control functionality includes:

- Close pushbutton
- Open pushbutton

## 9.2. Pre-System Startup Checks

### 9.2.1. Power

- Ensure all Electrical and Hydraulic connections are secure.
- Check battery charger LED to ensure the batteries are sufficiently charged. The barrier is capable of over 300 cycles on a full charge.
  - Red LED indicates low charge
  - Yellow LED indicates charging
  - Green LED indicated full charge
- The battery charger should be powered whenever possible. The connection plug is located in the rear access box and normally attached to the provided generator. If the barrier is set up for prolonged use, the power cable should be removed from the generator receptacle and powered with a standard 120VAC, 20A power source.

### 9.2.2. Hydraulic Fluid Fill and Setup

- Fill oil reservoir with new filtered oil 1/2” from the top of the sight glass.
- Hydraulic fluid is not provided by Gibraltar, 1-2 gallons are required to fill the system, use AW-46 type hydraulic fluid. Note: The trailered barrier version requires 2-3 gallons.
- Check for hydraulic leaks and tighten fittings as necessary.

### 9.2.3. Sensor Functionality

- The barrier is equipped with an optical beam sensor integrated into the control system. The sensor prevents the arm from lowering if objects or personnel are under the arm.

## 9.3. Starting the System

9.3.1. Turn the power switch on the control panel to the ON position

9.3.2. Verify the green power LED is illuminated

## 9.4. Access Controls

9.4.1. Gibraltar can provide other control devices such as keypad entry, and wireless remote controls if necessary.

9.4.2. In-field support for programming changes or additions is available for an additional fee.



Operation of the M30 P3 Portable Drop Arm Barrier can be dangerous for installation and maintenance personnel, be aware of pinch points when working on or near the barrier system.

## 10. System Usage

### 10.1. Instructions

10.1.1. Basic operation is via the pushbuttons on the two-button remote control or customer requested entry method.

- To raise the barrier, press and hold the “up” pushbutton, the arm stops once the barrier is in the up position.
- To lower the barrier, press and hold the “down” pushbutton, release the pushbutton once the arm is down.
- Direction can be changed at any time by pressing the desired pushbutton.

### 10.2. Manual Operation

10.2.1. Switch the directional control valve to “raise” and use the hand pump to pump fluid into the hydraulic cylinder to raise the barrier. It takes approximately 70-100 pumps using the hand pump to raise the barrier fully.

### 10.3. Troubleshooting

10.3.1. Check control panel to verify power.

10.3.2. If the barrier does not respond to control commands verify:

- All circuit breakers are on.
- No obstructions in front of the optical beam sensor.

10.3.3. If electronics appear to be functional, visually inspect the following for mechanical failures:

- Pivot Pin at the hinge post.
- Hydraulic Cylinder connection points.
- Hydraulic Cylinder Body.
- Verify the latch end of the arm is free from obstructions.

## 11. System Maintenance

### 11.1. Inspections / Cleaning

11.1.1. Cleaning in and around the barrier area should be, at minimum, every 3 months to avoid system mechanical failure.

### 11.2. Preventative Maintenance



- Set barrier in desired position. If maintaining while in the raised position secure the arm against the back stop.
- Turn the System power OFF. Lock the control box so power cannot be reapplied.

11.2.1. Follow the G-4033P Maintenance and Inspection Checklist **Appendix A**.

11.2.2. See **Appendix B** for spare or replacement parts.

### 11.3. Visual/Audible Inspection (while cycling the barrier)

11.3.1. Listen for irregular noises around the blocking assembly for:

- Excessive banging
- Grinding
- Squeaking

11.3.2. Watch and listen to hydraulic cylinder for:

- Irregular movement (flexing or binding)
- Clicking

11.3.3. Check functionality of barrier face lights (while cycling barrier)

- LED strips should be green when the barrier is in the fully open position.
- LED strips should be red when in motion or when in the closed position.



These types of irregularities could be signs of more serious issues.

### 11.4. Barrier Disassembly



- Lower the barrier to the roadway closed position.
- Turn the System power **OFF** in the control box. Lock the control box.

#### 11.4.1. Hydraulic drive system

- Bleed all pressure from the system through the system relief valve
- Remove hydraulic hoses from the cylinder
- Remove hydraulic cylinder clevis pins at the ram attachment points.
- Remove cylinder and inspect/replace as necessary.
- Re-assemble in reverse order

#### 11.4.2. Barrier Arm Assembly

- Blocking assembly should not be removed from frame for the life of the product unless it is determined to be necessary after consulting with Gibraltar.
- Support the arm assembly to prevent the assembly from falling once the pivot pin is removed.
- Remove all clamps and the pivot pin
- Lift arm out of buttress assemblies.
- Re-assemble in reverse order.

#### 11.4.3. Arm Assembly Lights

- LED strips can be disconnected by pulling power wire out of the arm assembly and disconnecting lights at screw on/off connection lead.
- Slide LED strip out towards the latch end of the LED track.
- Re-install in reverse order.

## 12.Key Contacts

### Technical / Sales Support

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# Appendix A - G-4033P Maintenance and Inspection Checklist



## G-4033P Maintenance and Inspection Checklist

### G-4033P Common Inspection and Maintenance Checklist

This checklist is used to maintain the quality of your Gibraltar G-4033P Portable Drop Arm in accordance with Gibraltar's standards and Warranty requirement.

Date:	Facility Name:	Inspector:
	Barrier Serial:	

### Required inspection and maintenance points at 10,000 cycles or 3 months of operation:

Inspection Areas	Comments	Pass	Fail
2. Visually inspect all bushings at the hinge point			
3. Visually inspect hydraulic cylinder attachment bracket			
4. Visually inspect hydraulic cylinder body for damage			
5. Visually inspect the connection points of the cylinder			
8. Verify all bolts are snug and have not worked themselves loose			
10. Verify Hydraulic cabinet and any junction boxes are free from debris			
11. Verify no loose wires within Hydraulic cabinet or any junction boxes			
12. Inspect barrier buttress posts for paint coating conditions			
13. Cycle minimum 10 times			
14. Verify smooth operation without binding			
15. Ensure barrier rests on stop plate at the latch end when lowered			

### G-4033P Hydraulic 10,000 cycle or 3 months of operation maintenance checklist:

1. Complete first section of this checklist			
2. Visually inspect for proper fluid level			
3. Inspect for fluid leaks in cylinder area			
4. Check all hydraulic fittings within HPU for leaks			

### G-4033P Hydraulic 30,000 cycle or 12 months of operation maintenance checklist:

1. Perform typical 10,000 cycle, 3-month inspection			
2. Check hydraulic fluid condition			
3. Visually inspect hoses for excessive wear			

Inspector Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## SPARE/REPLACEMENT PARTS

<b>Part #</b>	<b>Item / (Description)</b>
4152-BUSHING	G-4033P Drop Arm Pivot Pin Bushing
4000-LED-12	12Ft. Clear Opening Drop Arm LED Strip
4000-BMPR	Drop Arm Bumper Pads
HYDCYL-2X16	G-4033P Hydraulic Cylinder
CLEVIS-HD	Hydraulic Cylinder Clevis Pin



Contact Gibraltar (+830-798-5444) if replacement parts are required.

## Appendix C – Deployment and Recovery

### CONTINUE TO THE NEXT STEP IF THE BARRIER MUST BE ROTATED

Back barrier into desired deployment area, **DEPLOY** trailered barrier as follows:

1. Remove the pins from the three hydraulic risers (2 tongue side, 1 rear)
2. Unlock and open the control cabinet top cover
3. Turn the main power switch **ON**, the green LED indicator light will illuminate
4. Ensure the mode selector switch is in **TRAILER** mode.
5. Ensure the Riser/Arm selector valve is in **RISER**
6. Lower the tongue and rear risers until they contact the ground
7. Disconnect the barrier tongue from the tow vehicle
8. Remove the tongue support bar, fold and pin the barrier tongue in the stowed position
9. Store the tongue support bar inside the trailer storage box
10. Raise the front and rear hydraulics until the trailer tires are off the ground
11. Move the tow vehicle away from the Drop Arm
12. Raise the arm to the full up position
13. Disconnect the brake quick disconnect fitting from the barrier tongue
14. Disconnect the trailer light wire extension and store it in the trailer storage box
15. Pull the light cable and brake line through the pass-through tubes
16. Coil the trailer brake line and stow it with the rubber tiedown on the front of the trailer frame
17. Remove the pin retaining the trailer tongue extension and extend the trailer tongue
18. Pin the tongue extension in the extended position
19. Remove the turn table (if required) and positioning bar from the trailer storage box
20. Using the combination wrench and adjustable wrench stored in the trailer storage box, remove the four 1-inch bolts connecting the trailer to the drop arm
21. Store the bolts and wrenches in the trailer storage box
22. Lower the barrier, alternating the tongue and rear riser control valve, until it is sitting on the ground
23. Lift the tongue of the trailer and extend the jack wheel
24. Chalk the rear of the driver side trailer tire
25. Using the driver side tire as a pivot point, pull on tongue extension from the driver side to roll the trailer off of the barrier.
26. Turn the mode selector switch to the **BARRIER** position, the green LED indicator light will illuminate
27. Move the Riser/Arm selector valve to the **ARM** position
28. Insert the pin side of the positioning bar into the sleeve in the center of the ramp, lift the ramp vertical, remove the positioning bar, and push the ramp into the deployed position
29. Lower the arm, extend the desired amount of cable for the pushbutton control, and close the top cover
30. If possible, start the generator or connect the battery charger cable to 120V, 20A line power to charge the batteries
31. The barrier is ready for use
32. Move the Riser/Arm selector valve to the **RISER** position
33. Raise the barrier approximately 6" evenly off of the ground
34. Position the turn table under the barrier with the hook on the positioning bar
35. Lower the barrier onto the turn table (steps 32 - 34 may need to be repeated to find the center of gravity of the barrier)
36. Retract tongue and rear risers enough to clear the ground, the barrier should be balanced on the turn table
37. Rotate the barrier into the desired position
38. Raise the barrier and remove the turn table, store it in the trailer storage box
39. Lower the barrier into position and retract the risers
40. The barrier is ready for use



**WARNING:** NEVER place any part of your body under the barrier, loss of hydraulic pressure could result in severe injury or death.



**CAUTION:** The turn table is intended to be used on level well compacted surfaces such as concrete and asphalt.

**RECOVER** the trailered barrier as follows:

1. If the barrier was rotated using the turn table, accomplish steps 31 – 37 before continuing.
2. Ensure the mode selector switch is in **TRAILER** mode

**NOTE:** With the mode selector switch in trailer mode, the riser control pushbutton will time out when retracting the risers. It will be necessary to press the button multiple times until the desired position is reached

3. Move the Riser/Arm selector valve to **ARM**
4. Raise the drop arm to the fully open position
5. Move the Riser/Arm selector valve to **RISER**
6. If line power was connected to the battery charger, remove it at this time.
7. Back both of the trailer tires against the driver side of the barrier into the same position it was removed during deployment
8. Chalk the front of the driver side trailer tire
9. Using the driver side tire as a pivot point, pull on tongue extension from the passenger side to roll the trailer onto the barrier.
10. Fold the trailer jack and position the trailer over the mounting holes in the barrier
11. Raise the barrier evenly until the trailer frame is almost level and the tires still touch the ground.
12. Align the trailer to allow the 1" bolts to be inserted through the trailer mount holes and barrier
13. Raise the barrier until the trailer wheels are off the ground
14. Install the washers and nuts on the 1" bolts and torque to 300 ft-lbs
15. Retract and pin trailer tongue
16. Connect the trailer light extension to the light cable
17. Feed the hydraulic brake line and light cable through the pass-through tubes
18. Reconnect the hydraulic brakes to the tongue connection
19. Move the Riser/Arm selector valve to **ARM**
20. Lower the drop arm

**CAUTION:** When lowering the drop arm in trailer mode, push and hold the down button until the arm is completely closed, do not release the button until the arm is resting on the rubber stop

21. Stow the turn table and positioning bar back in trailer storage box
22. Move the Riser/Arm selector valve to **RISER**
23. Retract the rear riser and install the pin
24. Unpin the barrier tongue and re-install the support tube onto the tongue
25. Position the tow vehicle and lower the tongue onto hitch using the risers
26. Retract the front risers and install the pins
27. Stow the pushbutton control and cables back inside the control cabinet
28. Turn the main power switch **OFF**, close and lock the top cover
29. Check to ensure all connections are made to the tow vehicle

30. Perform a final walk around of drop arm trailer to ensure:

- a. No parts or tools are left on the trailer
- b. All risers are retracted and secured
- c. All trailer lights are properly functioning
- d. Trailer coupler is properly seated, latched, and pinned
- e. Safety chains are attached
- f. Brakes are correctly connected to the tongue

31. Verify the trailer brakes are functioning properly by accelerating to approximately 10 MPH, apply the brakes, and verify the hydraulic brakes are stopping the trailer



**WARNING:** The **MAXIMUM** tow speed of the Drop Arm Barrier is 55 MPH with a 1 Ton truck or larger and 45 MPH with smaller vehicles. **DO NOT** exceed these speeds.