VSG/VSGX

WAIST HIGH SECURITY GATE



INSTALLATION & MAINTENANCE GUIDE

Serial Number:

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1.0 SAFETY

1.1.0 Safety Symbols Used in this Handbook

The following symbols are used in this operating instruction manual to indicate potential risks and other safety information:



FIGURE 1.1.0.1

WARNING!

This symbol is used in this manual to warn installer(s) and/or operator(s) of potential harm. Please read these instructions very carefully.



FIGURE 1.1.0.2

CAUTION!

This symbol is used in this manual to designate actions or situations which represent a potential hazard to pedestrians, personnel, property and/or equipment. Please read these instructions very carefully.



FIGURE 1.1.0.3

NOTE!

This symbol is used in this manual to designate useful information for the installer(s) and/or operator(s). Please read these instructions very carefully.



FIGURE 1.1.0.4

QUESTION?

For questions, please contact Alvarado at (909) 591-8431, Monday – Friday, 6:00 AM to 4:30 Pacific Standard Time. Remember to read this manual completely before installing or operating the gate.

1.2.0 General Safety Information

The VSG-1/VSGX-1 Single Direction Waist High Gate has been designed, built, and tested by Alvarado. Every unit is factory tested for safety and reliability before shipping. However, the unit may present a risk to persons and property if it is not installed and/or operated correctly. The installation and operating instructions must therefore be read in their entirety and all safety information contained therein must be complied with.

The manufacturer shall refuse to accept liability and shall withdraw warranty if this system is used incorrectly or is used for a purpose for which it was not intended.

If there are questions, you may contact Alvarado at (909) 591-8431, Monday through Friday, 6:00 AM to 4:30 PM PST.

1.3.0 Important Safety Precautions

Follow the installation and/or operating instructions in this manual along with the following precautions:

- The product is designed for indoor use only.
- Use only skilled individuals to install and service the gate.
- The gate is not a toy. Do not allow children to play on or near the gate. Do not allow horseplay near the unit.
- Follow a proper maintenance schedule.
- Do not operate the unit if it has been damaged in any manner. Have the unit repaired or adjusted by a skilled service person before use.
- Do not modify or alter the gate.
- In access control applications, train all personnel that will be using the gate in the proper method of operation. Ensure that as new users are added, they are properly trained.
- Do not use non-Alvarado parts.

1.4.0 Important Pre-Installation Notes

The pre-installation notes listed below must be reviewed before installing the gate. These notes also serve as a checklist after installation that must be complied with. The installation site should also be evaluated before actual installation of the gate to ensure that future gate placement is possible and installed as desired. This evaluation includes proper spacing, a firm foundation, and conduit runs for low voltage power lines. More details of the site preparation may be found in, **SECTION 4.0** titled, "*Setup & Installation."*



WARNING

The manufacturer shall refuse to accept liability and shall withdraw warranty if this gate system is used incorrectly or is used for a purpose for which it was not intended. This includes incorrect installation of the product and/or mishandling the product. The installation and operating instructions must therefore be read in their entirety and all safety information contained therein must be complied with.

Follow the pre-installation notes listed below for proper operation of gate:


NOTE

See **SECITION 4.0** titled, "Setup & Installation," for more information; such as: slab requirements, anchoring centerline dimensions, et cetera…

- The gate is designed for indoor use only. Do not expose the gate to outside weather conditions. Weather conditions may damage the unit and it's physical appearance.
- Both posts must be plumb, level to each other, and square to the gate. This will ensure peak performance.
- Both posts must be firmly bolted to the mounting surface. This will maximize the performance of the gate and minimize noise from loose "rocking" posts.
- All wires connected to the gate must be properly concealed.
- Do not sit or place excessive weight on the gate. Doing so will damage the gate, as they're not designed to carry additional weight.
- Do not make any adjustments to the components inside the gate. The components are tested, configured, and assembled at the factory.

2.0 Models

2.1.0 Overview

The VSG Gate is a manual, waist high, self-closing gate. Various models, configurations, and options exist for this gate. The following overview will provide a short description of each model:

TABLE 2.1.0.A – VSG Gate Models

	Non-Electrical	**Electrical**
Single Direction	VSG-1	VSGX-1

For a complete listing of possible gate configurations, see **TABLE 2.1.0.B** for details. Gates may also be customized, please contact Alvarado for specific needs.

TABLE 2.1.0.B – Most Common VSG Gate Model Listings with Options

Model Number	**Short Product Description**
VSG-1-SS	36” Single Direction Manual Gate with Bars
VSG-1P-SS	36” Single Direction Manual Gate with Acrylic Panel
VSGX-1-SS	36” Single Direction, Fail-Safe Electric Mag Lock Gate with Bars
VSGX-1-SS (w/ Push Bar)	36” Single Direction, Fail-Safe Electric Mag Lock Gate with Bars + Push Bar
VSGX-1P-SS	36” Single Direction, Fail-Safe Electric Mag Lock Gate with Acrylic Panel

2.2.0 Description

The following provides a functional description for each model (**SEE SECTION 2.3.0 FOR CONFIGURATIONS**).

The **VSG-1 Gate** is a manual, waist high, self-closing gate with a closure mechanism installed on the hinge post. The gate arm is equipped with a stop tab and swings in one direction. The hinge post assembly includes a hydraulic dampener to minimize gate arm from slamming.

The **VSGX-1 Gate** is a manual, failsafe electrical locking, waist high, self-closing gate with a closure mechanism installed on the hinge post. The gate arm is equipped with a stop tab and swings in one direction. The hinge post assembly includes a hydraulic dampener to minimize the gate arm from slamming. An electrically controlled magnetic lock secures the gate when the gate arm has been closed.

2.3.0 Configurations

The VSG Gate Models described in the previous sections may be summarized with the following illustrations.

VSG-1 (Non-Electrical Configuration)

Non-Locking, self-closing gate with a stop tab.
The gate swings in ONE direction.

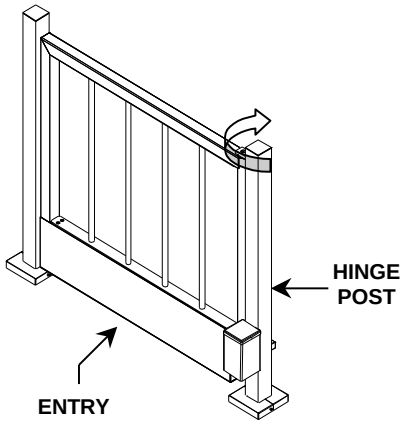


FIGURE 2.3.0.A – VSG-1 Single Direction Gate (Non-Locking & Non-Electrical)

VSGX-1 (Electrical Configuration)

Electric locking, self-closing gate with a stop tab.
The gate swings in ONE direction.

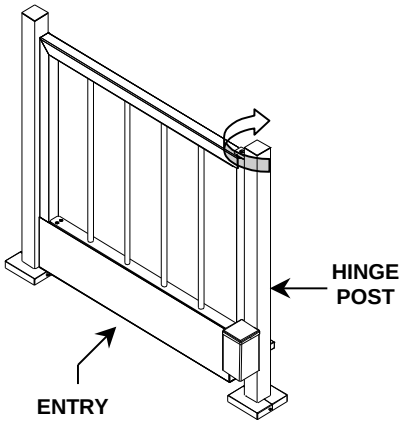


FIGURE 2.3.0.B – VSGX-1 Single Direction Gate (Locking & Electrical)

NOTE

Application of the VSG/VSGX Gates meet selected guidelines contained in the Americans with Disabilities Act Accessibility Guidelines (ADAAG) as issued by the Architectural and Transportation Barriers Compliance Board. However, due to the potential for varying standards, Alvarado makes no representation regarding the compliance of this product with any state or local laws or regulations regarding public access.

2.4.0 Direction

The VSG models are supplied in either a right hand or left hand swing.

For description purposes only, the gate swing can be described in **reference to the hinge location** when entering the gate by pushing the gate forward.

A Left Hand Gate swings with the hinge on the left when entering the gate (**SEE FIGURE 2.4.0.A below**).
A Right Hand Gate swings with the hinge on the right when entering the gate (**SEE FIGURE 2.4.0.B below**).

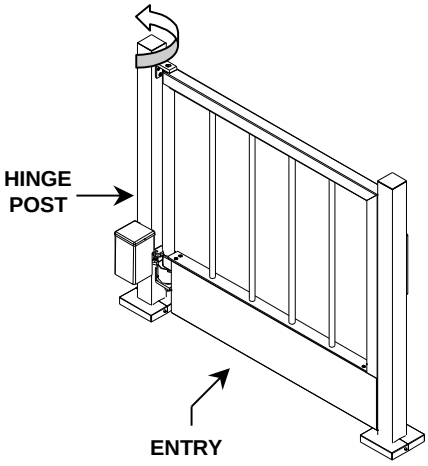


FIGURE 2.4.0.A – VSG-1 Left Hand Gate

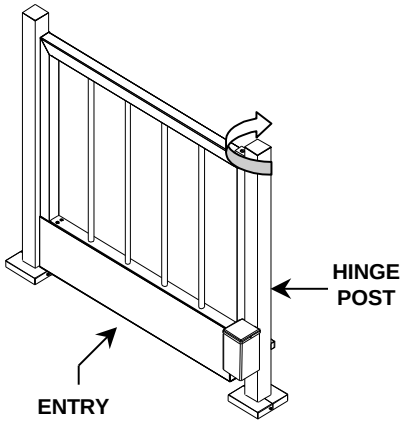


FIGURE 2.4.0.B – VSG-1 Right Hand Gate

NOTE

The Right Hand Entry Direction and Left Hand Entry Direction terminology is used only to describe the swing of the gate. The VSG-1 / VSGX-1 Models swing in a single direction. The direction is referenced to the hinge location. This describes the direction of the gate and must be specified when ordering.

2.5.0 Options

Other optional configurations:

Insert Style

All VSG/VSGX Models are available with either **Infill Bars** or a **Clear Acrylic Panel** (with or without a **Wheelchair Decal**). See (**FIGURES 2.5.0.A, 2.5.0.B, 2.5.0.C, & 2.5.0.D**) for more details.

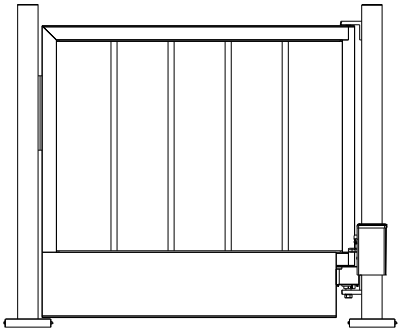


FIGURE 2.5.0.A – Gate with Infill Bars.

Finishes

All VSG/VSGX Gates are fabricated from Stainless Steel and come in **#4 Satin Finish**.

Fail Safe Operation

For VSGX Models only, the gate unlocks in the event of power loss. The gate will re-lock when power is supplied.

Panic Bar

For **VSGX-1** Models only, a push-release bar opens the gate for emergency exits. This is an optional component.

The Panic Bar is not available on the Acrylic Panel model VSG.

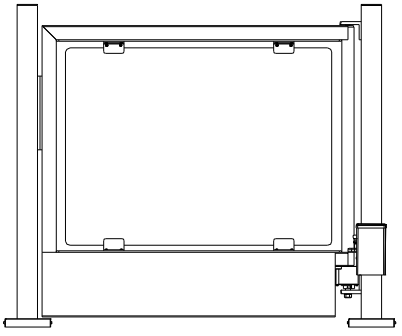


FIGURE 2.5.0.B – Gate with Acrylic Panel.

Remote Activation

For VSGX Models only, the gate requires the use of a momentary dry contact switch to lock and unlock. The gate lock will not re-engage until the switch is released. This switch is a "***Momentary Normally Closed Switch***."
This is an optional component.
When ordering please ask for Alvarado part number 10-1423.

Gate Status Relay

For VSGX Models only, the gate may be configured for remote monitoring of gate open/close status.
This is an optional component.
When ordering please ask for Alvarado part number"MSG-MC."



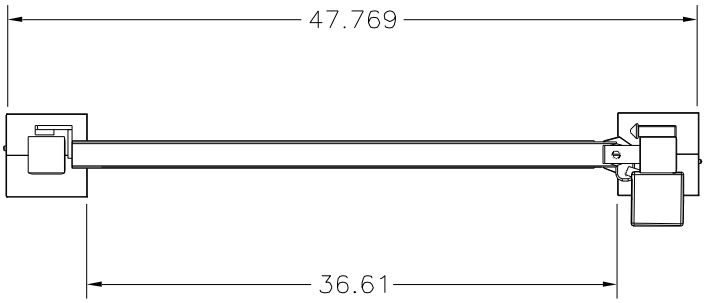
FIGURE 2.5.0.C – VSG Gate with Infill Bars.

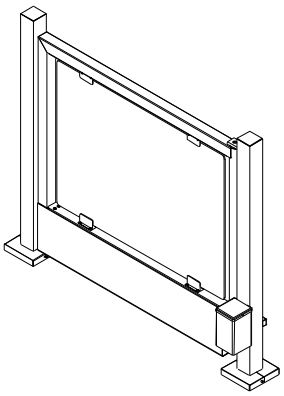


FIGURE 2.5.0.D – VSG Gate with Acrylic Panel.

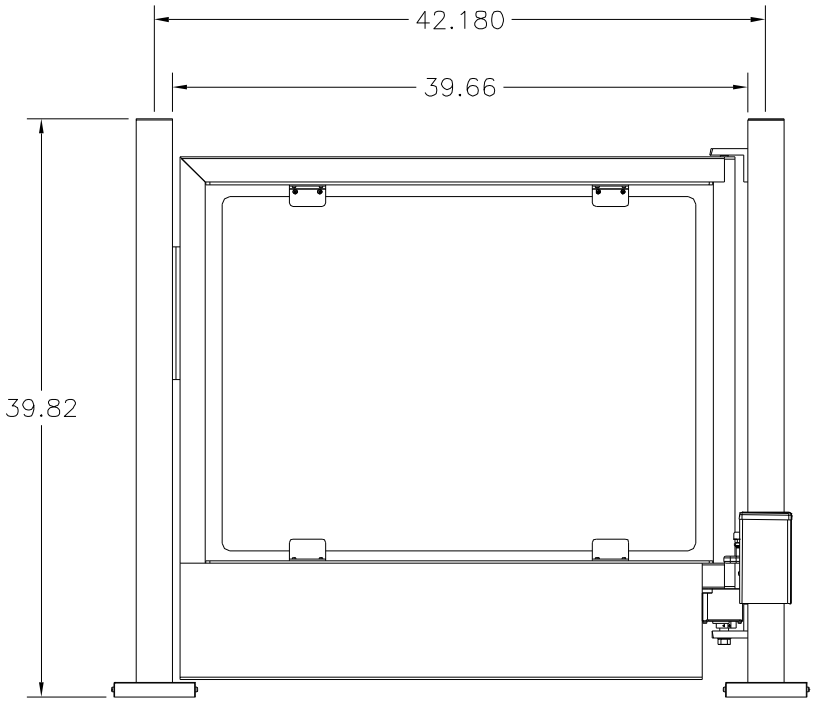
3.0 PLAN & ELEVATION VIEWS

3.1.0 Single Direction Gates / VSG-1 & VSGX-1 Models





PLAN VIEW



ELEVATION VIEW



NOTE Dimensions may vary slightly depending on locking mechanism used. Position the gate components in the location they will be installed to determine the actual gate dimensions.

4.0 SETUP & INSTALLATION

4.1.0 Packaged Components

The following components are included with the order. **Determine** which VSG/VSGX Model will be installed. Electrical Gates will require a conduit to supply low power voltage and remote contacts for control (optional).

VSG-1 (Non-Electrical) Components

1. Latch Post
2. Hinge Post with Gate Arm
3. This Manual
4. Base Package
   Qty 2 each – Split Base Cover
5. Anchor Package
   Qty 8 each – 3/8 Anchors (2" length)
   Qty 8 each – 3/8 -16 x 2½" HHCS
   Qty 8 each – 3/8 Flat Washers

VSGX-1 (Electrical) Components

1. Latch Post with Lock Mechanism
2. Hinge Post with Gate Arm
3. This Manual
4. Base Package
   Qty 2 Each – Split Base Cover
5. Anchor Package
   Qty 8 Each – 3/8 Anchors (2" length)
   Qty 8 Each – 3/8 –16 x 2½" HHCS
   Qty 8 Each – 3/8 Flat Washers
6. Power Transformer

4.2.0 Tools Required

- Heavy Duty Drill or Roto Hammer
- 5/8" Concrete Drill Bit
- Ratchet with 9/16" Socket
- Torque Wrench
- 7/32" Allen Wrench
- Shop VAC
- Tape Measure
- Torpedo Level
- Chalk Line
- Safety Glasses
- Rubber Mallet
- Wire Crimper (VSGX Models)



NOTE For electrically locked gates (VSGX Models) only, cabling will need to be run to the gate latch post. An electrical conduit is needed to safely provide cabling to power the electrical lock. Additional cabling to the hinge post is required for gates with the **Panic Bar Option**.

4.3.0 Slab Requirements

SLAB REQUIREMENTS

MINIMUM THICKNESS: 4” ON SOLID LEVEL CONCRETE

DO NOT INSTALL ON ASPHALT

4.4.0 Power Requirements

The electrical gates (VSGX Models) require a low voltage 12 VDC power supply. A power transformer is provided with each electrical gate. However, it’s the responsibility of the installer to provide the necessary conduit runs to the gate.

4.5.0 Operating Environment

Recommended Temperature Range for Operation: 0° to 50° C (air temperature)
Recommended Humidity Range for Operation: 5% to 95% non-condensing



WARNING

This product is designed for indoor use only. Operating the unit outside the suggested range for temperature and humidity will result in degradation in performance, and can cause harm to the device.

4.6.0 Overview of Installation Steps

A. Determine gate locations taking into account of power and activation wiring (if applicable).
B. Anchor gate posts.
C. Connect activation wiring (if applicable).
D. Connect power (if applicable).
E. Adjust gate for proper alignment.
F. Test the gate.



NOTE

- Determine the VSG Model that will be installed, the direction of operation, and the conduit runs for power (if the gate is electrical).
- Determine if the gate requires an electrical activation signal. If so, provide necessary conduit runs and review the wiring diagrams (depending on activation type).
- Note the installation steps for your particular VSG Gate Model.

VSG/VSGX Gate Installation considerations:

In order to ensure the gate will operate as intended, it is very important that the gate posts are correctly installed and oriented.

If the posts are not installed at the correct distance, set plumb and square, the gate may not open or close properly and could have an interference fit with the magnetic lock. Under no circumstances should the hinge pivot or dampener be tampered with. These are pre-set at the factory.

In order to ensure a good installation the following steps are recommended and should be followed in conjunction with installation instructions:

- After locating the post positions, check for a level floor using a masons level or equivalent.
- If not level, shim to correct height.
- Locate post hole locations, mark hole centers, drill anchor holes and install anchors.
- Position the “gate post” and loosely install bolts.
- Using a level, adjust the post side to side and front/back position using shims.
- The post surface where the gate hinges attach is critical and must be plumb.
- Carefully tighten bolts and re-check with a level.
- Once bolts are tight, articulate gate to the open position and slowly release it. The gate should close to the lock position.
- Be careful not to over travel beyond the closed position.
- If the gate does not close, the post is likely not plumb. Re-check the post using a level and ensure it is plumb. Re-check for proper operation of the gate.
- Position the second post and loosely install bolts.
- Using a level, adjust the post side to side and fore/aft position using shims.
- Once the post is plumb, measure the post to post distance as per installation drawings and adjust the post in or out as needed to the distance specified.
- Tighten bolts and re-check to ensure post is to specified distance and is plumb.
- Check for proper operation of gate, install plate covers.

4.7.0 Layout & Installation

Follow the steps provided in this section to layout and install the gate. The references made in this section refer to the components shown in the diagram below (**FIGURE 4.7.0.A**).

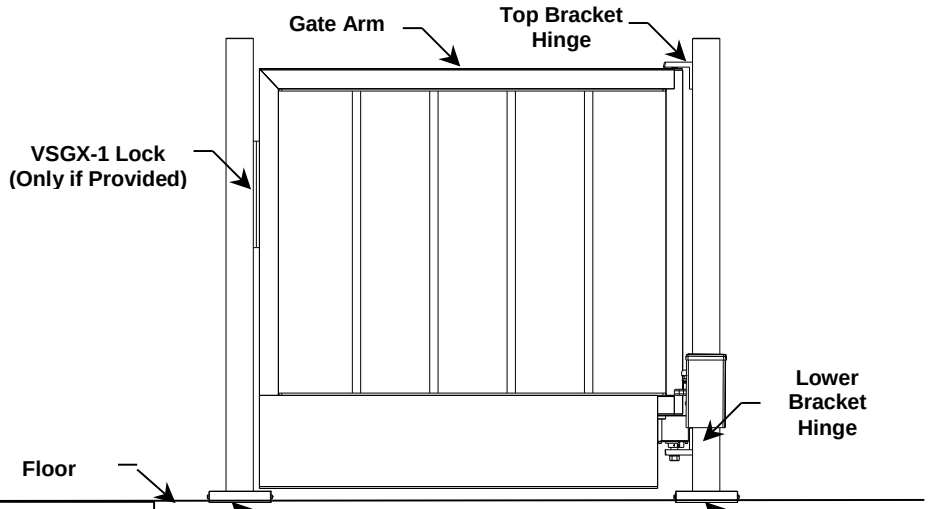


FIGURE 4.7.0.A
Single Direction Gates, VSG-1 or VSGX-1

WARNING

- Use only skilled individuals to install and service the gate.
- Do not modify or alter the gate.
- Do not use non-Alvarado parts.
- The gate is designed for indoor use only. Do not expose the gate to outside weather conditions. Weather conditions may damage the unit and it's physical appearance.
- Both posts must be plumb, level to each other, and square to the gate. This will ensure peak performance.

1. Determine the location where the gate will be installed taking into consideration the minimum width opening required (See the "*Plan & Elevation View*" drawings for the minimum installation requirements). Once the installation location and direction of swing has been determined, snap a chalk line on the floor to mark the centerline of the gate. The chalked centerline should be at least 4 feet in length (**See Figure 4.7.0.C below**).

2. Mark the locations (perpendicular to the gate centerline) for the **Hinge Post** and **Latch Post** centerlines.

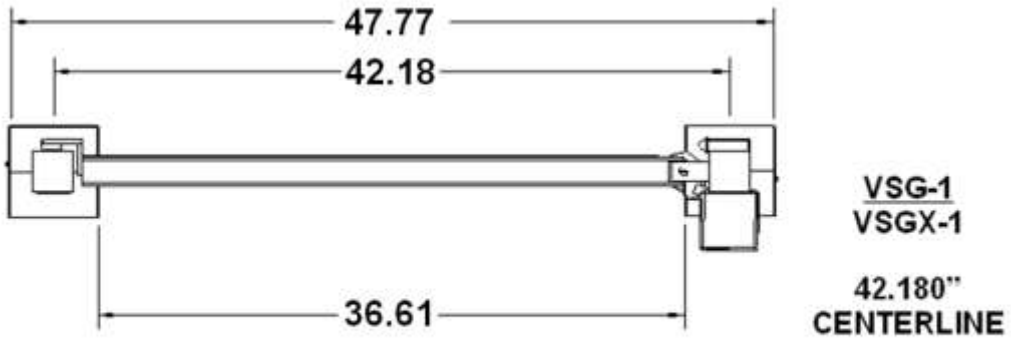


FIGURE 4.7.0.C
Marking the Centerlines of the VSG/VSGX Gate.

NOTE

- Determine the VSG Model that will be installed, the direction of operation, and the conduit runs for power (if the gate is electrical).
- Determine if the gate requires an electrical activation signal. If so, provide necessary conduit runs and review the wiring diagrams (depending on activation type).
- Note the installation steps for your particular VSG/VSGX Gate Model.

WARNING

- Final dimensions may vary depending on the locking mechanism used. Position the gate components in the location they will be installed to determine the proper centerline locations.
- For electrically locked gates (VSGX Models) only, cabling will need to be run to the gate **Latch Post**. The power cable conduit should terminate flush with the floor at the intersection of the gate and **Latch Post** centerlines.

3. Center the **Hinge Post** at the intersection of the gate and **Hinge Post** centerlines.

4. Center the **Latch Post** at the intersection of the gate and **Latch Post** centerlines.

5. With the **Gate Arm** in it's neutral position (home position), ensure that the entire unit: **Hinge Post**, **Gate Arm**, and **Latch Post** are parallel to the gate centerline. Both posts must be plumb, level to each other, and square to the gate. This will ensure peak performance. Also verify proper alignment of the locking mechanism.

6. Mark the center locations of the four anchor holes for each post (**Hinge Post** & **Latch Post**). Move the posts to the side and drill a 5/8" diameter hole at the center of each marked location. Drill each hole 3" deep (a total of eight holes). For terrazzo, ceramic tile, or brick veneer installations, add the thickness of the finished floor material to the anchor hole depth. See **FIGURE 4.7.0.D**.



FIGURE 4.7.0.D – Anchoring the Hinge Post & Latch Post.

7. Vacuum out the holes thoroughly. If the holes are not clean, the anchors will not tighten.

8. Insert the anchors with the thread side down. One anchor for each drilled hole. Ensure that the anchors are flush with the concrete floor.

STOP

For Electrical Gates (**VSGX)** only, review and follow the **"Electrical & Activation Wiring Instructions**" before proceeding. Do not proceed further until the electrical conduits are properly run to the posts and securely connected.

9. Place the **Hinge Post** back over the anchor holes. Anchor the **Hinge Post** with (4) each 3/8 – 16 x 2 ½" HHCS bolts and flat washers. Make sure that the installation is level. Do not tighten the bolts completely.

10. Place the **Latch Post** back over the anchor holes. Anchor the **Latch Post** with (4) each 3/8 - 16 x 2 ½" HHCS bolts and flat washers. Make sure that the installation is level. Do not tighten the bolts completely.

11. Confirm that the **Gate Arm** is properly aligned with the **Latch Post** when the **Gate Arm** is in the closed position by ensuring that the **Gate Arm**, **Hinge Post**, **Latch Post** are installed plumb with the floor while level and square to each other.



WARNING

For safety and operation of the gate, it's extremely important that the **Hinge Post**, **Gate Arm**, and **Latch Post** be level. Use a level to verify that the **Hinge Post**, **Gate Arm**, and **Latch Post** are level horizontally with the floor and vertically level with each other. The **Gate Arm** and **Latch Post** must be at a 90-degree angle.

12. Adjust and shim the post as required to properly align the gate. It is important that the posts be plumb and level with the floor for the gate arm to self-close and center properly. The gate arm and latch post must be at a 90-degree angle.

13. Tighten all of the anchoring bolts (8 bolts total) to **20** **ft-lbs**.

14. Install the (2) halves of the **Split Base Cover** around the **Hinge Post Base Plate** using supplied 8 -32 x ¼ screws and secure it by tapping down with a rubber mallet over the hinge post base.

15. Install the (2) halves of the **Split Base Cover** around the **Latch Post Base Plate** and secure it by tapping down lightly with a rubber mallet over the latch post base.



NOTE

- For all gates, ensure that all anchoring bolts are tighten to 20 ft-lbs.
- For all gates, ensure the **Gate Arm** and **Latch Post** is at a 90-degree angle.
- For all gates, both posts must be plumb, level to each other, and square to **the Gate Arm**. This will ensure peak performance.

16. This completes the installation process.

4.8.0 Electrical Activation & Wiring Instructions

Electrical **VSG Gates**, such as the **VSGX-1** must be connected to a low voltage power source in order to operate. The following instructions will detail the steps to setup an electrical connection for the electrical fail-safe locking gates. Additional information provided will also detail the steps of connecting a remote activation switch or wiring to a **Panic Bar Option**.



WARNING

- Use only skilled individuals to install and service the gate.
- Ensure that the unit is completely powered off and all voltage sources are disabled.
- Verify that the proper power supply of 12 VDC is supplied before beginning.

4.8.1 Wiring Instruction at the Gate Location

1. Before making any wiring connections verify that the proper power supplied is delivered:

   - For Single Directional Gates, Part Number: 10-1079 provides 1 A at 12 VDC.

2. Now, make sure that the primary power to the unit is off.

3. Wires from the **Power Supply** must be connected to the fail-safe electrical lock, located on the **Latch Post**. Run the wires up to the **Latch Post** locations. To do this, pull 18 AWG cable through the conduit from the transformer power supply such that the low voltage 12 VDC is terminated at the electrical fail-safe lock on the **VSGX** gate **Latch Post**. Ensure that the cable length is sufficient to reach the wires from the lock.

- Cable lengths should not exceed 50 feet.
- Cables must never be wrapped in coils. This produces interference in signal activation (VSGX Models ONLY).

NOTE

4. Locate the "*Electrical Lock Wiring Diagrams*" in this manual if connecting the Fail-Safe electrical magnetic lock on the VSGX-1 Model to a switch box. This switch box contains a "***Momentary Normally Closed Switch***" that is required for a proper activation signal.

5. On the gate side of the conduit, install crimp connector receptacles on the conduit wire leads to properly receive the connectors provided on the lock leads coming out of the bottom of the gate **Latch Post**.

6. On the gate side of the conduit, connect the POSITIVE (+) ORANGE/COLORED wire coming out of the bottom of the gate **Latch Post** to the POSITIVE (+) conduit lead wire. Connect the NEGATIVE (-) BLACK wire coming out of the bottom of the gate latch post to the NEGATIVE (-) conduit lead wire (**SEE FIGURE 4.8.1**).

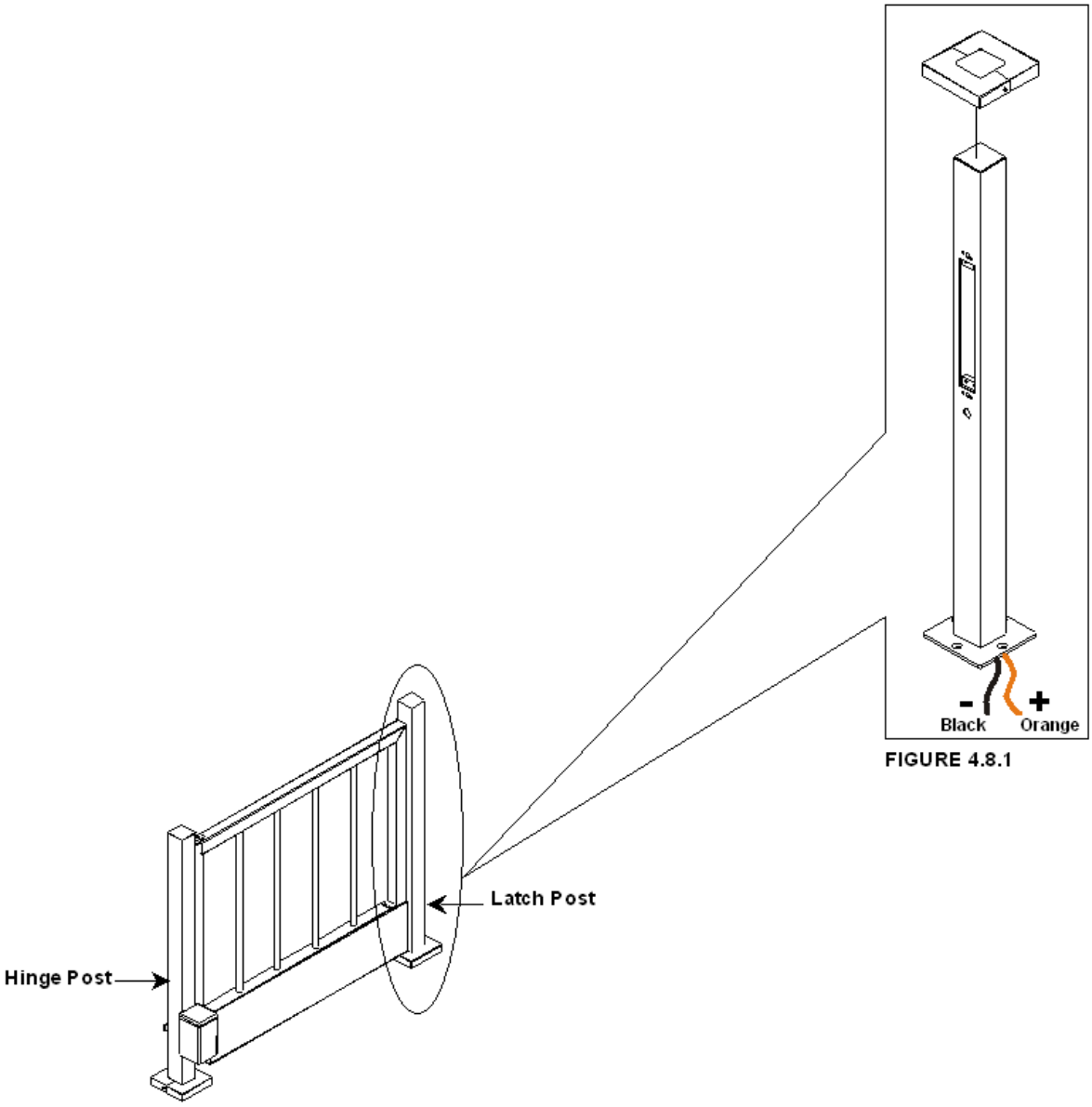


FIGURE 4.8.1

4.8.2 Wiring Instruction at the Control Location

1. On the power supply and switch side of the conduit, install crimp connector plugs on the conduit wire leads to properly connect to the switch and the power supply.

2. Again, on the power supply and switch side of the conduit, connect the POSITIVE (+) conduit lead wire to the COMMON terminal on the 12 VDC gate activation switch that will be used. Connect the NEGATIVE (-) conduit lead wire to the NEGATIVE (-) power supply wire. Connect the POSITIVE (+) power supply wire to the 12 VDC gate activation switch (**SEE FIGURE 4.8.5.A**. on page 21) Use a MOMENTARY NORMALLY CLOSED switch for the FAIL-SAFE electric lock.

4.8.3 Instructions for Testing the Electrical Gate

1. Plug the power supply into a 110 VAC power source. The electrical locking gate will be locked when power is applied. Confirm that this is true.

2. Unplug the power supply. The electrical locking gate will be unlocked upon the loss of power. Confirm that this is true.

3. Plug the power supply back into the power source. The gate should re-lock as long as the switch is activated. Press the gate activation button (momentary normally closed switch). If the gate is functioning correctly the lock will release and the gate will unlock.

4. Open the gate arm. If the gate is functioning correctly the gate arm will self close and automatically re-lock after the gate arm closes and centers on the latch post.



NOTE

- Use a MOMENTARY NORMALLY CLOSED SWITCH to activate the fail-safe electrical magnetic lock.

4.8.4 Lock Specifications

Specifications:

VSGX-1 (Magnetic Lock)	
Part Number:	10-3135
Voltage:	+12 VDC
Current:	1 A @ 12 VDC
Operating Temp:	-40 to +140 F
Shear Holding Force:	~300 lbs. (273 kg)

Details:

Wire Lead	**Description**
ORANGE/COLORED	+12 VDC Input
BLACK	Ground

This Magnetic Lock only operates in Fail-Safe Mode. When powered, use a "***Momentary Normally Closed Switch***" to release the lock. The gate will re-lock after the gate arm closes and centers on the latch post and aligns with the stop tab (VSGX).

4.8.5 Electrical Lock Wiring Diagrams

The Fail-Safe lock is determined by the switch mechanism used to trigger the lock on the VSGX Electrical Locking Waist High Gate. A Momentary Normally Closed Switch is configured for Fail-Safe operation. Details are shown below:

Fail-Safe Wiring Diagram (Single Direction Gate / VSGX-1):

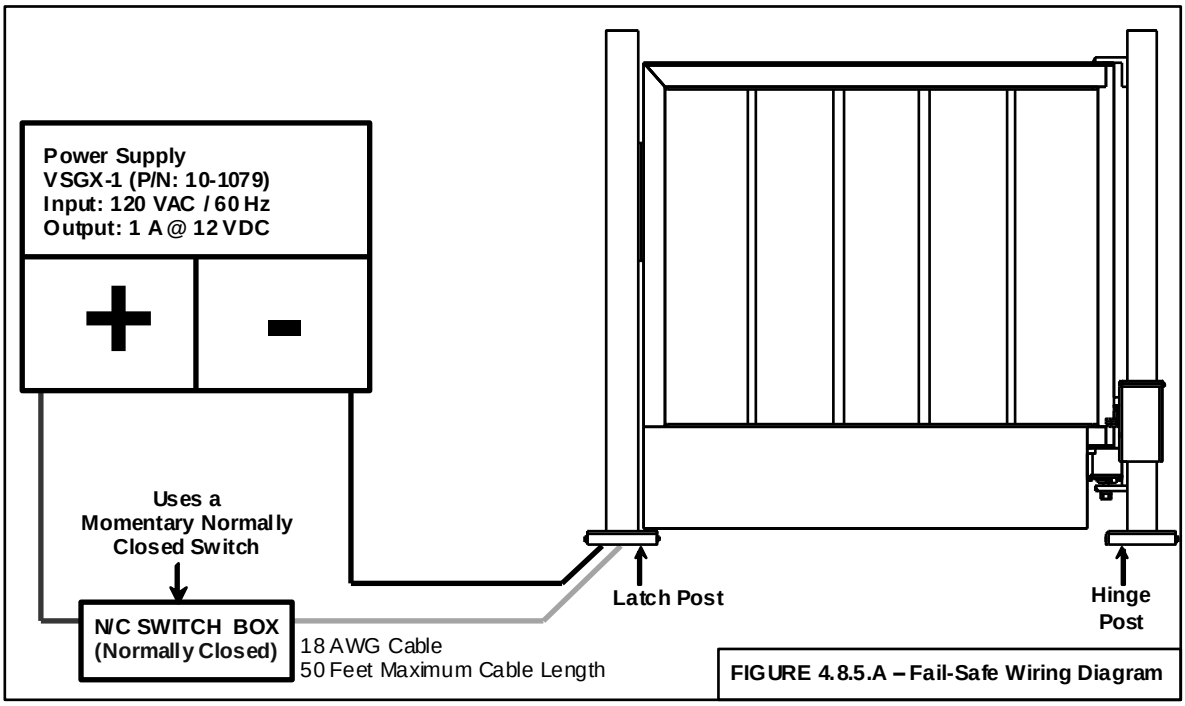


FIGURE 4.8.5.A – Fail-Safe Wiring Diagram

Fail-Safe Wiring Diagram with Optional Push Bar (Single Direction Gate / VSGX-1):

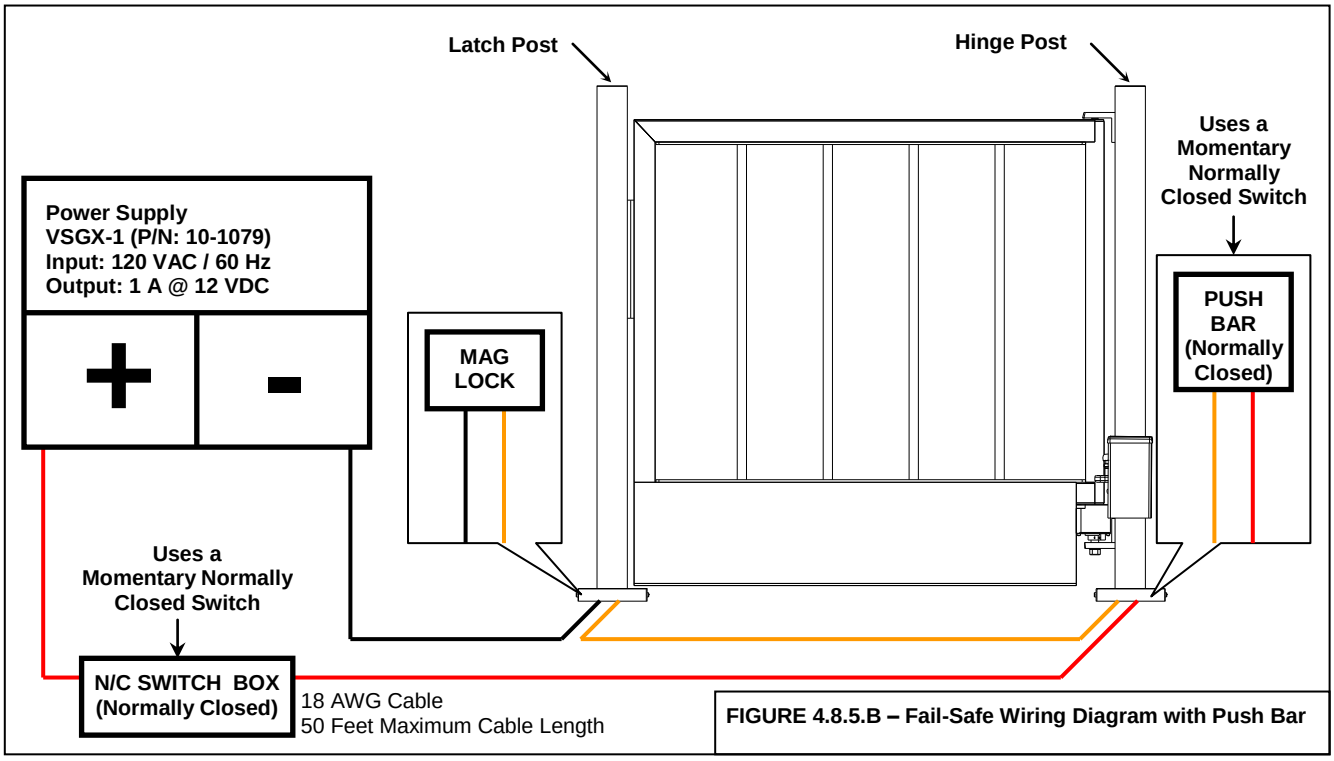


FIGURE 4.8.5.B – Fail-Safe Wiring Diagram with Push Bar

A momentary normally closed switch is used to trigger the lock on the VSGX. Two or more of these may be connected in series; such as in the case for connecting the optional **Push Bar** (**Panic Egress Bar**). During installation, ensure that proper conduits are created to connect the two momentary normally closed switches in series. Conduits must be brought up to both **Latch Post** and **Hinge Post**. Verify that this is completed before securely installing the gates.

ONLY for gates with the **Push Bar** option, connect the switches as shown in **FIGIRE 4.8.5.B**. Test the unit to ensure that **Push Bar** operates by following the instructions provided in **SECTION 4.8.6**.

4.8.6 Instructions for Testing the Electrical Gate with Optional Push Bar

1. Plug the power supply into a power source. The electrical locking gate will be locked when power is applied. Confirm that this is true.

2. Unplug the power supply. The electrical locking gate will be unlocked upon the loss of power. Confirm that this is true. Plug the power supply back into the power source. The gate should re-lock. Press the gate activation button (momentary normally closed switch). If the gate is functioning correctly the lock will release and the gate will unlock.

3. Open the gate arm. If the gate is functioning correctly the gate arm will self close and automatically re-lock after the gate arm closes and centers on the latch post.

4. Press the **Push Bar** (**Panic Egress Bar**). If the gate is functioning correctly the lock will release and the gate will unlock. Open the gate arm. If the gate is functioning correctly the gate arm will self close and automatically re-lock after the gate arm closes and centers on the latch position.



NOTE

- Use a MOMENTARY NORMALLY CLOSED SWITCH to activate the fail-safe electrical magnetic lock.

APPENDIX A – TROUBLESHOOTING

Use **Appendix A** as a guide for troubleshooting the gate.

A.1.0 Symptoms, Possible Causes, & Solutions

Items to check first:

- Check the gate for levelness and proper gate tension. Ensure the area is clear to operate properly.
- Check the wiring of the gate for any loose or bad connections (VSGX Models – Electrical Models).
- Perform a routine maintenance inspection by checking the "*Maintenance Points*" under the "*Maintenance Section*" to pinpoint possible causes of error.

Symptom(s)	Possible Cause(s)	Solution(s)
Gate does not unlock.	The **VSGX** Gate is not receiving an activation signal from the gate activation switch.	Ensure that the gate activation switch is properly connected to the gate activation leads. Test the wires by doing a connectivity test. Also ensure that nothing is interfering with the wires to the activation switch. Ensure that the activation switch is fully functional.
	The **VSGX** Gate lock is sticking or binding in the locked position.	Check the gate arm and latch post for level installation. Readjust or reposition the posts for correct operation. Instructions are provided in this manual under the section titled, "Layout & Installation." Also ensure that the area is clear enough for proper operation.
	The **VSGX** Gate lock surfaces are obstructed or damaged.	Check the lock surfaces on the arm and the latch post for debris. Remove the debris if present and maintain the area to prevent future mishaps. Also check the lock surfaces for damage and replace the components if necessary.
	The **VSGX** Gate lock mechanism is defective.	Test the lock mechanism. Ensure that the mechanism is connected to the correct voltage for normal operation. Ensure that the connection to the activation switch is clear and functioning. Replace the lock mechanism if necessary.
	The **VSGX** Gate activation switch is broken.	Test and replace the gate activation switch if necessary. Also ensure that the proper switch is used and is working correctly. A momentary normally closed switch is required to activate the gate and the electrical magnetic lock must be powered on to proper activation. Pressing the switch stops the flow of electricity.

Symptom(s)	Possible Cause(s)	Solution(s)
Gate does not re-lock.	The **VSGX** Gate is not powered on. For **Fail-Safe** Models ONLY.	Check and measure the power supply for the proper power source. The source needs to be 120 VAC power source and the output voltage of the transformer needs to be ~12 VDC to operate in the United States. If the unit is in a country where the power source differs, ensure that the proper transformer is provided to match the power source.
	The **VSGX** Gate is constantly receiving an activation signal from the gate activation switch.	Ensure that the gate activation switch is properly connected to the gate activation leads. Test the wires by doing a connectivity test. Also ensure that nothing is interfering with the wires to the activation switch. Ensure that the activation switch is fully functional. The switch must be a momentary normally closed switch.
	The **VSGX** Gate lock is not aligned in the locked position.	Check the gate arm and latch post for level installation. Readjust or reposition the posts for correct operation. Instructions are provided in this manual under the section titled, “Layout & Installation.” Also ensure that the area is clear enough for proper operation.
	The **VSGX** Gate lock surfaces are obstructed or damaged.	Check the lock surfaces on the arm and the latch post for debris. Remove the debris if present and maintain the area to prevent future mishaps. Also check the lock surfaces for damage and replace the components if necessary.
	The **VSGX** Gate lock mechanism is defective.	Test the lock mechanism. Ensure that the mechanism is connected to the correct voltage for normal operation. Ensure that the connection to the activation switch is clear and functioning. Replace the lock mechanism if necessary.
	The **VSGX** Gate activation switch is broken.	Test and replace the gate activation switch if necessary. Also ensure that the proper switch is used and is working correctly. A normally open switch is one that normally prevents current flow and which allows current to flow when it is perturbed. Such a switch requires a constant intervention in order to keep it close. A normally closed switch, thus, is one that is spring-loaded and conducts electricity when it is not being pressed. Pressing the switch stops the flow of electricity.

Symptom(s)	Possible Cause(s)	Solution(s)
The gate does not self close and fails to return to the center (home) position.	The **VSG/VSGX** Gate is not properly lubricated.	Clean and lubricate the top bracket hinge point and lower pivot spring hinge point as described in the "Maintenance" section of this manual.
	The **VSG/VSGX** Gate is not level.	Check the gate arm and latch post for level installation. Readjust or reposition the posts for correct operation. Instructions are provided in this manual under the section titled, "Layout & Installation." Also ensure that the area is clear enough for proper operation.
	The gate arm bearing is loose, obstructed, or damaged.	Check the top bracket hinge and lower pivot spring hinge point for debris. Remove the debris if present and maintain the area to prevent future mishaps.

APPENDIX B – MAINTENANCE

Inspect the installed gates approximately 1 to 2 weeks after the initial installation. Inspect the installed gates again after 60 days. Thereafter, the frequency of maintenance will depend on usage and the environment. We suggest inspecting the gate at least once a year minimum. Maintenance should be performed more frequently in high use applications and/or in dusty or humid environments. Periodically check the anchor bolts for tightness. Exterior cleaning should be performed as necessary.

NOTE Setting up a maintenance schedule along with proper maintenance will ensure maximum performance and long service life of the gate. In addition, proper cleaning is required to achieve maximum corrosion resistance and aesthetic appeal.

B.1.0 Maintenance Points

Verify the maintenance points listed in this section to ensure proper operation of the gate.

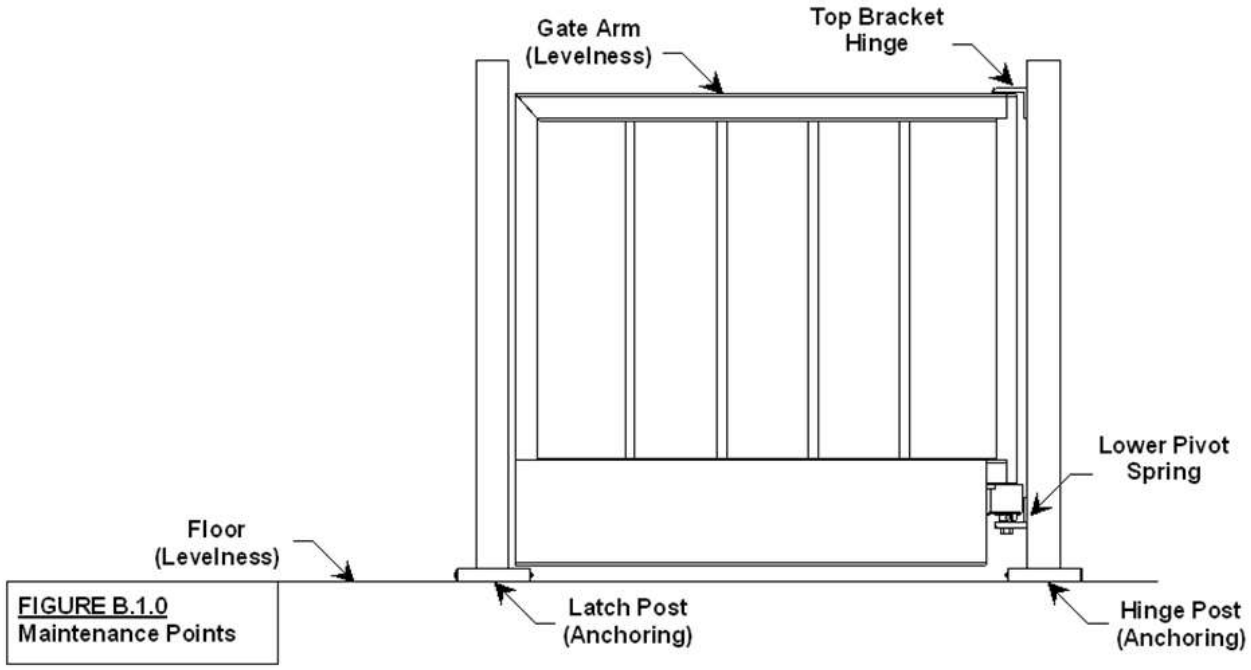


FIGURE B.1.0
Maintenance Points

B.1.1 Anchor Tension

Remove the base covers and check gate levelness and the tension of the anchors. Tighten to approximately 20 ft-lbs. clean accumulated dust and dirt away. Ensure the hinge post, gate arm, and latch post are vertically level and horizontally level to the floor. Ensure the gate arm and latch post is at a 90-degree angle.

B.1.2 Wiring Inspection

Inspect all wires and contacts for any signs of wear, abrasions, or exposure to any metal parts that may lead to a short (VSGX Models ONLY).

B.1.3 Pivot Points

Check the top bracket hinge and lower pivot spring hinge point for debris. Remove the debris if present and maintain the area to prevent future mishaps.

Check and tighten top bracket bolt for flushness to hinge bracket. Check and tighten lower pivot bracket to 30 Ft-Lbs.

B.1.4 Lock Alignment

Verify that the electric lock mechanism is aligned properly such that the gate arm re-locks automatically when it centers on the latch post. Make adjustments if necessary (VSGX Models ONLY).

B.1.5 Exterior Care

Inspect the physical appearance of the gate and note if any cosmetic repairs are needed. Gate surfaces made of Stainless Steel with a #4 Satin Finish are selected for their corrosion resistance, strength, and aesthetic appeal. However, these gates cannot be assumed to be completely maintenance free; especially since surface deposits will stain and discolor these materials. Scratches and dents through the finish may lead to rusting in Stainless Steel as well as other external components on the gate. In order to achieve maximum corrosion resistance and aesthetic appeal, the surfaces of the gates must be kept clean by following a simple routine cleaning schedule along with regular maintenance. This will ensure maximum performance and long service life of the gate. For cleaning, see **APPENDIX C**.

APPENDIX C – CLEANING

C.1.0 Primary Finishes: Stainless Steel #4 Satin Finish

Stainless Steel surfaces may be cleaned using any commercially available polish or cleaner. If a heavier scratch or mark is apparent, a metal blend and finish pad (3M or equivalent) may be used on satin finish materials only. A quality automotive wax may be used to buff the gate after cleaning. Avoid using abrasive cleaning materials; a soft cleaning cloth is preferred.



NOTE

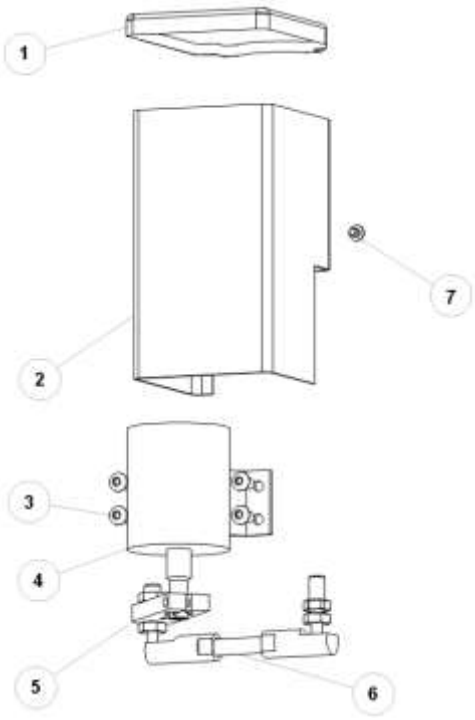
Strong acid solutions should always be avoided when cleaning Stainless Steel finishes.

C.2.0 External Component Finishes

Besides the primary finishes on the gate, other external components are also exposed to the environment. These components are the pivot spring, top hinge bracket, and areas on the electric locking unit (for VSGX Models ONLY). The surfaces of the pivot spring unit and top bracket are made of a Dull Chrome Finish. The electric lock surface also contains Nickel and must be routinely inspected and maintained to prevent rust. This issue will be exaggerated in continuous wet or humid conditions. Chrome & Zinc are extremely durable and provides outstanding anti-corrosion performance for steel, yet zinc is a relatively reactive metal and is prone to rust. The primary way to prevent rust is to keep air and water off the metal surface. Applying a protective coating on the surfaces with specific spray on products, wax, or grease can prevent rust. Common products available are Automotive Paste Wax, Rustlick 631, CRC SP-350/400, BOESHIELD T-9, and Rust-X.

APPENDIX D – PARTS LIST

This is a list of replacement parts for the VSG/VSGX at the printing of this manual.



D.1.0 VSG/VSGX Parts List

The following *Parts List* for the VSG/VSGX is listed in **TABLE D.1.0** below. This is not a complete list of every single component, but rather a common list of components for ordering replacement parts. Remember, use only skilled individuals to install and service the gate.

WARNING

- Use only skilled individuals to install and service the gate.
- Have the unit repaired or adjusted by a skilled service person before use.
- Do not use non-Alvarado parts.

TABLE D.1.0 – VSG / VSGX Parts List

Item	Part Number	Description	Quantity Used Per Gate
1.	06-5557	VSG-1/VSGX-1 – Closure Lid	1
2.	04-9717	VSG-1/VSGX-1 – VSG Closure Housing	1
3.	91-1164	VSG-1/VSGX-1 – Button Head Screw ¼-20 x ½	4
4.	11-9060	VSG-1/VSGX-1 – Hydraulic Closure Unit	1
5.	06-5561	VSG-1/VSGX-1 – Closure Decelerating Arm	1
6.	50-Gate-LK	Ball Joint Linkage Kit	1
7.	91-1106	VSG-1/VSGX-1 – Button Head Screw 10-32 x ¼	2
8.	05-4350	VSG/VSGX Slit Cover *(Not Shown)*	2
9.	10-1079	VSGX-1, Power Supply, 1 A @ 12 VDC *(Not Shown)*	1
10.	10-3135	VSGX-1, Magnetic Lock *(Not Shown)*	1

PUD2996, VSG / VSGX



Installation & Maintenance Guide