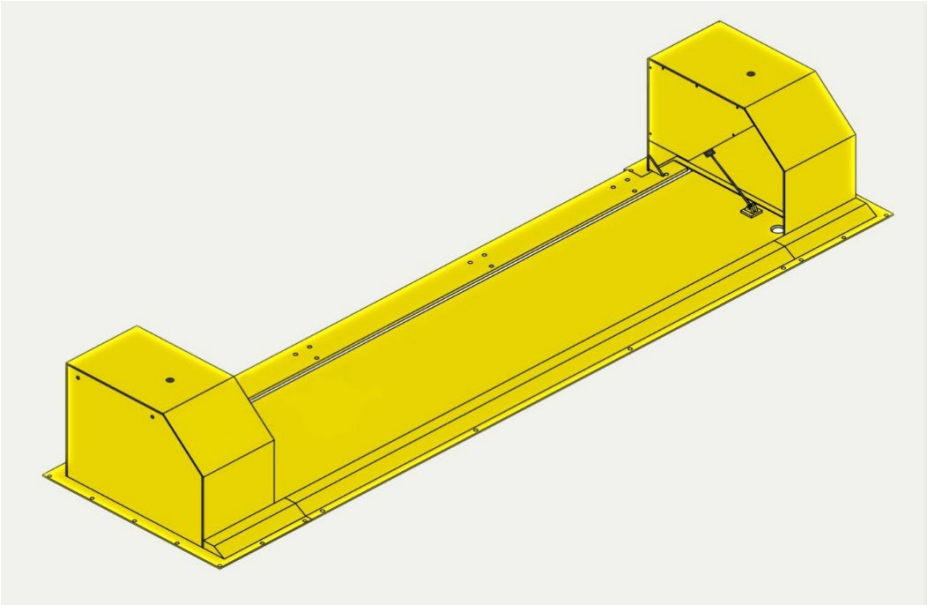
LANE VALENTE
TRAFFIC CONTROL



RBG-100/120/140/160
System Manual
Automated Motorized Hydraulic Traffic Controller

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LVITRAFFICCONTROL.COM

This manual describes the operational requirements of the
RBG Hydraulic Traffic Control System
as it is normally configured on site.

Index

Section 1- Pre-Installation Planning and Considerations

1.1 WARNINGS AND NOTICES

The Road Barrier Gate (RBG) is designed to regulate the flow of traffic through a secure control point. The RBG is also designed and manufactured to ensure personnel safety and safety when the equipment is operated properly, and all safety precautions are strictly followed. **The gate must be installed by licensed/qualified technicians per local codes.**

Persons installing, operating, and maintaining the system should read this manual carefully and entirely.

The Warnings, Cautions, and Notes in this manual represent the following information:

- A **WARNING** is an operation, procedure, or condition that can cause injury or death.
- A **CAUTION** is an operation, procedure or condition that can cause damage to the equipment.
- A **NOTE** provides helpful information.

The warnings and cautions that follow apply to all parts of this manual.

WARNING:
POTENTIALLY LIFE-THREATENING HAZARDS MAY EXIST DURING EQUPIMENT OPERATION. ONLY QUALIFIED PERSONNEL SHOULD ATTEMPT TO OPERATE, SERVICE, OR MAKE ADJSUTMENTS TO THE HYDRAULIC TRAFFIC CONTROL SYSTEM AND EQUIPMENT.

WARNING:
FOLLOW THE PRECAUTIONARY INSTRUCTIONS EXACTLY. DO NOT TAKE SHORTCUTS. DO NOT ASSUME THAT SOMEONE ELSE HAS ACTED ON YOUR BEHALF. IF ANY RULE OR PRECAUTION IS NOT CLEAR TO YOU, SEE YOUR SUPERVISOR BEFORE USING THE SYSTEM.

WARNING:
THIS SYSTEM CONTAINS A THERMALLY FUSED ELECTRIC MOTOR. IF THE MOTOR STOPS, DO NOT ASSUME POWER IS NOT PRESENT. UNEXPECTED MOTOR START-UP IS POSSIBLE AFTER THE PROTECTOR TRIPS. DISCONNECT POWER FROM CIRCUIT BEFORE PERFORMING ANY SERVICE TO THE MOTOR. WHEN POWER IS RECONNECTED, RESET PROTECTOR BEFORE ACTIVATING THE SYSTEM.

WARNING:
TO AVOID PERSONAL INJURY, BE AWARE THAT VOLTAGES ARE PRESENT IN THE HYDRAULIC TRAFFIC CONTROL SYSTEM. VOLTAGES AS LOW AS 28 VOLTS CAN CAUSE SERIOUS INJURY UNDER SOME CONDITIONS. DO NOT BE MISLED BY THE TERM LOW VOLTAGE.

ATTENTION: Lane Valente assumes no liability for accident or injury incurred through improper installation, operation, and maintenance of this system. ***It is recommended that all installations and service be handled by trained/qualified technicians. This manual does not represent all installation layouts and methods. Please contact LVI Technical Support with any questions.***

1.2 System Description and Specifications

The RBG system is an automated Road Barrier Gate that is surface mounted. The system is designed primarily to prevent unauthorized vehicles from either entering or exiting a secured control point. Using hydraulic and solid-state components, and with its customizable control logic, it can be easily adapted to a variety of uses. For example, revenue control, rental car agencies, security checkpoints, and more.

Drive Configuration:	Automated hydraulic control power unit, with tie-rod hydraulic cylinders
Power Requirements:	Factory setting: 1-1/2 HP, 110V Single-phase 30A **Note:** The unit can be customized to meet any local power requirements as to voltage, frequency, and phase.
Finish:	Powder Coat: Red or Yellow standard
Control Circuit:	The controls are pre-wired to accommodate a wide range of control options including remote open and close from multiple locations, radio open and close, open by card-reader, guard shack, key switch, vehicle detector, etc.

For specifications of clearance options, please refer to Appendix B.

1.3 Right or Left Side Configuration

All RBG system configurations are shipped from the factory as either a right- or left-hand control, depending on the specific installation requirements. All installation steps are the same regardless of the orientation of the RBG and control. When ordering the RBG system, verify with the sales rep the directional flow of traffic and from where the necessary power will be located to determine if a right- or left-hand control is needed.
Note: The RBG system ships to the installation location(s) with all possible assembly and installation steps pre-performed by the factory. Each system is configured to match and address each sales order individually.

The client is responsible for running necessary power to the installation location(s) with separate conduit for low voltage controls. These controls often connect between the Control Buttress and a guard shack but can also attach to optional peripheral equipment like a card reader. ***Prior to commencing any installation steps, the installer should ensure that all power and control connections have been properly installed and configured per local electrical codes.***

SECTION 2- PHYSICAL INSTALLATION

2.1 STEP-BY-STEP GUIDE

A. POSITION THE PLATE IN THE CENTER OF THE LANE
B. MOUNT THE PLATE WITH (2-4) STEADYING BOLTS **(DO NOT FULLY MOUNT YET) NOTE: USING A BOLT TO ENSURE THE EQUIPMENT WILL STAY IN PLACE BEFORE PERMANENT ANCHORING CAN BE VERY HELPFUL TO NOT ALLOW ACCIDENTAL SHIFTING WHILE INSTALLING THE REST OF THE SYSTEM**
C. USE THE POSITION OF THE PLATE TO LOCATE BUTTRESS POSITIONS
D. LOOP WIRE SAW CUTTING (IF APPLICABLE)
E. INSTALL THE LOOP WIRE, LEADING TO UNDERNEATH THE CONTROL BUTTRESS (IF APPLICABLE)
F. PLACE BUTTRESS(ES), DO NOT MOUNT
G. PLACE THE TUNNEL SECTION TRACK, LEAVING A HALF-INCH GAP TO THE PLATE ON THE BUTTRESS
H. SHIFT BUTTRESS(ES) TO BE TIGHT AGAINST THE CORNER SECTIONS OF THE PLATE (HINGE SIDE)
I. LINE UP THE TUNNEL SECTION ON THE TRACK WITH THE TUNNEL SECTION(S) ON THE BUTTRESS(ES)
J. INSTALL (2) STEADYING BOLTS ON THE BUTTRESS(ES) AND THE TUNNEL SECTION TRACK
K. PUSH THE HYDRAULIC HOSES THROUGH THE TUNNEL SECTIONS FROM THE CONTROL BUTTRESS TO THE NON-CONTROL BUTTRESS (IF THE SYSTEM IS A SINGLE BUTTRESS RBG-100, DISREGARD THIS STEP)
L. MOUNT THE SYSTEM USING THE CONCRETE ANCHOR BOLTS—THE SYSTEM WILL BE PERMANENTLY IN POSITION AFTER THIS STEP
M. FINISH CONNECTING THE HYDRAULIC HOSES TO THE HYDRAULIC CYLINDERS
N. CONNECT THE POWER, CONTROL, AND THE LOOP WIRE SETUP

WARNING: Installation and operation should be performed by a licensed/qualified technician. Please contact LVI Technical Support for assistance.

2.2 Installation Planning and Preparation

Secondary Barrier Gate

Often when a RBG system is installed, another secondary barrier gate can be installed in front of the system. This is to protect against damage caused by low-speed and inadvertent actions of drivers. These secondary gates can be installed before, during, or after the initial system installation. This option is packaged separately and comes with a comprehensive installation manual that should be referenced throughout the installation process. Please contact LVI Technical Support for details.

2.2.2 Preparation and Unpacking

Verify that the client-supplied power, conduit, and any low-voltage control connections, for example to a guard shack for a control switch, are properly installed beneath the ultimate location of the Control Buttress. Any other options to be installed, for example cabling for a card reader, should have the conduit run to the Control Buttress prior to anchoring. It is very difficult to route any cabling into the Buttress once is has been mounted in place. For this reason, it is imperative to verify that the power, conduit, and control have been installed properly. Cabling for control must always be run in a separate conduit from AC power.

If the installation is to include an Inductive Control Loop Detector, the rectangular Loop should be cut and prepared prior to installation. Depending on the system and layout, the number of Loop wires can vary. We recommend that the installation process be handled by a trained and certified technician.

NOTE: ***The cut that leads from the Loop to the area under the Control Buttress must be cut and extended under the base of the Buttress prior to any other installation steps.***

WARNING: A forklift rated for at least 5000lbs must be used to unload and unpack the RBG system. Unpacking equipment can be provided by calling LVI Technical Support for assistance.

Caution: Prior to beginning the installation process, it is important that the area where the RBG is to be placed is free of all debris to ensure the system rests flat on the ground.

All RBG systems are shipped to the installation site on custom designed pallets. An example is shown below. Along with the Buttress(es), the Plate and tunnel section track will need to be unloaded with a forklift. The hardware included with the system will be in a box alongside the Buttresses.

Control and Non-Control Buttresses

2.3 Positioning the System and Loop Wire

Before placing the Plate, marking the desired location with lines of chalk is a great way to visualize the system without having to move the equipment until ready.

Make four chalk lines going across the lane horizontally. Make sure all lines extend past the edges of the lane and are **straight and level**.

- First line should be the front of the unit where the Tunnel Section will sit.
- Second line should be the back of the unit where the back of the Plate Hinge will sit. The second line should have a gap of **fifty inches** from the previous line.
- Third line will be the top of the Loop Wire rectangle and should be **no less than two feet from the unit.**
- Fourth line should be the bottom of the Loop Wire and should be **fifty inches** from the third line.
- Find the middle of the lane and mark it on the first and fourth lines.
- Mark a line vertically from the middle marks on the first and fourth lines to connect them. This should be the center of the lane.
- On the Loop Wire lines (third and fourth), **measure horizontally fifty inches on each side of the middle line** and mark them.
- After marking these areas, take the chalk line again and **connect them vertically** only on the Loop wire lines (third and fourth). This will create the Loop wire rectangle, fifty by

one-hundred inches.

- Take a right triangle, roughly six inches, and mark the corners with the right angle. **These angles will be what is cut**, not to the edge of the rectangle.
- Make a line from the closest corner to the Control Buttress and make an angle towards it and stop in front of where the Control Buttress would sit.
- Make sure that the anchor points on the Buttress are not in the way and draw a line to where the middle of the Buttress will be. **Reference Section 2.2.6**

2.4 Placing the Plate and Installing Concrete Anchors

Using a forklift, place the Plate section of the RBG system in the lane. Line up the back of the Plate Hinge to the second chalk line. This will ensure the system is straight in relation the lane. Once this is in place, it is recommended that two-to-four concrete anchors are installed to steady the Plate. This will stop any unintended shifting of the Plate while placing the Buttresses**. Do not mount the Plate entirely** until the rest of the RBG system has been set in place.

WARNING: Before drilling or cutting into concrete, PERMISSION MUST BE GRANTED BY THE PROPERTY OWNER OR MANAGER. Failure to do can cause severe damage to the integrity of the floor and/or result in electrical shock.

The RBG system will be mounted with concrete anchors, five-eighths in diameter. Using the corresponding drill bit, make pilot holes on the two opposite corners of the Plate through the available anchoring holes. Drill down at least four inches deep. Clear out any debris and ensure the pilot holes are as clean as possible. Install the concrete anchors, and the Plate will now be steady to use and a guide for placing the remainder of the RBG.
Note: Tools for installation can be provided. Please call LVI Technical Support for assistance.

2.5 Placing the Buttresses and the Tunnel Section Track

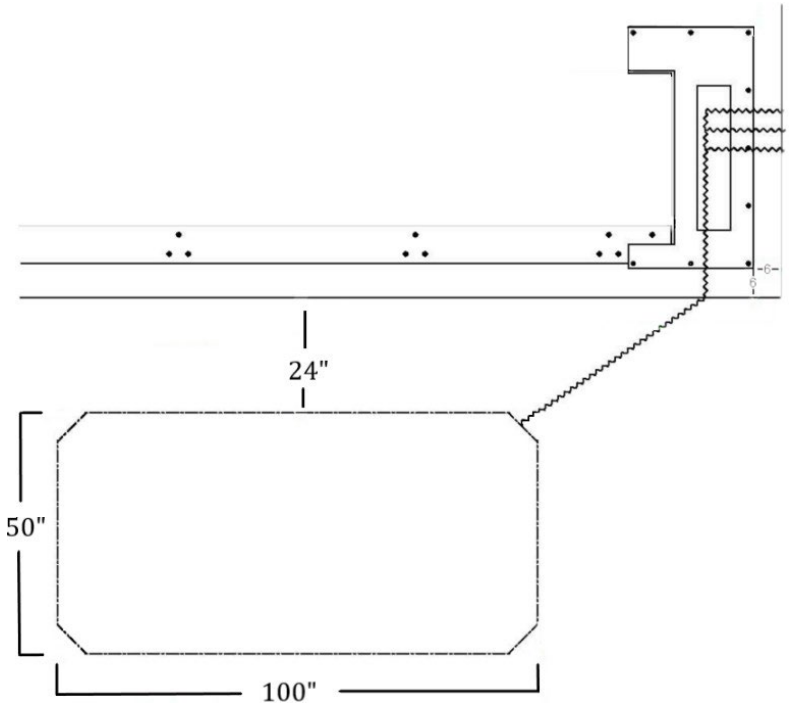
Using the Plate for reference, place the Buttresses on either side of the Plate. On the back of the Buttress, there is a tunnel for the Hydraulic hoses. Set the Buttress so that the Tunnel Section is closest to the front of the Plate, away from the Hinge. The Hinge has “L” shaped corners on both ends that will fit into corresponding “L” sections on the front of the Buttresses. Do not mount the Buttresses yet. Next, place the Tunnel Section Track in front of the Plate. This should line up with the first chalk line that was marked. Line up the Tunnel Section on the Track to the Tunnel Sections on the Buttresses. Ensure there is a gap of half-an-inch between the Buttresses and the interior of the Plate, as well as between the front of the Plate and the Tunnel Section Track. Verify everything is aligned properly and straight/level before completing the mounting process. **Prior to installing any concrete anchors for the Control Buttress, the saw cut for the Loop Wire going underneath the Control Buttress must be cut. Refer to section 2.6 below.**

Note: It is recommended that two anchors are installed on the opposite corners of each Buttress and the Tunnel Section Track first to not allow the system to shift while installing the anchors.
Note: Additional equipment can be provided to assist with lifting and placing the system safely. Please contact LVI Technical Support for details.

2.6 Setting the Loop Wire

Caution: Permission must be granted by the property owner/manager prior to saw cutting.

Saw cuts for the Loop Wire should be **three-quarters-of-an-inch** deep. The cut coming from underneath the Control Buttress must be cut before mounting the Control Buttress. After the Buttress has been mounted, finish cutting the rest of the Loop Wire setup. This will be the third and fourth chalk lines marked, along with the vertical connections between them. **Do not cut to the edges of the rectangle,** cut along the angles that were marked in chalk. This is now the Loop Wire channel. An example is shown below.



Make sure the Loop Wire channel is clear and dry. Remove the debris from saw cutting. Set the Loop Wire into the channel. The channel may need to be widened if the Loop Wire does not fit.

All excess wire after filling the channel needs to be pulled into the Control Buttress.

Now the Loop Wire will be sealed. Make sure to clear the area of rocks and debris. While installing the sealant, press it down tightly into the channel and level the surface layer with a putty knife. Seal the entire Loop and up to the Buttress.

2.7 Installing the Traffic Signal and Warning Sign

The RBG system includes a Traffic Signal which can come with either red and green lights, or red and yellow lights. The RBG Buttress(es) come with openings on the top of the Buttress for easy installation. The Traffic Signal will need to be installed on the Control Buttress so it can be connected to the Electrical Control Panel. See **Appendix I** for further details on the Traffic Signal kit and installation.

The Warning Sign that is included should be installed on the Non-Control Buttress. It comes with a twenty-four-inch post that will be affixed via the lock nuts and reducing washers that are included. The sign should be drilled into the post using the self-tapping screws included in the kit. The post will also come with a black cap to keep water and debris out.

The RBG System is now mounted and complete.

Making the final connections of Power and Control should be performed by a licensed and qualified technician, along with operation and maintenance. Please call LVI Technical Support for assistance.

SECTION 3- TROUBLESHOOTING

3.1 Plate is in the secure position and will not go down…

• Verify unit has power by checking the status of the breaker.

• You can manually let the plate down by tightening (clockwise) the check release valve (see appendix I). If the plate will not move after pressure has been released check for any obstructions.

• If the plate has been damaged and will not go into the down position by using the check release valve contact tech support.

3.2 Plate is in the down position and will not secure…

• Verify unit has power by checking the status of the breaker.

• Ensure the check release valve (see appendix I) is in the correct position. Unless you are actively releasing pressure to lower the gate the check release valve should be open, turn the valve counterclockwise as far as it will allow.

• If the motor is not engaging when a command has been given check the thermal overload located on the bottom of the junction box attached to the motor.

• Check the fluid level in the reservoir. The reservoir should be always at least half to three quarters full. If more fluid is needed, Dextron III ATF is recommended.

3.3 Motor runs continuously after cycle has completed…

• Call Tech Support

3.4 Loop Wire is not working… (LMA1150 or AX2DL)

• Check the loop detector inside the electrical panel at the base of terminal block 1. If there is nothing displayed on the L.E.D. screen or power indicated by the lights on the detector call tech support.

• Check the loop itself for any damage. The loop should be sealed in the concrete or asphalt. If any wires are visible call tech support.

3.5 Plate Bounces when going into the down position…

• Tighten (clockwise) the flow control valve (see appendix I) in small increments. If the problem persists, call tech support.

For any other issues or concerns please contact LVI Technical Support.

SECTION 4- Appendices

Appendix A – Tools

Recommended Tool List	
Standard Socket Set	An Installation Tool Kit can be provided in addition to the RBG System.
Standard Hex Key Set	
Flathead Screwdriver (Electrical Only)	
Wire Stripper (Electrical Only)	
Putty Knife	
5/8” Masonry Drill Bit	
Air Compressor or Vacuum	Power tools can also be provided.
Hammer Drill	Please call LVI Technical Support for details.
Concrete Saw	

Appendix B – Clearance Options

RBG System	Clear Width	Plate Width	Overall Width	Concrete Slab Width	Depth
RBG-100	10’	11’	13’ 10”	15’ 10”	4’ 2”
RBG-120	12’	13’	15’ 10”	17’ 10”	4’ 2”
RBG-140	14’	15’	17’ 10”	19’ 10”	4’ 2”
RBG-160	16’	17’	19’ 10”	21’ 10”	4’ 2”

These are the dimensions that need to be considered when planning the installation of an RBG system.

Appendix C – Model Numbers

Product Model Number Guide

RBG – 100 – LH – DB – 0006

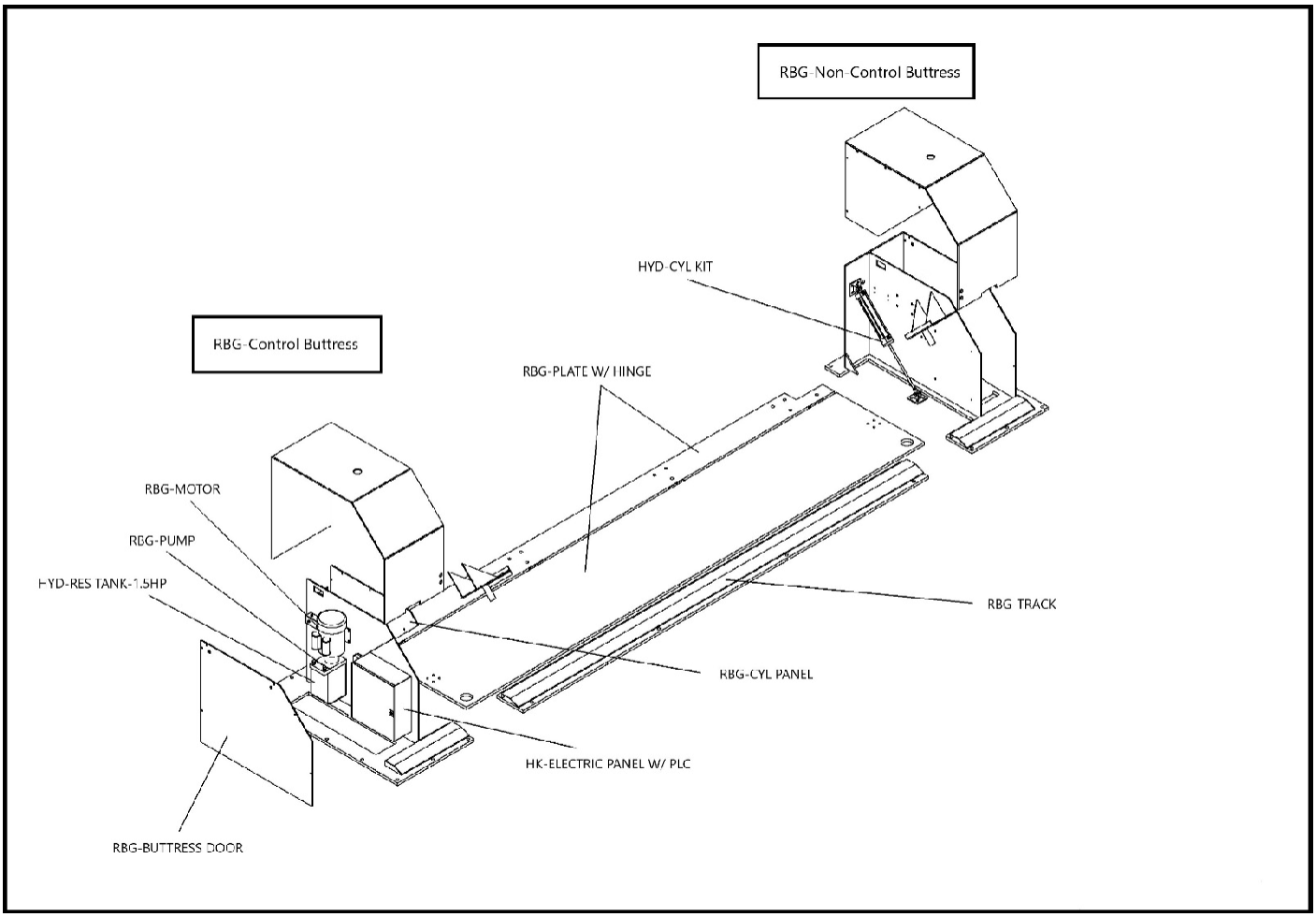
100 = 10ft Clearance
120 = 12ft Clearance
140 = 14ft Clearance
160 = 16ft Clearance

This is the factory unit number

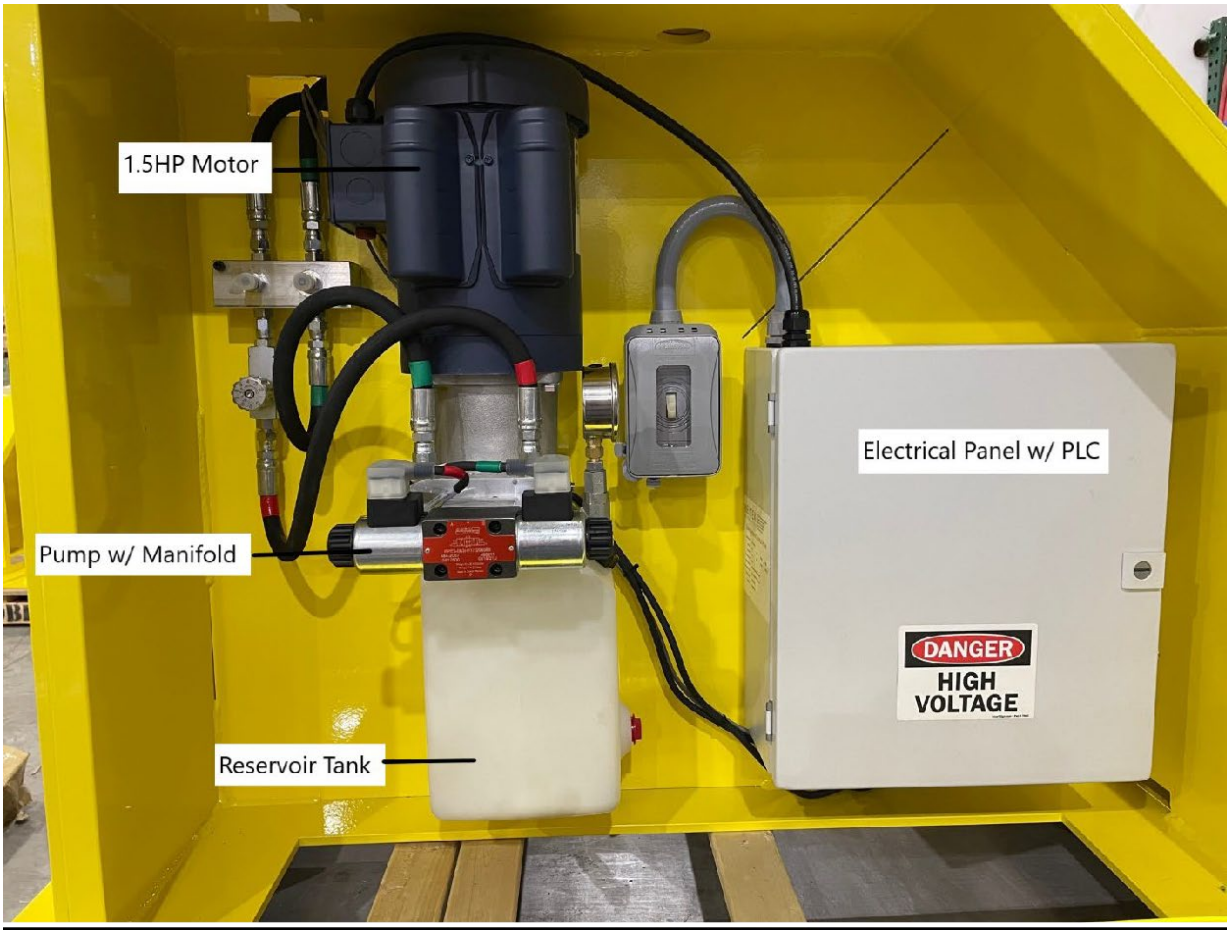
LH	Left-or Right-Handed Configuration
RH	

SB	Single Buttress Or Double Buttress
DB	

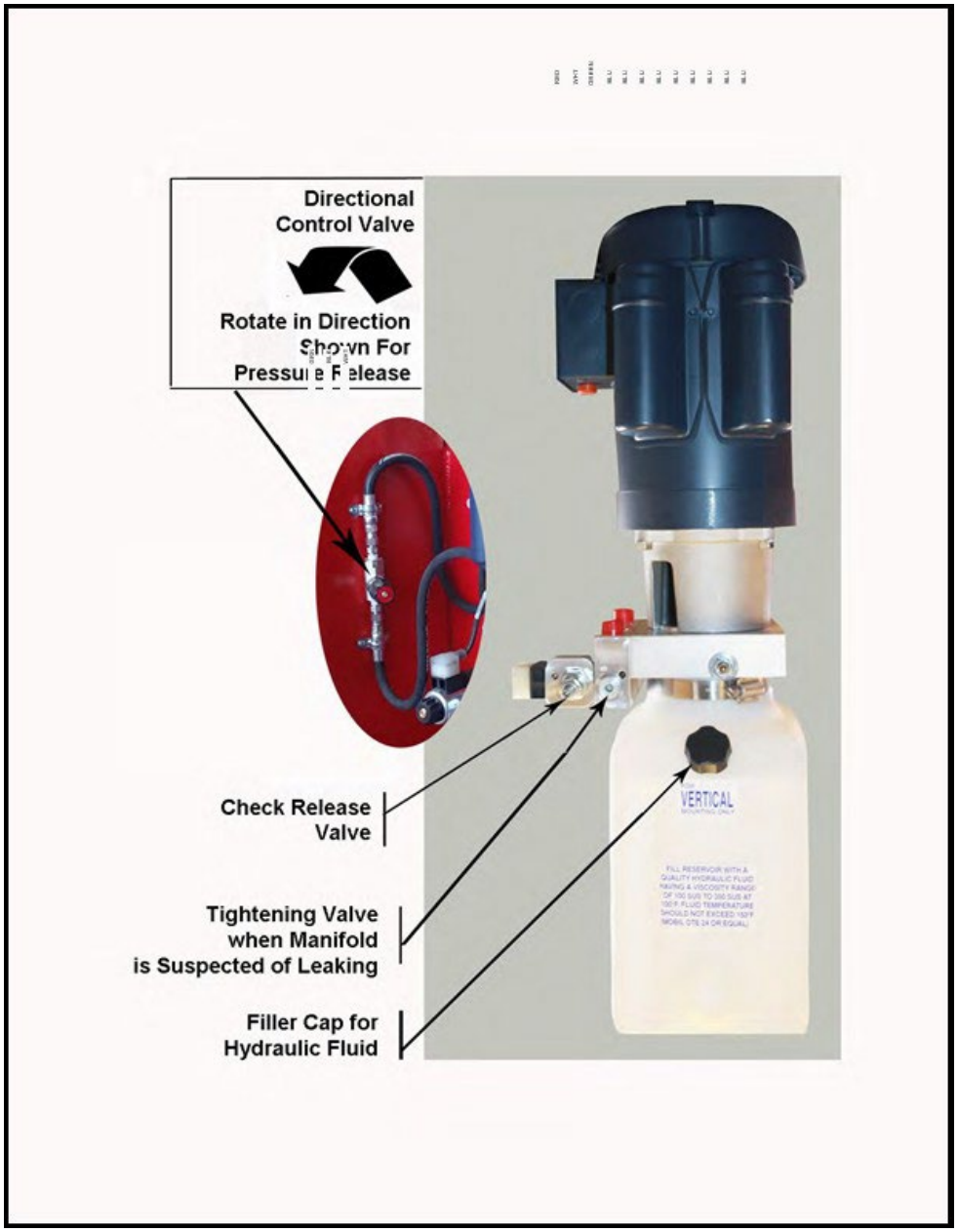
Appendix D – Exploded View



Appendix E – Control Buttress



Appendix F – Pump Assembly Details



Appendix H – Hydraulic Cylinder with Hoses Attached

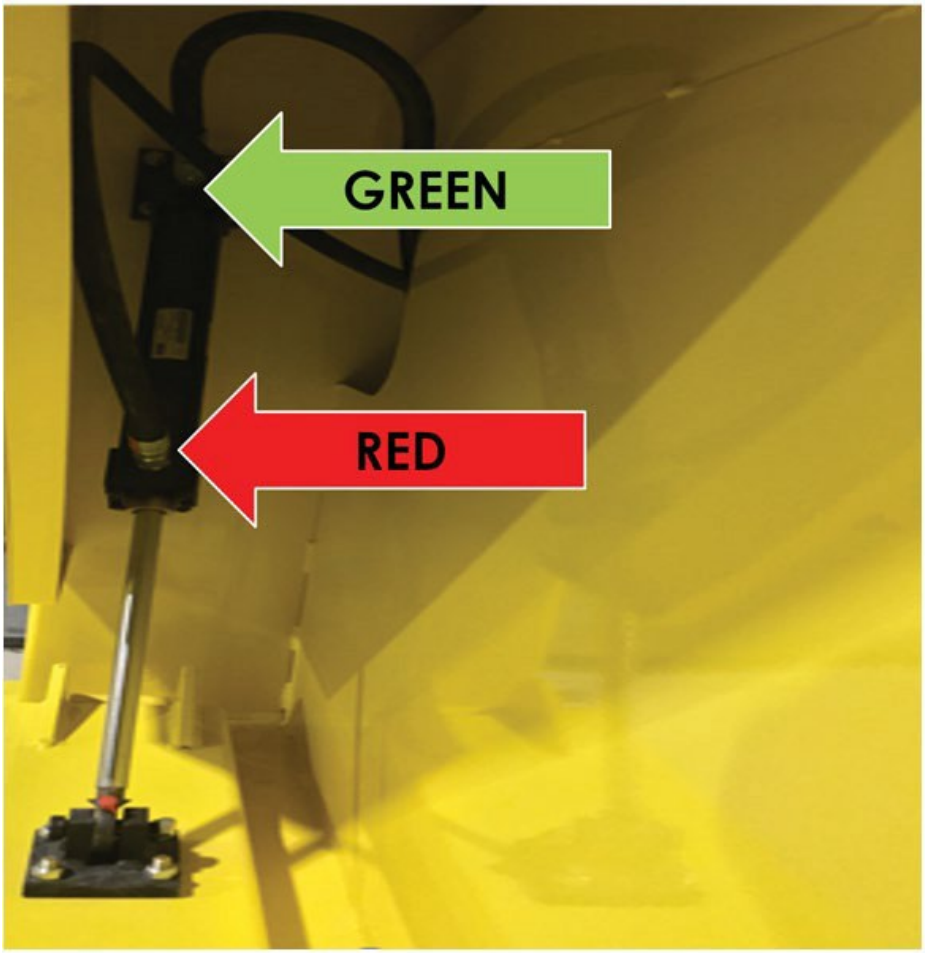
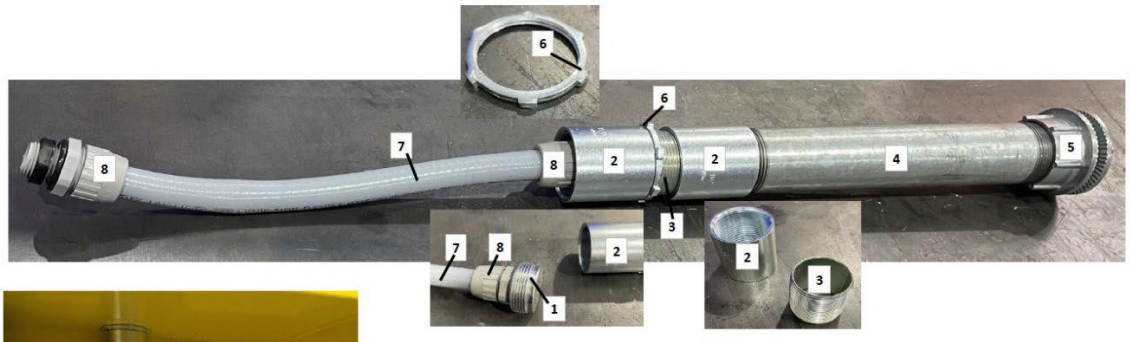
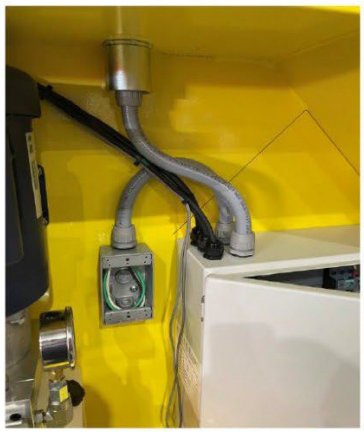


Figure 32 – Hydraulic Hose Connection, Control Cabinet

Appendix I - Traffic Stem Assembly





Item #	Supplier	Supplier Part Number	QTY	Description	Manufacturer	Model Number
1	FASTENAL	0700673	1	1.5in X .5in Threaded Bushing	RACO	1148
2	FASTENAL	0467279	2	1.5in Galvanized Threaded Coupling	RACO	1856-5
3	FASTENAL	66768	1	1.5in Galvanized Close Nipple	RACO	1876-5
4	FASTENAL	0452546	1	1.5in X 10in Galvanized Nipple	GARVIN	RN1501000
5	FASTENAL	921794953	1	1.5in Myers Hub	RACO	1706
6	FASTENAL	0700599	1	1.5in Locknut	RACO	1006
7	FASTENAL	0733575	1	11in X .5in DIA LFNC	HUBBEL	HBL-G1050
8	FASTENAL	0741790	2	.5in Straight Male LFNC Connector	HUBBEL	HBL-P050NGYA

The traffic signal mounting stem is shipped partially assembled and is included with the box of installation parts. This stem is finished and installed in the field. The stem must be connected to the Control Buttress via a NEC approved raceway as shown above. The raceway components are included in the kit. Please note that the cutting teeth of the locknut must be facing the Buttress surface to ensure that a proper electrical bond is made between the stem and the Control Buttress. If necessary, scrape the paint away from the Buttress where the locknuts cutting teeth will engage to provide low resistive connection.

Appendix H – Layout Example with Booth