MAINTENANCE MANUAL

RSS-2000 SERIES

ELECTRIC WEDGE VEHICLE BARRIER

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1 GENERAL

The RSS-2000 is an all-electric wedge-type vehicle barrier that is K-12 certified by the Department of State (tested to stop a 15,000 lb. vehicle traveling at 50 MPH). The RSS-2000's normal operating speed of less than 3 seconds and it's Emergency Fast Operation (EFO) speed of less than 1.5 seconds allows the RSS-2000 to be used for both Access Control and Final Denial Operations. The RSS-2000 has a diamond plate anti-skid drive surface that flush mounts with the roadway. All barrier systems are fully tested, operational, and ready to install when shipped from the factory. The simple design of the RSS-2000 requires almost no maintenance even in high traffic applications.

1.1 Purpose

This manual provides information on the maintenance of the RSS-2000 Electric Wedge Vehicle Barrier and is designed to assist Maintenance personnel servicing the barriers.

1.2 Limited Warranty

RSSI Barriers, LLC. warranties the RSS-2000 Series of Barriers (RSS-2000NC, RSS-2000, RSS-2000V, RSS-2000VI) to be free of defects in workmanship and materials for a period of **2 years for electrical and mechanical components – PARTS ONLY**. Warranty will begin from the date of shipment from the factory or if installed by RSSI Barriers, LLC. from the date of installation unless otherwise noted on the bottom of this form.

RSSI Barriers, LLC. reserves the right of final determination as to the existence and causes of any defect or failure. Any part or parts found to be defective and can be returned to RSSI Barriers, LLC. within the warranty period, and shall at our option be repaired or replaced free of charge F.O.B. the factory.

The warranty will not apply to the following circumstances that are beyond our control. Misuse, vandalism, accident, neglect, unauthorized repairs or modifications, acts of God (lightning, floods, insect damage, etc...), power surges, incorrect installation, or application.

The warranty set forth above is entirely exclusive and no other warranty whether written or oral, is expressed or implied. RSSI Barriers, LLC. specifically disclaims any and all implied warranties, merchantability or fitness for a particular purpose. It is the purchaser's sole and exclusive responsibility to determine whether or not the equipment will be suitable for a particular purpose. In no event shall RSSI Barriers, LLC. be held liable for direct, indirect, incidental, special, consequential damages or loss of profits whether based on contract, tort, or any other legal theory during the course of the warranty or at any time thereafter. The end user agrees to assume all responsibility for all liability involving the use of this product, releasing Robotic Security Systems, Inc. of all liability.

All RSSI barriers require minimal maintenance; however, there are some tasks that need to be performed after the barrier is installed to insure compliance with the warranty provided. When the RSSI barrier is installed and not accepted by the end user until a later date, the quarterly preventive maintenance tasks located in Attachment 1 of the Operator's Manual must be accomplished until acceptance by the end user. Likewise, after acceptance the end user is required to conduct these quarterly preventive maintenance tasks to ensure the warranty is valid.

IN ORDER TO USE THE VEHICLE BARRIER, YOU MUST UNDERSTAND AND BE IN FULL UNCONDITIONAL AGREEMENT WITH ALL STIPULATIONS OUTLINED ABOVE. IF YOU ARE NOT IN FULL AGREEMENT, DO NOT PUT UNIT INTO OPERATION. PLACING THE VEHICLE BARRIER INTO OPERATION WILL BE CONFIRMATION THAT YOU ARE IN FULL UNCONDITIONAL AGREEMENT WITH ALL OF THE ABOVE.

1.3 Safety Summary

1.3.1 General Safety Instructions

This manual describes physical operation and maintenance procedures. Please NOTE the procedures may cause injury or death to personnel, or damage to equipment if NOT properly followed. Prior to performing any task, the WARNINGS, CAUTIONS, and NOTES included in that task shall be reviewed and understood.

1.3.1.1 Warnings, Cautions and Notes

WARNINGS and CAUTIONS are used in this manual to highlight operating or maintenance procedures, practices, conditions or statements that are considered essential to protection of personnel (WARNING) or equipment (CAUTION). WARNINGS and CAUTIONS immediately precede the step or procedure to which they apply. WARNINGS and CAUTIONS consist of three parts: heading (WARNING, CAUTION, or NOTE); a statement of the hazard; minimum precautions and possible result if disregarded. NOTES are used in this manual to highlight operating or maintenance procedures, practices, conditions or statements that are not essential to protection of personnel or equipment. NOTES may precede or follow the step or procedure, depending upon the information to which it pertains. The headings used and their definitions are as follows.

WARNING

HIGHLIGHTS AN ESSENTIAL OPERATING OR MAINTENANCE PROCEDURE, PRACTICE, CONDITION, STATEMENT, ETC. WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN INJURY TO, OR DEATH OF, PERSONNEL OR LONG TERM HEALTH HAZARDS.

CAUTION

HIGHLIGHTS AN ESSENTIAL OPERATING OR MAINTENANCE PROCEDURE, PRACTICE, CONDITION, STATEMENT, ETC, WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF, EQUIPMENT OR LOSS OF MISSION EFFECTIVENESS.

NOTE

HIGHLIGHTS AN ESSENTIAL OPERATING OR MAINTENANCE PROCEDURE, CONDITION, OR STATEMENT.

1.3.2 Safety Instructions

Maintenance Personnel **MUST** comply with the following important safety instructions **PRIOR TO** and **DURING** the maintenance or service activities for the RSS-2000 vehicle barrier.

NOTE

- Read and comply with all safety rules in this manual before operating or performing maintenance on the barrier.

CAUTION

- A fully trained maintenance person must perform all maintenance work.
- In the case of an unmanned gate operation, vehicles must remain clear of the barrier during the raising and lowering of the Barrier Post Assembly. Be sure to post signs warning of the barrier operation.

WARNING

- If this unit is placed in a main traffic area, place traffic safety cones and make every attempt to divert or stop traffic before maintenance is started.
- Do not put any objects into openings and keep all obstructions clear of the vicinity of the barrier
- Do not operate this equipment when you are distracted or under the influence of drugs, alcohol or medication causing diminished control.
- Prior to performing maintenance or service activities on the RSS-2000, all electrical connections to the barrier will be isolated (disconnected) IAW local Lock Out Procedures.
- Use special care when removing any inspection plates as these plates are very heavy.
- Never operate this equipment when a vehicle, person or any obstruction is in the way of full operation of the RSS-2000.

1.4 Operator Responsibilities

The owner/user of the RSS-2000 should be aware that they must:

- Not operate the vehicle barrier without receiving prior certification training, including reading this Operator Manual.
- Follow all safety rules, warnings and caution statements outlined in this Operator Manual.
- Retain a copy of the Operator Manual with the vehicle barrier controls.
- Prominently display warning signs on both sides of the vehicle barrier.
- Always be certain that the barrier area is clear of vehicles before operation.
- Discontinue use if the vehicle barrier fails to operate properly.

2 SPECIFICATIONS

2.1 General Specifications

- All barriers consist of a shallow steel vault assembly that is hot dip galvanized with a diamond plate anti-skid top surface and a removable post assembly.
- The removable post assembly height is 35 ½ to 36 inches at deployment.
- Certified by the Department of State K-12 with zero penetration (K-12 - 50 MPH all @ 15,000 lbs) K-12 certification equates to 1,250,000 lbs of energy absorption.

Figure 2-1, RSS-2000VI Electric Wedge Vehicle Barrier (pictured)

2.2 Operating System

- The barrier is operated by a Servo EM Actuator and a Spring Assist Assembly.
- Main Power – The Servo EM motor operates on 120/208-240V single-phase (three-wire) power.
- Operator Console – Barrier System is supplied with a Master Control Panel (MCP) for controlling one or multiple barriers at each gate. (See Section 3.1.1)

- Barrier Control Panel - A barrier control panel (BCP) provides the interface between MCPs and the barriers. The BCP shall contain all control circuits necessary for barrier operation.
- Loss of Commercial Power Operation – The Battery Back-up System (BC) can provide emergency power for 12 hours in the event of primary power loss. Control of the barrier is accomplished through normal operating controls.
- Tamper Switch Alarm Monitor – there is a Alarm Monitor internal to the MCP that displays visual alarms whenever someone opens a BCP or BC. It alerts the security personnel someone has accessed the barrier controls (see section
- Manual Operation – Barriers can be manually operated with a cordless drill fitted with the proper drive. (See section 3.1.8)

WARNING

- **DO NOT USE A IMPACT WRENCH TO OPERATE THE BARRIER MANUALLY; DOING SO WILL SEVERELY DAMAGE THE MANUAL OVERDRIVE MECHANISM AND VOID THE WARRANTY**

3 Emergency Manual Operation

3.1.1.1 Manually Lower Barrier

- Make sure the power is turned off to the Vehicle Barrier.
- Place necessary traffic safety cones to help insure worker safety.

WARNING

Use special care when removing any inspection plates as these plates are heavy and if mishandled can cause bodily injury.

- Using a cordless drill with a T-45 Torx Head bit, remove the bolts from the middle access plate (large one). After all bolts are removed, remove the access plate from the barrier.

Figure 3-8, Remove Access Plates

WARNING

Never place any body parts in the vicinity of the post assembly openings! Position yourself at the back of the barrier (non-threat side) when attempting to manually lower the barrier.

Figure 3-9, Post Assembly Openings

- Tools needed; a 7/8 inch socket, and cordless drill.
- Remove metal cylinder cover from Manual Brake Overdrive**.**
- Then switch to a cordless drill and set the drill on the slowest RPM setting and turn 7/8 nut clockwise to engage the manual drive downward lining up the notches while going down.
- Once notches are lined up and Manual Drive is down, turn locking nut (right below 7/8 nut) clockwise to Lock in Manual Brake Overdrive in place**.**
- Lower the barrier by keeping firm pressure on the drill and operating it on reverse setting (counterclockwise) on the **slowest RPM** setting until it reaches the full down position. DO NOT OVERDRIVE.
- To release Manual Drive slide the slip nut down and turn locking nut out of notches, then turn 7/8 nut counterclockwise to disengage Manual Drive. **DO NOT OPERATE BARRIER UNTIL MANUAL BRAKE OVERDRIVE IS FULLY DISENGAGED.**

WARNING

FAILURE TO FOLLOW THESE PROCEDURES COULD SEVERELY DAMAGE THE BRAKE OVERDRIVE AND INVALIDATE THE WARRANTY

WARNING

DO NOT USE A IMPACT WRENCH TO OPERATE THE BARRIER MANUALLY; DOING SO WILL SEVERELY DAMAGE THE MANUAL OVERDRIVE MECHANISM AND VOID THE WARRANTY

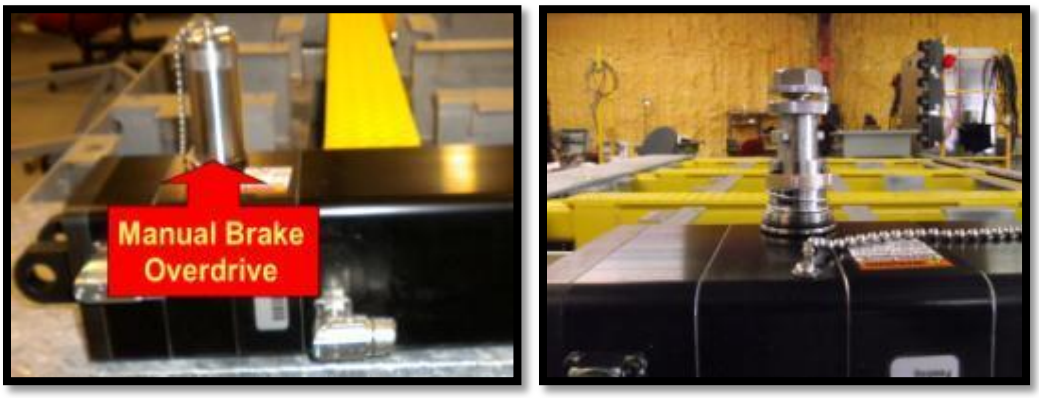

Figure 3-10, Manual Brake Overdrive

- Replace the Access Cover and bolts, remove traffic safety cones, and contact site supervisor.

3.1.1.2 Manually Raise Barrier

- Make sure the power is turned off to the Vehicle Barrier.
- Place necessary traffic safety cones to help insure worker safety.

CAUTION

Use special care when removing any inspection plates as these plates are very heavy and can cause bodily injury.

- Using a cordless drill with a T-45 Torx Head bit, remove the bolts from the middle access plate (large one). After all bolts are removed, remove the access plate from the barrier.

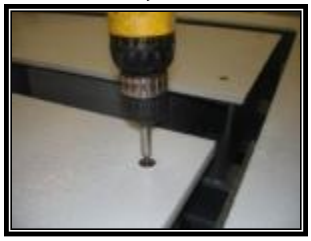


Figure 3-11, Remove Access Plates

WARNING

Never place any body parts in the vicinity of the post assembly openings. Position yourself at the back of the barrier (non-threat side, see picture below) when attempting to manually raise the barrier.


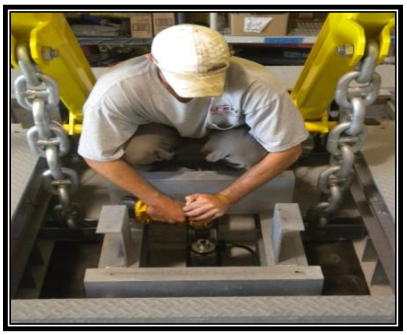

Figure 3-12, Post Assembly Openings

- Tools needed; a 7/8 inch socket, a ratchet, and cordless drill.
- Remove metal cylinder cover from Manual Brake Overdrive**.**
- Then switch to a cordless drill and set the drill on the slowest RPM setting and turn 7/8 nut clockwise to engage the manual drive downward lining up the notches while going downward.
- Once notches are lin**e**d up and Manual Drive is down, turn locking nut (right below 7/8 nut) clockwise to Lock in Manual Brake Overdrive in place**.**
- Raise the barrier by keeping firm pressure on the drill and operating it forward (clockwise) on the **slowest RPM** setting until it reaches the full up position.
- To release Manual Drive slide the slip nut down and turn locking nut out of notches, then turn 7/8 nut counterclockwise to disengage Manual Drive. **DO NOT OPERATE BARRIER UNTIL MANUAL BRAKE OVERDRIVE IS FULLY DISENGAGED.**

WARNING

FAILURE TO FOLLOW THESE PROCEDURES COULD SEVERELY DAMAGE THE BRAKE OVERDRIVE AND INVALIDATE THE WARRANTY

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DO NOT USE A IMPACT WRENCH TO OPERATE THE BARRIER MANUALLY; DOING SO WILL SEVERELY DAMAGE THE MANUAL OVERDRIVE MECHANISM AND VOID THE WARRANTY

Figure 3-13, Manual Brake Overdrive

- Replace the Access Cover and bolts, remove traffic safety cones, and contact site supervisor of problem.

4 MAINTENANCE

The simple design of the RSS-2000 requires almost no maintenance. If you need assistance, contact RSSI's Service Manager at (850) 871-9300 or Toll Free at (866) 249-1029.

4.1 Recommended Preventive Maintenance Inspections

DAILY	MONTHLY	QUARTERLY
Conduct a function check of the barrier to verify it is functioning properly. Once each shift or daily is preferred for Final Denial (Normally DOWN barriers).	Inspect barrier top plate screws to ensure all are tight. Replace or tighten if necessary.	Conduct IAW Preventive Maintenance Checklist at Attachment 1 of this manual.
Visually inspect LED Safety lights on the post assembly for functionality.	Visually inspect inside of barrier vault to determine no debris has built up inside. Remove any built-up debris.	Check all painted parts and touch up as needed.
	Visually inspect inside of barrier vault to determine no water has built up inside. Remove any debris around sump pump.	

Table 4-1, Recommended Preventive Maintenance Inspections

4.2 System Design.

- SYSTEM BLOCK DIAGRAMS. A System Block Diagram is provided in Attachment 2.
- AS-BUILT DRAWINGS. Each job includes As-Built drawings of Barrier Controls showing PLC I/O and interconnect wiring diagrams are shipped inside the Barrier Control Panel.

NOTE

A CD containing Equipment Manuals, Bill of Materials, and AS-Built Drawings is mailed to the Prime Contractor Project Manager.

- If you have any issues or questions, maintenance personnel are highly encouraged to contact RSSI's Service Manager at (850) 871-9300 or Toll Free at (866) 249-1029. Additionally, questions can be forwarded via the RSSI Website: http://www.rssi.com/ click the Contact Us Icon in the upper right hand corner of the Main Page and follow the directions.

4.3 Catastrophic Commercial Power Recovery and Restart Procedures.

- In the event of a Catastrophic Commercial Power outage and the Battery Back-Up System (BBS) has been fully discharged, the procedures in Attachment 3 are required to reset the BBS and return the BBS to operation.
- If you have any issues or questions, maintenance personnel are highly encouraged to contact RSSI's Service Manager at (850) 871-9300 or Toll Free at (866) 249-1029. Additionally, questions can be forwarded via the RSSI Website: http://www.rssi.com/ click the Contact Us Icon in the upper right hand corner of the Main Page and follow the directions.

4.4 Fault Diagnosis and Trouble Shooting Procedures.

- In the event of a failure of the barrier system, the Fault Diagnosis and Troubleshooting Procedures in Attachment 4 will assist maintenance personnel in returning the barrier system to operation.
- If you have any issues or questions, maintenance personnel are highly encouraged to contact RSSI's Service Manager at (850) 871-9300 or Toll Free at (866) 249-1029. Additionally, questions can be forwarded via the RSSI Website: http://www.rssi.com/ click the Contact Us Icon in the upper right hand corner of the Main Page and follow the directions.

4.5 Component Repair Procedures.

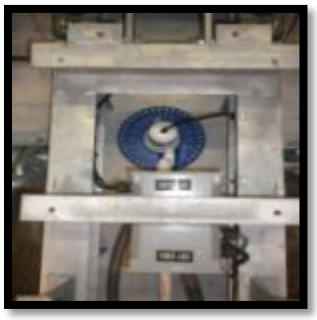
- In the event of a failure of the barrier system, the Fault Diagnosis and Troubleshooting Procedures in Attachment 4 will assist maintenance personnel in returning the barrier system to operation.
- If you have any issues or questions, maintenance personnel are highly encouraged to contact RSSI's Service Manager at (850) 871-9300 or Toll Free at (866) 249-1029. Additionally, questions can be forwarded via the RSSI Website: http://www.rssi.com/ click the Contact Us Icon in the upper right hand corner of the Main Page and follow the directions.
- Training Videos. RSSI has developed several training video's for basic maintenance tasks. The videos can be found on our website: http://www.rssi.com/support/.

Attachment 1– Quarterly Maintenance Checklist

Make copies of this checklist for maintenance activity for each barrier and maintain a copy in the maintenance binder for the Warranty/Historical Record.

Location:	**Unit Model #:RSS-2000**
Unit Serial #:	**Voltage: 120/240 V Single Phase, 30 Amp**
Barrier Cycle Count:	**Date of Maintenance:**
Name of Person Performing Maintenance:	

1. ☐ Turn power on to unit (if necessary) to check for proper voltage.
2. ☐ Place necessary traffic safety cones to insure worker safety.
3. ☐ Check operation of unit. Operate 3 times. Ensure that the post assembly operates smoothly (less than 3 seconds) and the barrier rises to the fully UP position and the barrier lowers to the fully DOWN position flush with barrier top access plates.
4. ☐ Check LED Safety Lights on barrier for proper operation.
5. ☐ Check sump pump and drainage ports (if applicable). Make sure that the drain ports and/or sump pump are clear of debris and the sump pump operates properly. Check sump pump cycle (automatically turns on every 2-3 minutes and shuts off if dry)



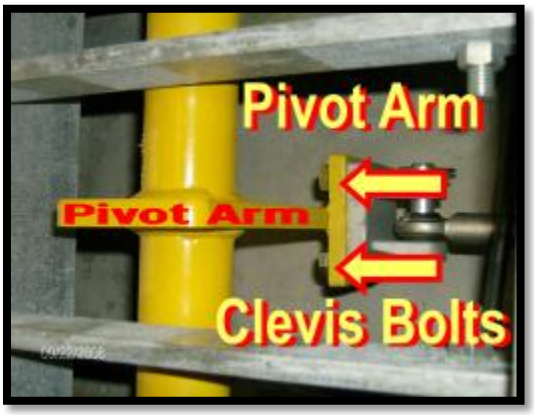

6. ☐ Make sure the Vehicle Barrier is in the open (UP) position and power is turned off.

CAUTION

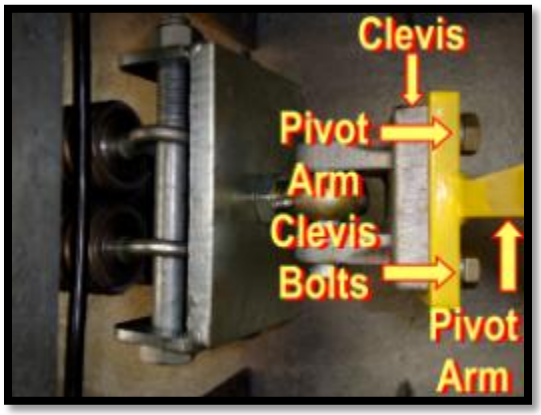
If barrier will be worked on while in UP position, insert support post to prevent barrier from being inadvertently lowered during maintenance.


7. ☐ Remove Access Plates. Using a cordless drill with a T-45 TORX Head Bit, remove the screws from the middle access plate (large one). After all screws are removed move the access plate from the barrier.

8. ☐ Check Actuator & Spring Assembly Pivot Arm Clevis Bracket Bolts. If these connections are not kept tight, it might cause loose motion that could result in excessive wear.

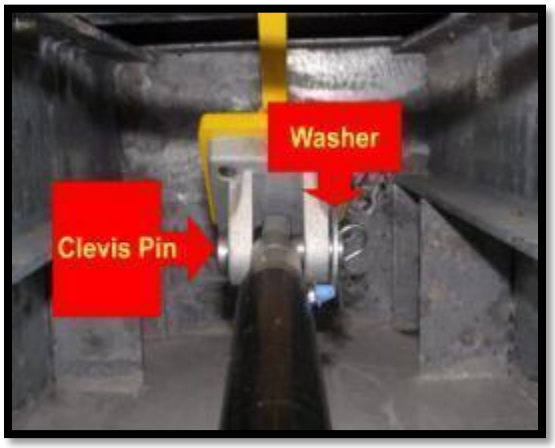


Actuator Pivot Arm

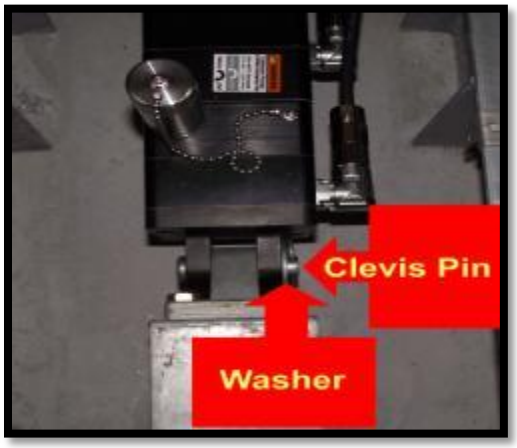


Spring Assembly Pivot Arm

9. ☐ Check Actuator Clevis bolt and nut. Make sure these are tight. A loose fit might cause excessive wear and improper barrier operation.

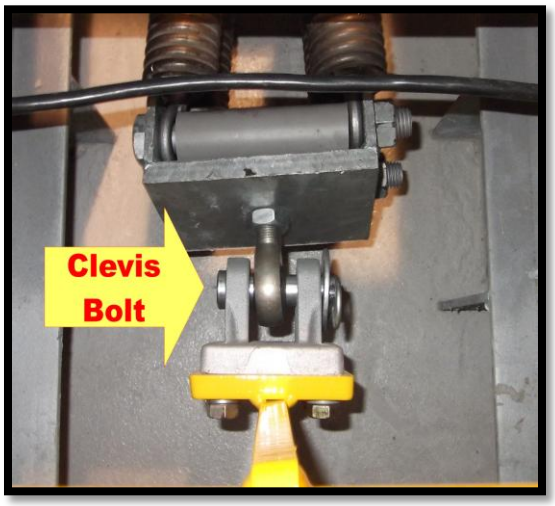


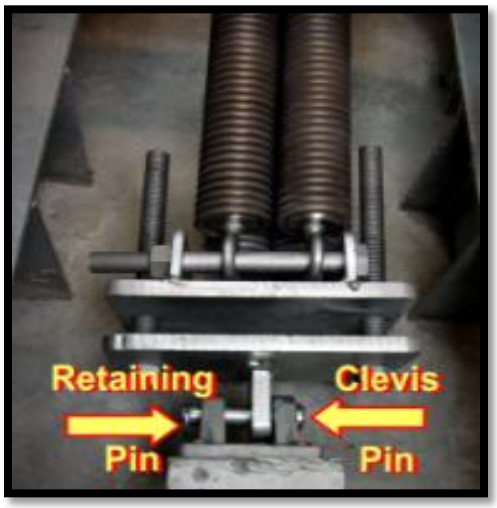
PIVOT TUBE END



MOTOR END

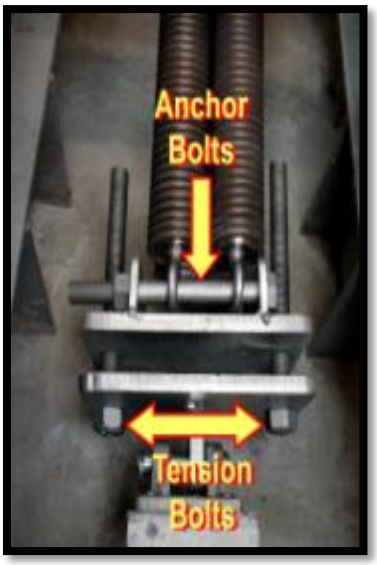
10. ☐ Check Spring Assembly Front Clevis Pin & and Retaining Pin and Pivot Tube end Bolt and Not. Make sure these are tight. A loose fit might cause excessive wear and improper barrier operation.

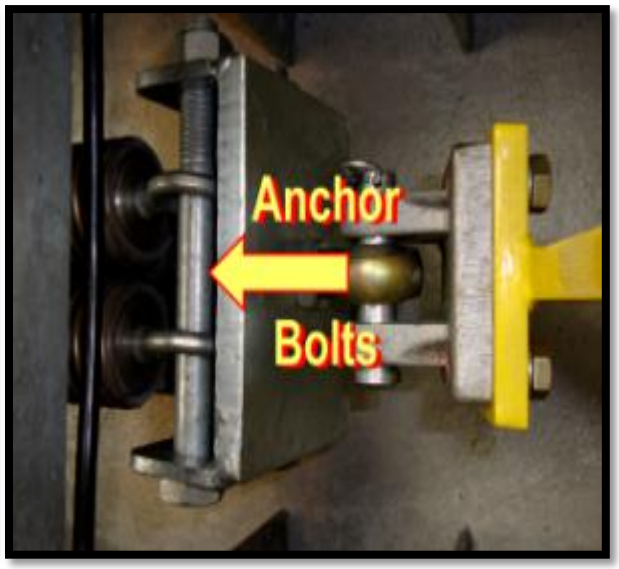




PIVOT TUBE END **FRONT END**

11. ☐ Check Spring Assembly. Make sure springs are not broken. Also, check the anchor bolts to ensure none are loose. A loose fit or broken spring might cause excessive wear and improper barrier operation.





PIVOT TUBE END **FRONT END**

12. ☐ Check Chain Bolts. If these connections are not kept tight, it might cause loose motion that could result in excessive wear. Apply Liquid Wrench, Industrial Chain Lubricant with Moly, PL711 or equal.

13. ☐ Check Split Journal Bearing Bolts. Make sure these are tight. A loose fit might cause excessive wear and improper bollard operation.

14. ☐ Check Post Assembly and touch up paint as needed. Use Enamel paint, Zinc Yellow (Paint # RAL 1018) or equal. Information on the paint can be found at Orbittx.com

15. ☐ Check Chain and touch up paint as needed. Use Rustolium Zinc Rich Primer (Black) or equal.

16 ☐ Check the unit interior for dirt and debris. Remove as necessary.

17. ☐ Replace the Access Cover Plates and screws (Apply Permatex Anti-Seize Lubricant or equal to screws) and remove traffic safety cones.

18. ☐ Report any deficiencies to the on site supervisor, complete this checklist, & maintain a copy in files.

19. ☐ Return barrier to NORMAL Operations.

NOTES:

Attachment 2 – Battery Back-Up System Recovery and Restart Procedures

The Battery Backup System (BC) is designed to automatically switch to battery power when commercial power is lost and to switch back when commercial power is returned. The BC will also fully charge the batteries after an outage. The Shaw AFB design will provide 12 hours of backup power to operate the barriers during the outage (6 each 12 volt batteries). Should the power outage last longer than the battery life, the power inverter will shut down when the batteries go lower than a total of 20VDC.

To Recover When Commercial Power Returns:

1. Reboot the power inverter with small switch on top, check for solid green light.

2. Check battery charger to see if batteries are recharging (should be maxing out at 15 amps).

3. Allow batteries at least 6 hours to charge.

4. Check voltage at bottom of inverter (should be 27-28VDC).

5. After batteries are charged perform a Functional Checkout to test system as specified below.

BC Functional Checkout

1. Turn off CB1 (main power source) Contactor C1 should de-energize and contactor C2 should energize simultaneously.

2. Check voltages at bottom of CB4 – 3L1 to 3L2 = approx. 245VAC (no load)
   3 to Neutral = Approx. 120VAC

3. Turn CB1 back on (main power source).

4. Time delay relay (TDR) will start a 4 second time out.

5. After 4 second delay, contactor C2 will de-energize and contactor C1 will energize simultaneously.

6. Do step 2 again to check correct voltages for commercial power.

7. Check batteries for any corrosion or loose connections (keep batteries and terminals clean and corrosion free for longer life).

Attachment 3 – Component Repair Procedures

1. These procedures will be covered during Operator & Maintenance Training prior to Commissioning of barrier system.

2. Repairs should only be performed by a factory trained technician.

3. Most repairs will be simple (replace Led lights, sump pump, barrier top plate screws) and traditional skill sets (electrical, plumbing, and mechanical) can easily handle these tasks.

4. The key electrical components, Servo Drive, Actuator, PLC, and Communication Systems require specialized software and training and are not included. These items are only to be serviced by RSSI or a RSSI certified technician. This is to ensure the validity of the warranty.

5. Telephone Technical Support is available from the RSSI Service Dept. at 850-871-9300 or 866-249-1029 7am – 5pm, Monday through Friday.

List of Sections

Section 1- Barrier LED Safety Light Replacement

STEP 1 – Place the barrier in MAINT Mode and remove the key.

STEP 2 – Disconnect power according to local lock out procedures.

STEP 3 – Remove screws holding LED in place.

STEP 4 - Remove tape and cut wires on the inside of the water proof butt splices.

Step 5 – Rewire LED Lights, terminate with a waterproof butt splice and tape connection.

Step 6 – After light(s) are replaced restore power and conduct a test to ensure LED Lights are functioning properly.

STEP 7 – Return barrier to default Mode for the affected gate.

Section 2- Traffic Light LED Replacement

Step 1 – Put barrier in MAINT Mode and take key with you.

Step 2 - Turn off the power to the barrier you're working on

Step 3 – Loosen exterior Traffic Lens Cover screws

Step 4 – Open hinged cover to access LED light and interior terminal connections.

Step 5 – Remove wires for LED Light from interior terminal block.

Step 6 – Remove old LED light and replace with new LED light.

Step 7 – Rewire new LED light to interior terminal block.

Step 8 – Close hinged cover and tighten cover screw.

Step 9 - Turn power back on and place barrier in MANUAL Mode to test Traffic Light functionality.

Step 10 - Place barrier in Default Mode.

Section 5- Safety Loop Sensor Replacement

Step 1 – Place the affected barrier in MAINT Mode and remove the key.

Step 2 – Turn off the power to the barrier you're working on using local lockout procedures.

Step 3 - Remove the frequency plug with the wires from the safety loops.

Step 4 - Make note of the sensitivity settings on Safety Loop Sensor.

Step 5 – Disconnect the terminations from the defective Safety Loop Sensor.

6 – Remove safety loop sensor from Din Rail and replace with new one.

Step 7 – Reattach terminations for Safety Loop Sensor and set dip switches for sensitivity.

Step 8 –Replace frequency plug and power the barrier.

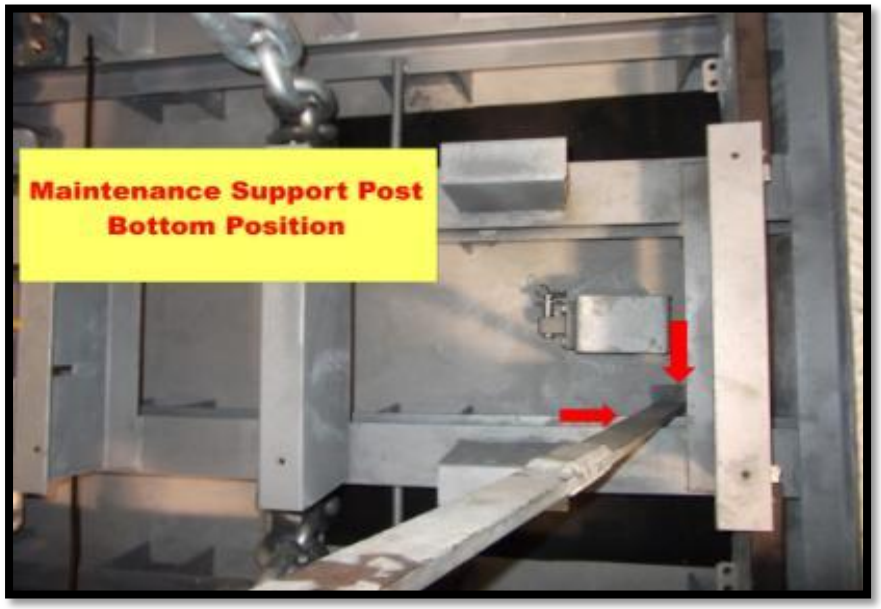
Step 9 – Place barrier in MANUAL Mode and conduct a test of safety loops for functionality.

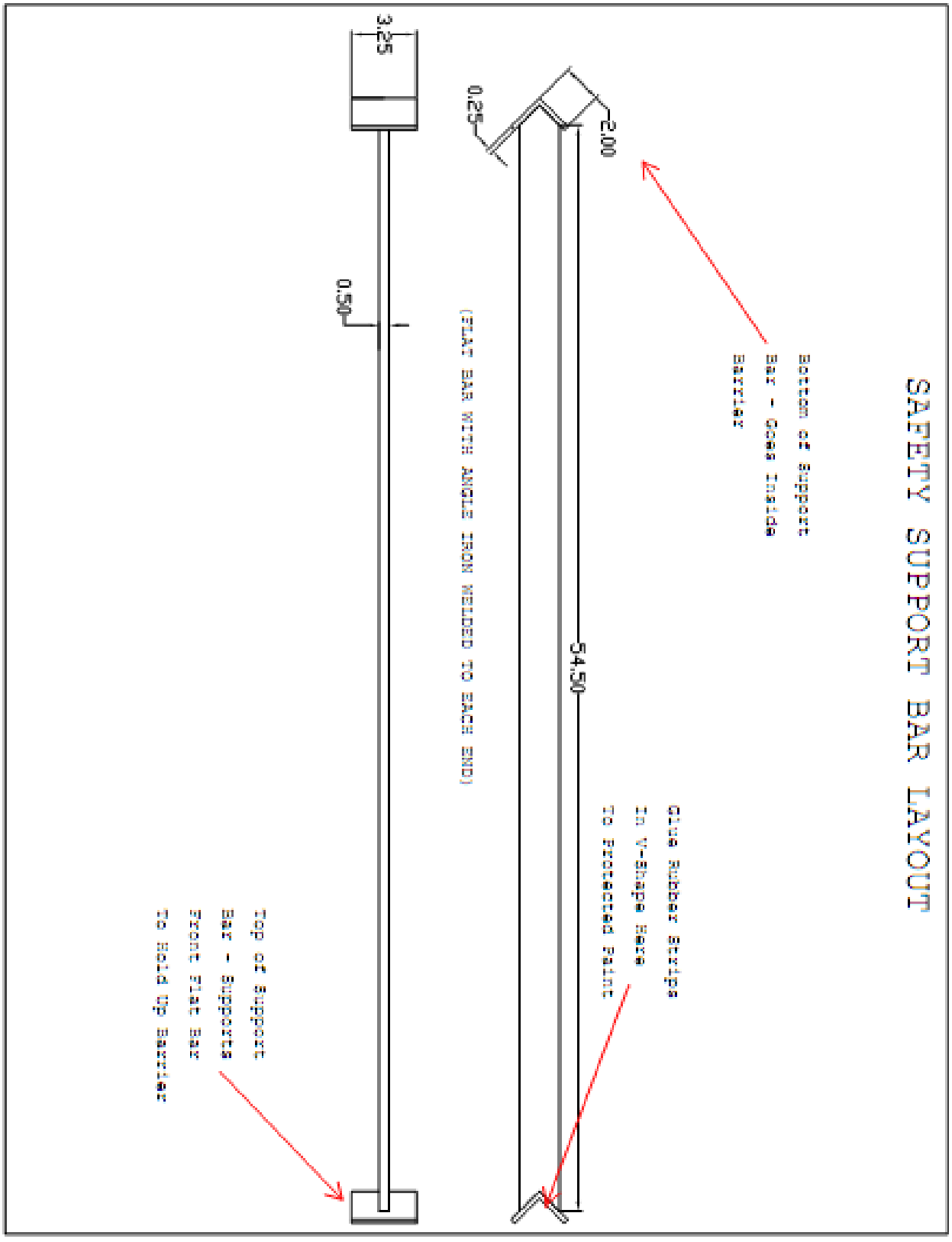
Step 10 – Return barrier to Default Mode.

Section 6- Spring Repair

Preparation, before getting started you will need the following equipment for the repairs:

- Traffic cones and any other safety devices required by local procedures
- A maintenance support post (Depicted below and drawing on next page)
- A forklift or other heavy equipment capable of supporting the Post Assembly in the upright or deployed position, if you do not have the maintenance support post.
- One electric or air impact drill with a 1-1/8th socket and same size manual wrenches.

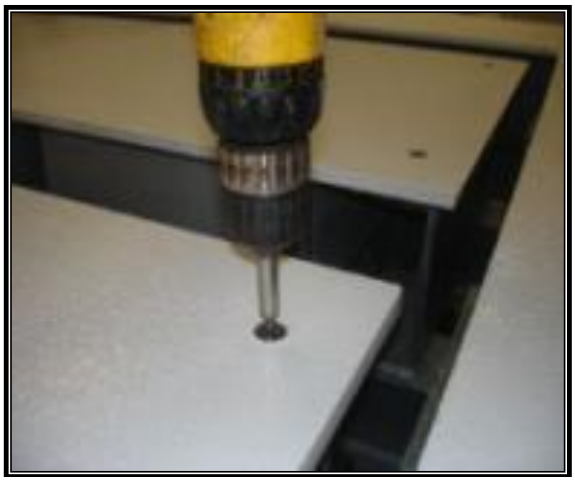



SAFETY SUPPORT BAR LAYOUT
3.25
0.25
2.00
0.50
54.50
(FLAT BAR WITH ANGLE IRON WELDED TO EACH END)
Bottom of Support
Bar - Goes Inside
Barrier
Glue Rubber Strips
In V-Shape Here
To Protected Paint
Top of Support
Bar - Supports
Front Flat Bar
To Hold Up Barrier

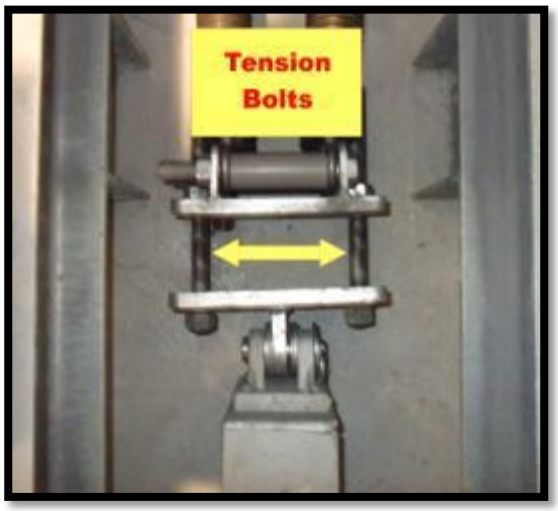
Step 1 – Using the Barrier Controls, raise the barrier to the UP position and secure it with the maintenance support post of forklift. This will take the tension off the spring assembly.

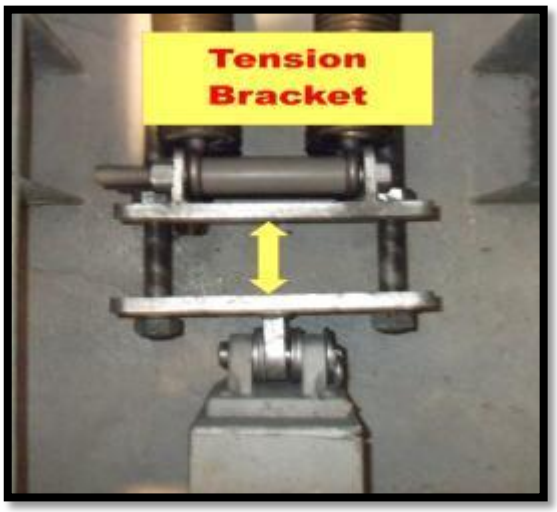
Step 2- Place the affected barrier in MAINT mode. This will prevent anyone from operating the barrier from Gate. Open the Barrier Control Panel and turn off the Servo Drive of the affected barrier by disengaging the Servo Drive fuse.

Step 3- Remove the top cover plate over damaged spring.

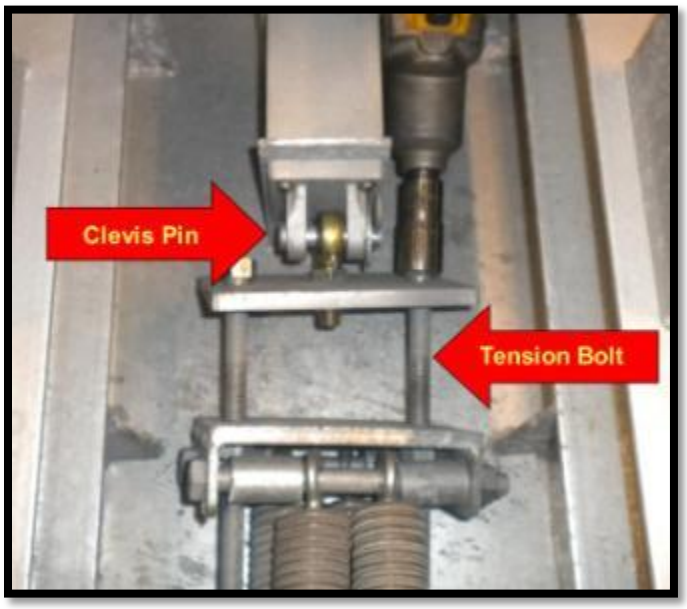


Step 4 – On the approach end of the spring assembly, locate the two tension bolts screwed in towards the rear lengthwise with the springs. Measure the distance between the Tension Bracket and the Spring Assembly plates and record this measurement for re-assembly.

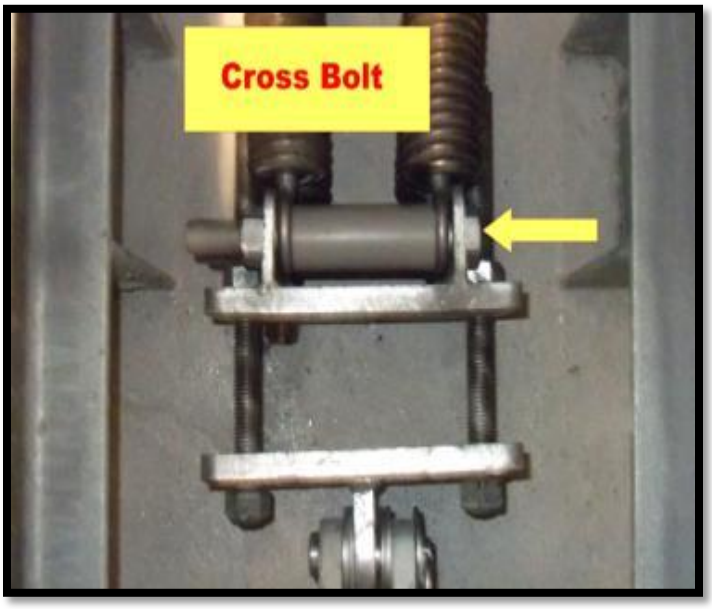




Step 5 - Loosen the bolts until the bolts are nearly removed from the Tension Bracket. Keep in mind the springs may still have some tension.



Step 6 – Change the broken spring by removing the cross bolt and nut holding the springs in place.



Step 7 – Once the spring has been replaced reverse the sequence to re-install the cross bolt and nut.

Step 8 – Using the measurements taken during Step4, tighten the tension bolts to adjust the Spring Assembly to the original tension.

Step 9- Remove the Post Assembly Support Post or move the forklift (if applicable).
Open the Barrier Control Panel and turn ON the Servo Drive of the affected barrier by re-engaging the Servo Drive fuse.
Place the affected barrier in MANUAL MODE and conduct operational test…exercise barrier 8-10 cycles while observing spring assembly functionality.

Step 10- After conducting function check of the barrier system, remove all traffic cones and safety devices.

NOTE: Contact RSSI technical support if you experience any problems not in these procedures or the barrier doesn't function correctly.

Attachment 5 – Operator Control Options

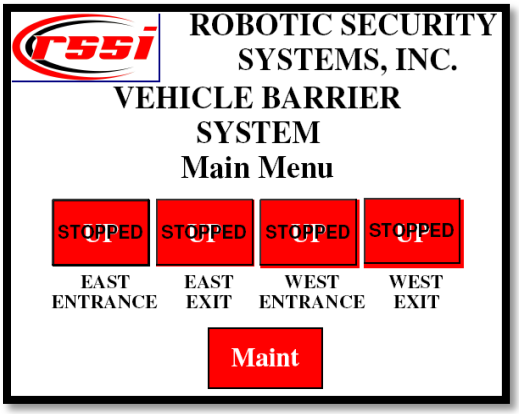
RSSI offers 3 types of Operator Controls; Touch Screen in a console, Push Button in a Console, and Push Button Rack Mounted. Below you will find examples of functionality of the three types of Controls.

1. Operating Instructions for Operator Controls for a RSS-2000 Barrier System with Touch Screen in a Console.

- **Standard Touch Screen Operator Console, Normal Operations**

Standard Touch Screen Operator Console

- **Main Screen**
  - Displays the status of all Barriers either "Up (Red)" or" Down (Green)".



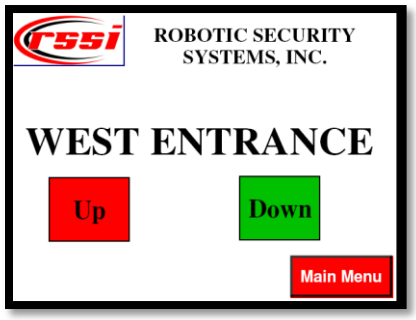
Typical Main Menu

  - To control each Barrier, touch the desired Barrier button to change from the "Main Screen" to the "Barrier Control Screen" for that particular Barrier.
  - After the operation of any Barrier, there will be a 30 second delay (adjustable at request), and then the screen will automatically default to the "Main Screen". To continue to operate that particular Barrier, touch the Barrier button again on the "Main Screen" to get the Barrier Screen.
  - Touch the "Maintenance Button" to get the "Maintenance Screen".

NOTE

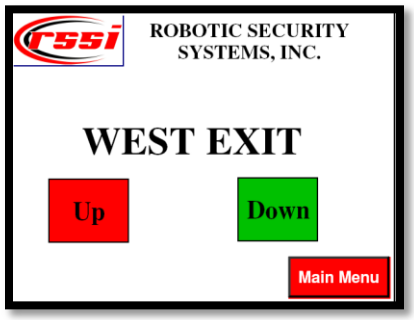
In the case where power is turned off to the Touch Screen and turned back on, it will take up to 2 minutes to "power up" and be ready for service.

- **Barrier Control Screen**
  - Touch the "Up" button and the Barrier will go "Up". After the Barrier reaches the "Up" position, the "Up" button will turn RED and the screen will default back to the Main Screen.



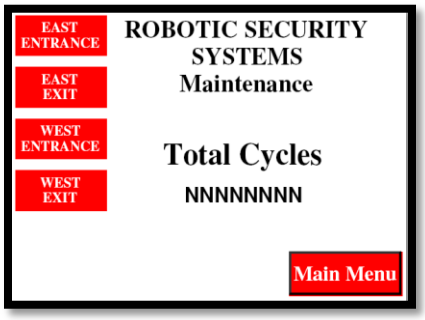
Example West Entrance Barrier Control Screen

  - Touch the "Down" button and the Barrier will go "Down". After the Barrier reaches the "Down" position, the "Down button will turn GREEN and the screen will default back to the Main Screen.



Example West Exit Barrier Control Screen

- **Maintenance Screen**



Example Barrier Maintenance Screen

  - Press and hold the Barrier Button to see the Cycle Count.

NOTE

The current barrier cycle count is displayed where the "NNNNNNNN" characters are shown above.

- **Emergency Operations**
  - **Emergency Fast Operation (EFO) Switch** (Optional) – When activated the EFO switch will raise all barriers connected to the system simultaneously. To initiate, lift the red safety cover and raise the EFO toggle switch. The EFO switch must be in the down or off position before the barriers can be lowered with the operator touch screen controls.

Emergency Fast Operation Switch

  - The EFO Reset Key is located in the Master Touch Screen. To reset an EFO activation, first ensure the EFO switch that was initiated is deactivated by lowering the Red Safety Cover, which will turn off the switch putting it in the Down position

Emergency Fast Operation Reset Switch