



PATRIOT SECURITY BARRIER MODEL PSB M50 HYDRAULIC VERTICAL PIVOT GATE

Operator's & Parts Manual



**NOTE: WHEN ORDERING PARTS, PLEASE HAVE YOUR SERIAL NUMBER
TO ENSURE THE CORRECT PARTS ARE SENT TO YOU.**

**Ideal Manufacturing, Inc. • 2011 Harnish Blvd. • Billings, MT 59101
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**2011 Harnish Blvd.
Billings, MT 59101**

**INFO@TILTAWAY.COM
406-656-4360 800-523-3888**

TILT-A-WAY LIMITED WARRANTY

Ideal Manufacturing warrants that its Tilt-A-Way vertical pivot gate Model PSB M50 product will be free from defects in materials and workmanship for a period of 3 years from the date of purchase. If the product fails to function because of defects in materials or workmanship within the 3 year period of time being used for the purpose for which it was designed, Ideal Manufacturing will repair or replace the defective part at its option. This warranty excludes electrical components and damage due to Acts of God, unauthorized modifications, misuse, abuse or negligence to this product.

In order to proceed with a warranty claim, Ideal Manufacturing must be notified of the problem. A new part will be shipped out prepaid (Ground UPS). If the customer requests that the part be expedited that shipping charge will be charged to the owner.

The part that is being warranted must be returned to Ideal Manufacturing, postage prepaid. When the new part is shipped out, it will go out with an invoice and a warranty part return number. The defective part must be returned to Ideal Manufacturing, freight prepaid, with the warranty part return number. At that time the invoice will be considered paid in full.

This warranty is exclusive and in lieu of all other obligation, liabilities or warranties. In no event shall Ideal Manufacturing be liable or responsible for incidental or consequential damage or for any other direct or indirect damage loss, cost, expense or fee.

This warranty shall not apply to any products or parts that have been altered or repaired without written consent of Ideal Manufacturing.

Labor to remove and reinstall defective product or parts will be paid from a labor rate and schedule only. Consult Ideal Manufacturing for that rate and schedule.

For further information on returning your product or questions concerning Ideal Manufacturing warranty, please contact Ideal Manufacturing.

IMPORTANT SAFETY INFORMATION

Before installing the installer should read and understand the owners manual and safety instructions. The owner should keep this owners manual.

WARNING-TO REDUCE THE RISK OF INJURY TO PERSONS

1. Do not operate gate unless all safety devices are connected and working properly.
2. Do not permit children to play on or around a gate. Keep all controls out of reach from children.
3. Automatic gates are not intended for pedestrian use. Pedestrians must be supplied a separate entrance separate from the automatic gate.
4. Never operate an automatic gate system without visual contact so it can be shut down if necessary.
5. Access controls, are required, to be mounted at least 6 feet away from the gate and operator.
6. Disconnect all power before performing any maintenance on your gate or operator.
7. Keep your gate properly maintained-have a qualified service person make all repairs.
8. Test your gate monthly; make sure all safety devices are in working order. If you have a reversing edge use a rigid object to actuate the edge photo eyes-use an object to break the beam to insure it is in working order.
9. The gate and operator must have the appropriate primary and secondary safety devices to match the gate class installation.
10. Operator and barrier must display warning signs on both sides, in view of operator.
11. Do not install added weight to the gate barrier, your barrier has been balanced at the factory, if you add weight to the gate barrier it will make your gate out of balance, which could cause it to malfunction.
12. Only qualified personnel should install this equipment. Failure to meet this requirement could cause severe injury and or death, for which the manufacturer cannot be held responsible.
13. Safety devices, such as photo eyes and reversing edges should be installed to provide protection for personal Property and pedestrians.
14. Before turning the power on be sure that the correct voltage has been supplied to the electric motor and the equipment has been properly grounded

CLASS OF VEHICULAR GATES

Glossary

CLASS I-RESIDENTIAL VEHICULAR GATE OPERATOR (3.15)

A vehicular gate operator (or system) intended for use in a home of one to four single family dwelling, or a garage or parking area associated therewith.

CLASS II-COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR (3.16)

A vehicular gate operator (or system) intended for use in a commercial location or building such as multi-family housing unit (five or more single family unit), hotel, garages, retail store, or other building servicing the general public.

CLASS III-INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR (3.17)

A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not intended to service the general public.

CLASS IV-RESTRICTED ACCESS VEHICULAR GATE OPERATOR (3.18)

A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as an airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via *supervision by security personnel*.

INSTRUCTIONS FOR MANUAL OPERATION HYJD-25, HYJD25E SSHYJD-25 & SSHYJD-25E

1. Locate two Brass colored knurled knobs on the top of the pump housing
(If equipped with a cold weather package, lift flap on the black cover to access knobs.)
2. Turn both knobs counter clockwise one full turn to open.
3. Gate barrier can now be lifted manually from out at the end of gate.
4. Turn knobs clockwise to close, then operate gate normally.

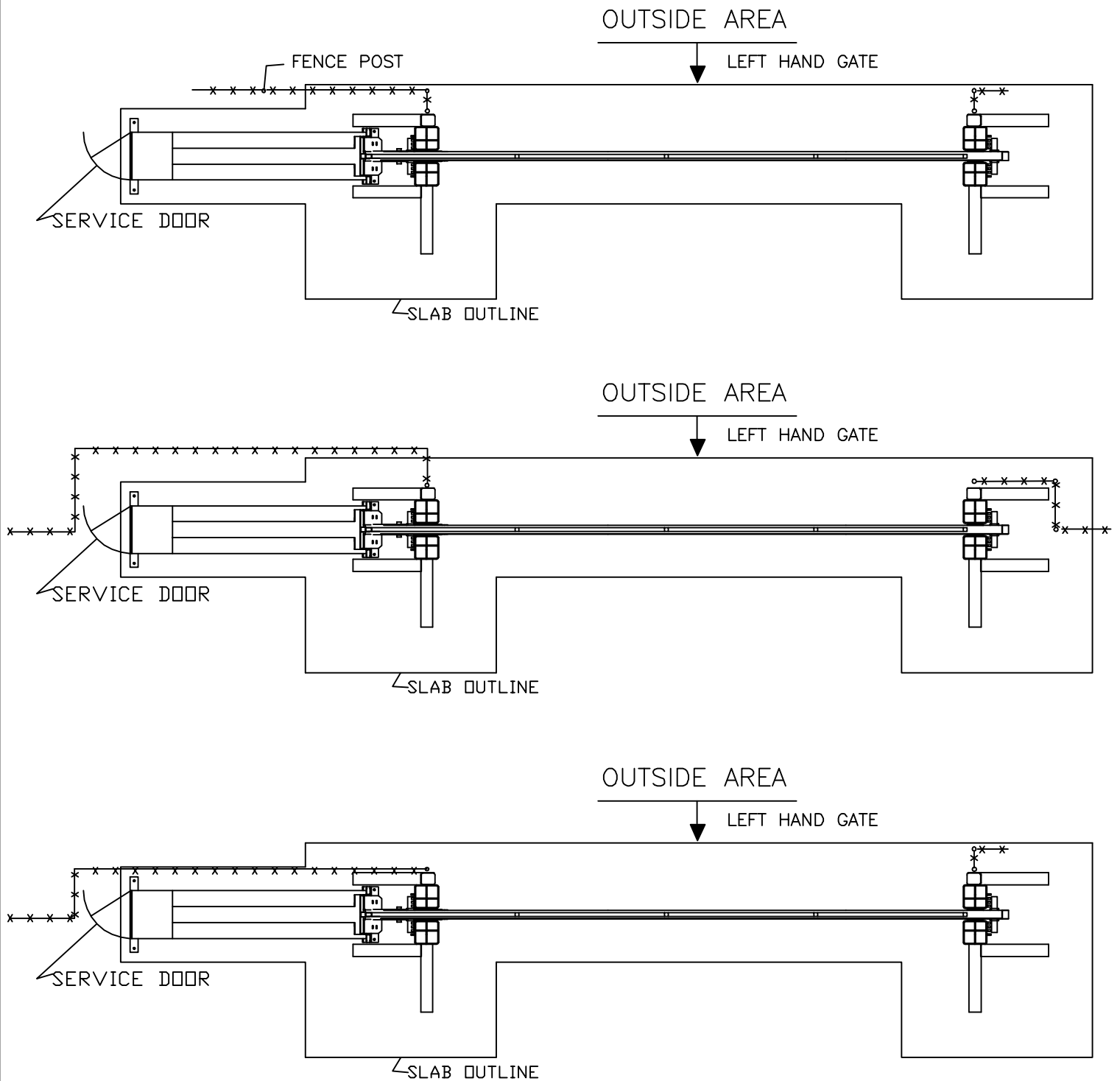
PROTECTION AGAINST ENTRAPMENT

| Gate operator category | | | | |
|--|---|--------------------|----------------------------------|----------------------------------|
| Usage class | Horizontal slide, vertical lift, and vertical pivot | | Swing and vertical barrier (arm) | |
| | Primary type (a) | Secondary type (a) | Primary type (a) | Secondary type (a) |
| Vehicular I and II | A | B1, B2, or D | A, or C | A, B1, B2, C, OR D A, B1, B2, C, |
| Vehicular III | A, B1, or B2 | A, B1, B2, D, or E | A, B1, B2, or C | D, or E |
| Vehicular IV | A, B1, B2, or D | A, B1, B2, D, or E | A, B1, B2, C, OR D | A, B1, B2, C, D, or E |
| Note-The same type of device shall not be utilized for both the primary and the secondary entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirement; however, a single device is not required to cover both directions. A combination of one Type B1 for one direction and one Type B2 for the other direction is the equivalent of one device for the purpose of complying with the requirements of either the primary or secondary entrapment protection means. | | | | |
| (a) Entrapment protection types: | | | | |
| Type A 6 Inherent entrapment protection system. See 31.1.5. | | | | |
| Type B1 6 Provision for connection of, or supplied with, a non-contact sensor (photoelectric sensor or the equivalent). See 31.1.6 6 31.1.9. | | | | |
| Type B2 6 Provision for connection of, or supplied with, a contact sensor (edge device or the equivalent). See 31.1.7 and 31.1.10 6 31.1.12. | | | | |
| Type C 6 Inherent adjustable clutch of pressure relief device. See 31.1.13. | | | | |
| Type D 6 Provision for connection of, or supplied with, an actuating device requiring continuous pressure to maintain opening or closing motion of the gate. See 31.1.14 and 31.1.15. | | | | |
| Type E - An inherent audio alarm. See 31.1.16, 31.1.17, and 31.1.18 | | | | |

Specifications

| | | | | | |
|------------------------------|--------------|---------------|-------------------------------|------------------|-----------|
| Model# | | | PSB M50 | | |
| Operator Size | | | 28” W x 50” T x 132”L | | |
| Operator Weight | | | 1,900 lbs. | | |
| Maximum Barrier Size | | | 108” T x 300”L-780 lbs | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Voltage | Phase | Hz | Cir. Reg. Amps. | Act. Draw | |
| 208/240 VAC | 1 | 4-wire | 60 | 20 | 14 |
| | | | | | |
| | | | | | |
| Operator Speed to 90° | | | 16-20 Seconds | | |
| Hydraulic Fluid | | | Dexron III ATF | | |

Note: Minimum Circuit Requirements: 20 amp service at 208 / 240 VAC Single Phase (4-wire). For wire sizes consult the NEC (National Electric Code).



INDICATED ARE THREE MOST COMMON WAYS TO SET A TILT-A-WAY GATE
 INDIVIDUAL CONDITIONS MAY REQUIRE A SPECIAL ARRANGEMENT

ALTERNATE FENCE SCHEMES PSB M50

GENERAL INFORMATION

The PEO202P Ideal logic timer board allows numerous programmable functions in various combinations (See Universal Commercial Logic Function Chart). This logic board contains an adjustable time for automatic closing which is adjustable from 1 second to 4 minutes.

When the time function is selected (Switch #3 ON), the timing sequence starts when the gate activates the open limit switch. (At this time the TIMER ACTIVE LIGHT comes ON.) The gate will automatically close after a predetermined time. The timing range is adjustable from 1 second to 4 minutes. The timer is reset by activating any input, which is selected to set the timer. Any combination of inputs will allow you to have more switches ON than are shown for any one input. For example: Input #2 SAFETY (Stop and Reverse) plus input #8 TIMER (Open and Always Set Timer). Switch #3 and switch #5 will both be ON.

GENERAL CIRCUIT BOARD CONNECTIONS

The numbers below refer to the terminal strip (#1 - #15) in the gate operator. All inputs are normally open.

SAFETY

Terminals 2 and 3 In the open position, this input will prevent the gate from closing, or if the timer is used, hold the timer until the input is cleared. In the closing cycle, activation of this input will reverse the gate to full open position, and if the timer is used, set and hold the timer until the input is cleared.

AUX TIMER

Terminals 2 and 4 this input is active only when timer circuit is used. In the open position, activation of this input will hold the timer until the input is cleared. In the closing cycle, activation of this input will reverse the gate to full open position, set the timer and hold the time until the input is cleared.

TIMER

Terminal 2 and 5 This input is active only when the timer circuit is used. When the gate is in the closed position activation of this input will open the gate and set the time. In the open position, this input will hold the timer until the input is cleared. In the closing cycle, activation of this input will reverse the gate to full open position, set the timer and hold the timer until the input is cleared.

ELECTRICAL LOGIC TIMER BOARD GENERAL CAPABILITY

TIMER BOARD

Terminal 2 and 6 This input is active only when the timer circuit is used. When the operator is in the full open position, activation of this input will hold the timer until the input is cleared. This input will NOT reverse the gate when the operator is in the closing cycle.

SINGLE BUTTON

Terminal 2 and 11 When in the closed position, activation of this input will open gate. When in the opening cycle, activation of this input will stop the gate. If gate is stopped in mid travel, this input will open the gate when activated. In the full open position, activation of this input will close the gate. In the closing cycle, this input will reverse the gate to the full open position.

CLOSE

Terminal 2 and 12 When the gate is in the full open position or stopped in mid travel, activation of this input will close the gate.

OPEN

Terminal 2 and 13 When the gate is in the full closed position or stopped in mid travel, activation of this input will open the gate.

STOP

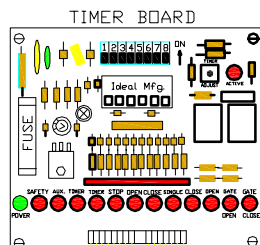
Terminal 7 and 8 This is a NORMALLY CLOSED circuit. Anytime the stop circuit is opened, all functions of the logic board will cease. Then the circuit is once again closed, the desired input will have to be reactivated to start the function once again.

| | INPUT: | FUNCTION: | SWITCH POSITION: | | | | | | | |
|-----|---------------|---|--------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| | | | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
| 1. | SAFETY | WHEN DOOR IS OFF DOWN LIMIT STOPPING SAFETY ONLY | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 2. | SAFETY | WHEN DOOR IS OFF DOWN LIMIT STOP AND REVERSE | OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF |
| 3. | SAFETY | WHEN DOOR IS OFF DOWN LIMIT INSTANT REVERSE | OFF | OFF | OFF | OFF | ON | ON | OFF | OFF |
| 4. | SAFETY | WHEN DOOR IS OFF DOWN LIMIT STOP AND REVERSE AND SET TIMER | OFF | ON | ON | OFF | ON | OFF | OFF | OFF |
| 5. | SAFETY | WHEN DOOR IS OFF DOWN LIMIT INSTANT REVERSE AND SET TIMER | OFF | ON | ON | OFF | ON | ON | OFF | OFF |
| 6. | AUX. TIMER | WHEN DOOR IS OFF DOWN LIMIT OPEN AND SET TIMER STOP AND REVERSE AND SET TIMER | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF |
| 7. | AUX. TIMER | WHEN DOOR IS OFF DOWN LIMIT OPEN AND SET TIMER INSTANT REVERSE AND SET TIMER | OFF | OFF | ON | OFF | OFF | ON | OFF | OFF |
| 8. | TIMER | OPEN AND ALWAYS SET TIMER STOP AND REVERSE AND SET TIMER | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF |
| 9. | TIMER | OPEN AND ALWAYS SET TIMER INSTANT REVERSE AND SET TIMER | OFF | OFF | ON | OFF | OFF | ON | OFF | OFF |
| 10. | HOLD | HOLD TIMER RESET TIMER ONLY DURING TIMING PERIOD | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF |
| 11. | STOP | STOP DOOR / GATE TRAVEL ONLY | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 12. | STOP | STOP DOOR / GATE TRAVEL AND TIMER | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF |
| 13. | SINGLE BUTTON | OPEN CYCLE OPEN - PARK - OPEN CLOSE CYCLE CLOSE - PARK - OPEN | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON |
| 14. | SINGLE BUTTON | OPEN CYCLE OPEN - PARK - OPEN CLOSE CYCLE CLOSE - STOP - REVERSE | OFF | OFF | OFF | OFF | OFF | OFF | ON | ON |
| 15. | SINGLE BUTTON | OPEN CYCLE OPEN - PARK - OPEN CLOSE CYCLE CLOSE - INSTANT REVERSE | OFF | OFF | OFF | OFF | OFF | ON | ON | ON |
| 16. | SINGLE BUTTON | OPEN CYCLE SET TIMER WHEN ACTIVATED ON OPEN LIMIT CLOSE CYCLE PARK - OPEN | ON | OFF | ON | ON | OFF | OFF | OFF | ON |
| 17. | SINGLE BUTTON | OPEN CYCLE OPEN - PARK - OPEN CLOSE CYCLE SET TIMER WHEN ACTIVATED ON OPEN LIMIT STOP AND REVERSE | ON | OFF | ON | ON | OFF | OFF | ON | ON |
| 18. | SINGLE BUTTON | OPEN CYCLE OPEN - PARK - OPEN CLOSE CYCLE SET TIMER WHEN ACTIVATED ON OPEN LIMIT INSTANT REVERSE | ON | OFF | ON | ON | OFF | OFF | ON | ON |
| 19. | CLOSE | CLOSE DOOR / GATE EVEN WHILE TIMER IS TIMING | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF |
| 20. | CLOSE | CLOSE DOOR / GATE EXCEPT WHEN TIMER IS TIMING | OFF | OFF | ON | ON | OFF | OFF | OFF | OFF |
| 21. | OPEN | OPEN DOOR / GATE ONLY | OFF | OFF | ON | ON | OFF | OFF | OFF | OFF |
| | | | NOT DEPENDENT ON ANY SWITCH POSITION | | | | | | | |

**TILT-A-WAY
PATRIOT SECURITY BARRIER
BASIC ELECTRICAL HARDWARE
DRAWING PSB M50 200E**

| | PART NO. | DESCRIPTION | QTY |
|----|----------|-------------------------------------|-----|
| 1 | PEO600 | ENCLOSURE | 1 |
| 2 | FGO600 | PANEL MOUNTING | 1 |
| 3 | PEO602 | CIRCUIT BREAKER | 1 |
| 4 | PEO602A | C/B BRACKET | 1 |
| 5 | PEO603 | CONTACTOR | 2 |
| 6 | PEO603A | INTERLOCK-CONTACTOR | 1 |
| 7 | PEO604 | OVERLOAD RELAY | 1 |
| 8 | PEO639A | RELAY & SOCKET 5 PIN | 2 |
| 9 | PEO639B | RELAY & SOCKET 8 PIN | 4 |
| 10 | PEO607 | TRANSFORMER | 1 |
| 11 | PEO608 | P/B CARTRIDGE | 1 |
| 12 | PEO608A | P/B OPERATOR | 1 |
| 13 | PEO202P | TIMER BOARD | 1 |
| 14 | PEO611 | SAFETY SWITCH | 2 |
| 15 | PEO620 | END BARRIER 6 TERMINAL BLOCK | 2 |
| 16 | PEO621 | GRE/YEL BLOCK- TERMINAL BLOCK | 2 |
| 17 | PEO622 | BLACK BLOCK-TERMINAL BLOCK | 3 |
| 18 | PEO623 | RED BLOCK- TERMINAL BLOCK | 3 |
| 19 | PEO624 | GREY BLOCK- TERMINAL BLOCK | 2 |
| 20 | PEO625 | FUSE BLOCK- TERMINAL BLOCK | 2 |
| 21 | PEO625A | FUSE 1 AMP 250 VOLT-TERMINAL BLOCK | 2 |
| 22 | PEO626 | BARRIER- TERMINAL BLOCK | 1 |
| 23 | PEO627 | DOUBLE BLOCK- TERMINAL BLOCK | 18 |
| 24 | PEO628 | DOUBLE BLOCK- TERMINAL BLOCK | 4 |
| 25 | PEO629 | BARRIER- TERMINAL BLOCK | 1 |
| 26 | PEO630 | JUMPER- TERMINAL BLOCK | 1 |
| 27 | PEO631 | JUMPER- TERMINAL BLOCK | 1 |
| 28 | PEO632 | JUMPER- TERMINAL BLOCK | 3 |
| 29 | PEO633 | MARKER- 1 THRU 13 | 1 |
| 30 | PEO634 | MARKER- G,N,L1,L2,LL1,LL2, | 1 |
| 31 | PEO635 | T DUCT PVC 48- WIRE TRACK | 1 |
| 32 | PEO636 | COVER PVC 48- WIRE TRACK | 1 |
| 33 | PEO637 | DIN TRACK 34 | 1 |
| 34 | PEO231 | ELBOW CONNECTION 90 DEGREES | 1 |
| 35 | PEO235 | CONNECTION STRAIGHT | 3 |
| 36 | PEO223 | ½" ROMEX | 2 |
| 37 | PEO275 | ¾" ROMEX | 2 |
| 38 | N/A | 8 X ½" SELF DRILLING PHILLIPS SCREW | 19 |
| 39 | PEO214 | SOCKET LOOP DETECTOR | 3 |

ENCLOSURE OUTLINE



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

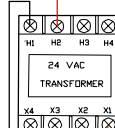
OPTIONAL
LOOP DETECTOR SOCKETS

FROM
OUTSIDE
LOOP

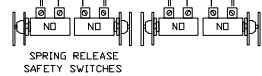
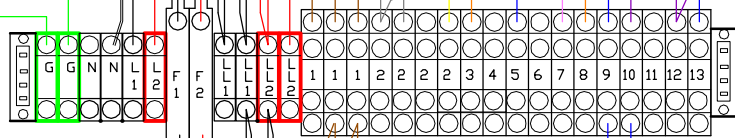
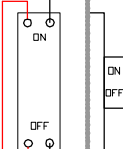
FROM
OUTSIDE
LOOP

FROM
OUTSIDE
LOOP

WIRE FOR PROPER VOLTAGE
208 VOLT SHOWN



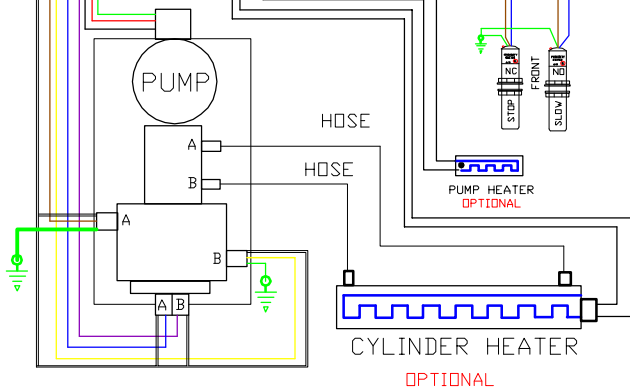
WARNING
POWER
DISCONNECT
PROVIDED
BY OTHERS



LEGEND

- WHITE
- RED
- YELLOW
- GREEN
- BLUE
- BLACK
- ORANGE
- BROWN
- PURPLE
- GRAY
- PINK

F 1
FUSE 1 AMP / 250 VOLT
F 2
FUSE 1 AMP / 250 VOLT



| DATE | REVISIONS | IDEAL MANUFACTURING INC. |
|------|-----------|---------------------------------------|
| | | 2011 HARNISH BLVD BILLINGS, MT. 59101 |
| | | PHONE 406-524-1388 FAX 406-524-1383 |
| | | PSB M50 TILT-A-WAY ROAD GATE |
| | | 208/240 VAC SINGLE PHASE |

NO SCALE DATE: 04-01-2010 SHEET 1 OF 1 DWG BY THH DWG # PSB M50 200E

**TILT-A-WAY PATRIOT SECURITY BARRIER
OPERATOR FIELD INSTALLATION
DRAWING PSB M50 102
MODEL PSB M50**

REF. NO.

DESCRIPTION

**Note: If gate does not operate on first try, but hydraulic pump runs
switch 2 power lines to reverse pump rotation.**

- 1 Control pedestal **PSM M50**
NOTE: Will withstand and estimated 100 MPH wind in most soil conditions.
- 2 Electrical conduit area. Stub in electrical supply, 20 Amp service.
- 3 Four anchor bolts ¾" diameter with 2" projection.
- 4 Concrete foundation (see drawing supplied for your application for Ideal Mfg., Inc.).
- 5 Right Bollard.
- 6 Left Bollard.
- 7 Base plate.

**TILT-A-WAY
HYDRAULIC OPERATOR INSTALLATION PROCEDURE FOR GATE THAT IS SHIPPED
UNASSEMBLED DRAWING PSB M50 102**

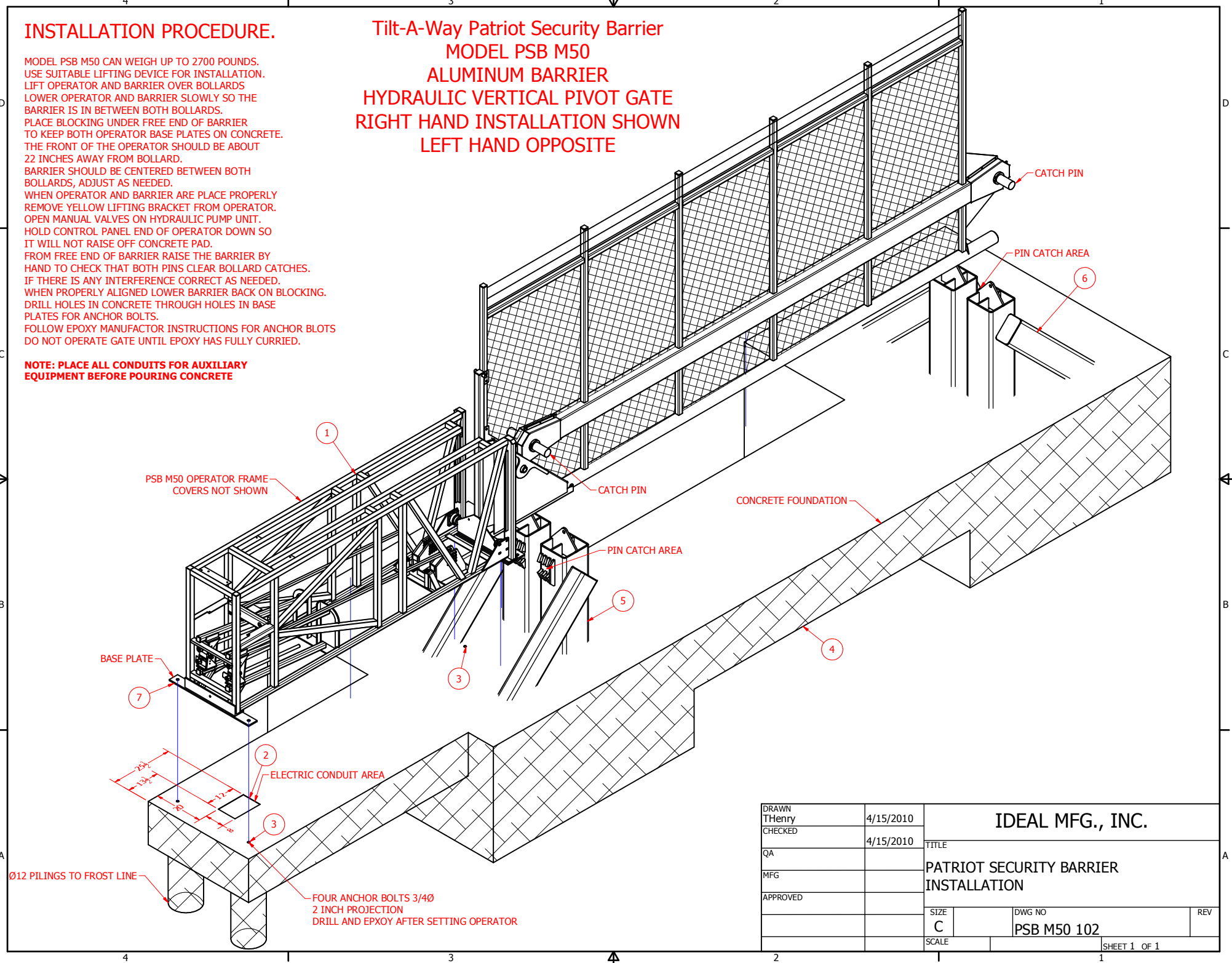
1. Remove all materials used for protection during shipment.
2. Place operator frame on level ground. Insure operator frame does not move when performing steps 4 through 9. Remove lifting hook.
3. Open rear access door to expose spring tension adjustment screws.
4. Find two fluid bypass valves located on top of hydraulic unit, place in open position.
5. Back off all four spring tension screws to provide slack in tension cables. (1 5/8" socket needed)
6. Rotate barrier carriage to down position. Remove pivot shaft with attached components. Install barrier and secure to vertical carriage post with three bolts and bolt at outer end of carriage horizontal channel.
7. Place plastic rub washer over pivot shaft collar on carriage. Align cylinder rod end bearing with collar and insert pivot shaft from far side. Secure with flat washer, lock washer and bolt.
8. Tighten spring tension screws while inspecting cables for proper wrap around balance sheaves. When slide members have reached marks indicated on tracks. Proper balance tension will have been achieved. If at a later date minor adjustment should be required, refer to balance system adjusting section.
9. Set operator and barrier per Installation Procedure on page 9 drawing PSB M50 102.
10. Perform required electrical connections in accordance with diagrams shown in this manual.
11. Position fluid bypass valves to closed setting, close and secure access door.
12. If gate fails to function properly, contact manufacturer's representative.

**TILT-A-WAY
HYDRAULIC OPERATOR INSTALLATION PROCEDURE FOR GATE THAT IS SHIPPED
ASSEMBLED DRAWING RGHY-3002**

1. Remove all materials used for protection during shipment.
2. Set operator and barrier per Installation Procedure on page 9 drawing PSB M50 102.
3. Perform required electrical connections in accordance with diagrams shown in this manual.
4. Position fluid bypass valves to closed setting, close and secure access door.
5. If gate fails to function properly, contact manufacturer's representative.

MODEL PSB M50 CAN WEIGH UP TO 2700 POUNDS.
USE SUITABLE LIFTING DEVICE FOR INSTALLATION.
LIFT OPERATOR AND BARRIER OVER BOLLARDS
LOWER OPERATOR AND BARRIER SLOWLY SO THE
BARRIER IS IN BETWEEN BOTH BOLLARDS.
PLACE BLOCKING UNDER FREE END OF BARRIER
TO KEEP BOTH OPERATOR BASE PLATES ON CONCRETE.
THE FRONT OF THE OPERATOR SHOULD BE ABOUT
22 INCHES AWAY FROM BOLLARD.
BARRIER SHOULD BE CENTERED BETWEEN BOTH
BOLLARDS, ADJUST AS NEEDED.
WHEN OPERATOR AND BARRIER ARE PLACE PROPERLY
REMOVE YELLOW LIFTING BRACKET FROM OPERATOR.
OPEN MANUAL VALVES ON HYDRAULIC PUMP UNIT.
HOLD CONTROL PANEL END OF OPERATOR DOWN SO
IT WILL NOT RAISE OFF CONCRETE PAD.
FROM FREE END OF BARRIER RAISE THE BARRIER BY
HAND TO CHECK THAT BOTH PINS CLEAR BOLLARD CATCHES.
IF THERE IS ANY INTERFERENCE CORRECT AS NEEDED.
WHEN PROPERLY ALIGNED LOWER BARRIER BACK ON BLOCKING.
DRILL HOLES IN CONCRETE THROUGH HOLES IN BASE
PLATES FOR ANCHOR BOLTS.
FOLLOW EPOXY MANUFACTURER INSTRUCTIONS FOR ANCHOR BLOTS
DO NOT OPERATE GATE UNTIL EPOXY HAS FULLY CURRIED.

Tilt-A-Way Patriot Security Barrier
MODEL PSB M50
ALUMINUM BARRIER
HYDRAULIC VERTICAL PIVOT GATE
RIGHT HAND INSTALLATION SHOWN
LEFT HAND OPPOSITE



| | | | | |
|-----------------|-----------|--|-----------------------|--------------|
| DRAWN THenry | 4/15/2010 | IDEAL MFG., INC. | | |
| CHECKED | 4/15/2010 | | | |
| QA | | TITLE | | |
| MFG | | PATRIOT SECURITY BARRIER INSTALLATION | | |
| APPROVED | | | | |
| | | SIZE C | DWG NO PSB M50 102 | REV |
| | | SCALE | | SHEET 1 OF 1 |

**TILT-A-WAY
PATROIT SECURETY BARRIER MODEL PSB M50
HYDRAULIC OPERATOR BALANCE SYSTEM ADJUSTMENT
DRAWING PSB M50 103**

TILT-A-WAY road gate must be balanced to offer the least amount of resistance against movement at both up and down extreme positions or combination of both.

Balance adjustment is accomplished by cable tension, cable sheave position or combination of both.

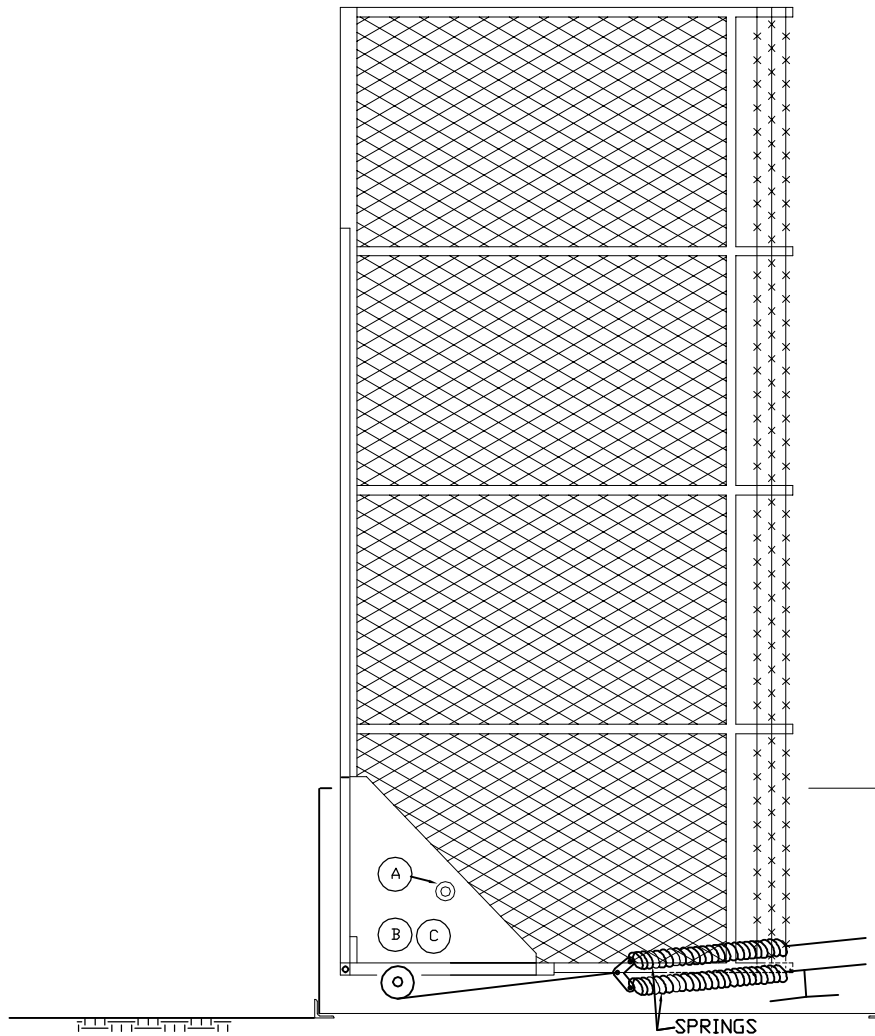
Two cable systems are incorporated and any adjustments preformed at one side must be duplicated on the opposite side. There are two springs (one upper spring and one lower spring) and one cable per system.

SAFETY WARNINGS-VERY IMPORTANT

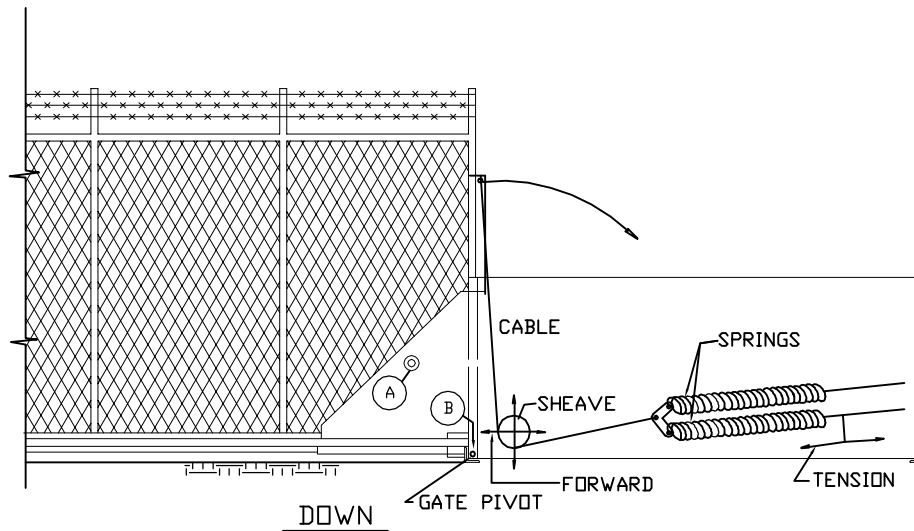
- 1. Before performing any maintenance or adjustment, open main power disconnect switch located adjacent to control panel enclosure. Prior to performing any adjustment, hydraulic fluid bypass valves must be placed in open position.**
- 2. Any adjustment preformed on cable sheave must be preceded by the release of all cable tension at spring connections. When adjusting tension on cable systems both upper and lower springs per system must be adjusted in small equal amounts.**

CONDITIONS AND SOLUTIONS

- 1. Condition: Gate heavy at both up and down positions.
Solution: Increases cable tension.**
- 2. Condition: Gate light at both up and down positions
Solution: Decrease cable tension.**
- 3. Condition: Gate heavy at down position only.
Solution: Lower cable sheave and increase cable tension.**
- 4. Condition: Gate light at down position only.
Solution: Raise cable sheave and decrease cable tension.**
- 5. Condition: Gate heavy at up position only.
Solution: Raise cable sheave and decrease cable tension.**
- 6. Condition: Gate light at up position only.
Solution: Lower cable sheave increase cable tension.**
- 7. Condition: Gate heavy at intermediate positions.
Solution: Move cable sheave forward.**
- 8. Condition: Gate light at intermediate positions.
Solution: Move cable sheave rearward.**



UP



PATROIT MODEL PSB M50 TILT-A-WAY HYDRAULIC OPERATOR BALANCE SYSTEM ADJUSTMENT

IDEAL MANUFACTURING INC.

PSB M50 103

**TILT-A-WAY
PATRIOT SECURITY BARRIER
OPERATOR GENERAL ARRANGEMENT
DRAWINR # PSB M50 106**

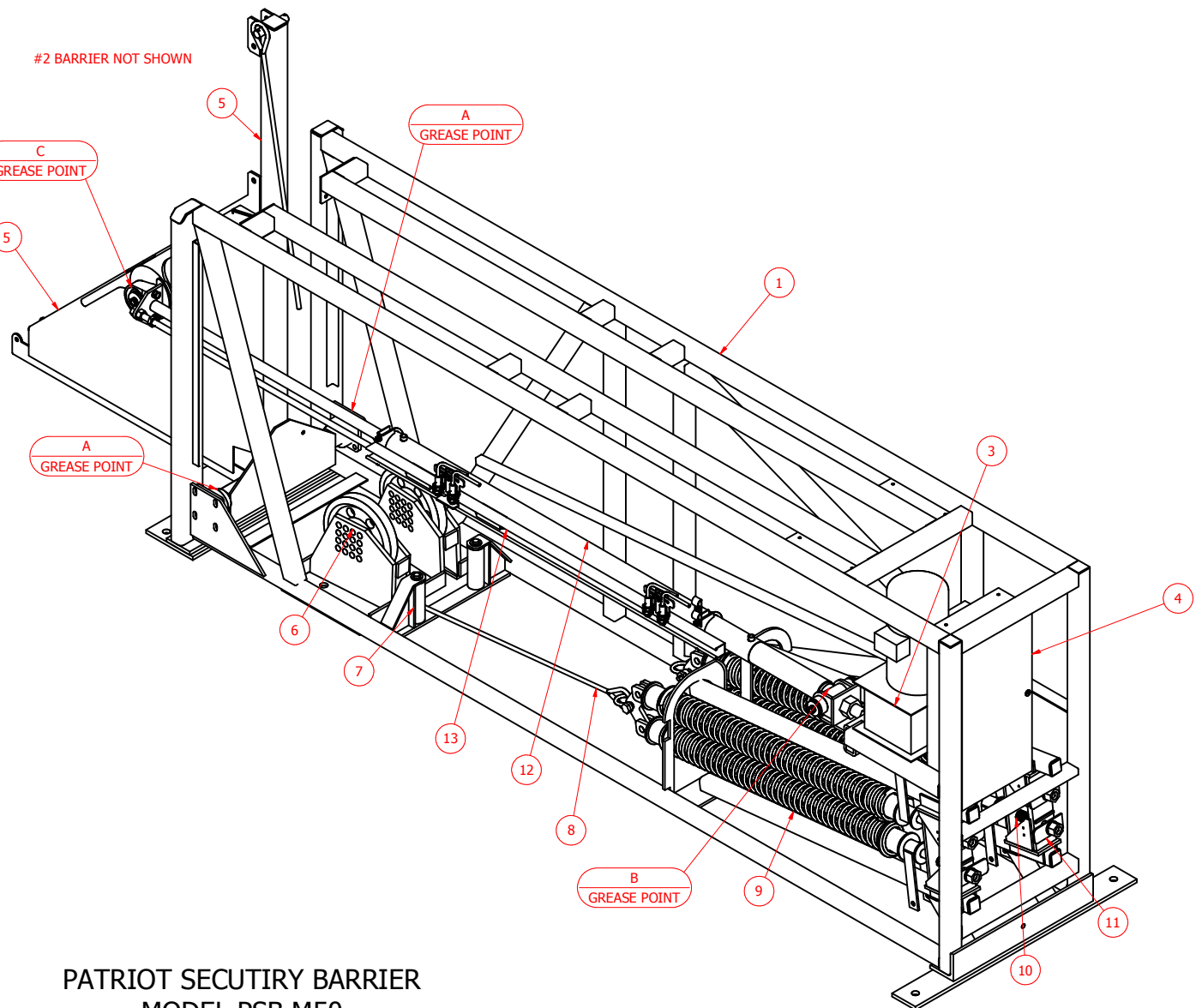
| REF NO. | DESCRIPTION | |
|----------------|---|--|
| 1 | Control Pedestal Frame | Covers see Drawing # PSB M50 119 Page 33 |
| 2 | Barrier Unit | See Drawing # PSB M50 107 Page 18 |
| 3 | Hydraulic Pump & Reservoir | See Drawing # PSB M50 112 Page 25 & Page 29 |
| 4 | Electrical Control Enclosure | See Drawing # PSB M50 200E Page 7 |
| 5 | Barrier Carriage | See Drawing # PSB M50 104 Page 15 |
| 6 | Balance System Cable & Sheave Assembly. | See Drawing # PSB M50 108 Page 19 |
| 7 | Balance System Cable Guide Assembly. | See Drawing # PSB M50 109 Page 20 |
| 8 | Balance System Tension Cable | See Drawing # PSB M50 108 Page 19 |
| 9 | Balance system Tension Spring | See Drawing # PSB M50 111 Page 23 |
| 10 | Balance System Spring Tension Adjusting Limit | See Drawing # PSB M50 111 Page 23 |
| 11 | Balance System Spring Tension Release | øPower Off Safety Switchö. See Drawing # PSB M50 111 Page 23 |
| 12 | Hydraulic Actuating Cylinder | See Drawing # PSB M50 105 Page 17 |
| 13 | Cylinder Control Actuating System | See Drawing # PSB M50 105 Page 17 |

**RECOMMENDED GENERAL MAINTENANCE
DRAWING # PSB M50 106**

Check interior of pedestal for any accumulation of trash caused by blowing wind and remove.

On regular basis the following maintenance steps should be preformed (**Monthly**).

1. Check hydraulic fluid level with site gauge on oil reservoir. Level to be approximately 2 ½ ö below the top of the pipe. If required, add Dextron #4 hydraulic fluid ösame as automatic transmission fluidö. Check with cylinder retracted (gate open).
2. Inspect cables for broken strands. Replace if 7 or more broken strands are visible.
3. Clean and lubricate spring tension screws with ögeneral purpose greaseö to prevent rusting.
4. Lubricate with ögeneral purpose grease such as a bearing greaseö all points equipped with zerk fitting.
 - A. Barrier carriage pivot bearing. Two locations.
 - B. Cylinder anchor pivot.
 - C. Cylinder rod end pivot bearings.



PATRIOT SECUTIRY BARRIER
MODEL PSB M50
OPERATOR GENERAL ARRANGEMENT

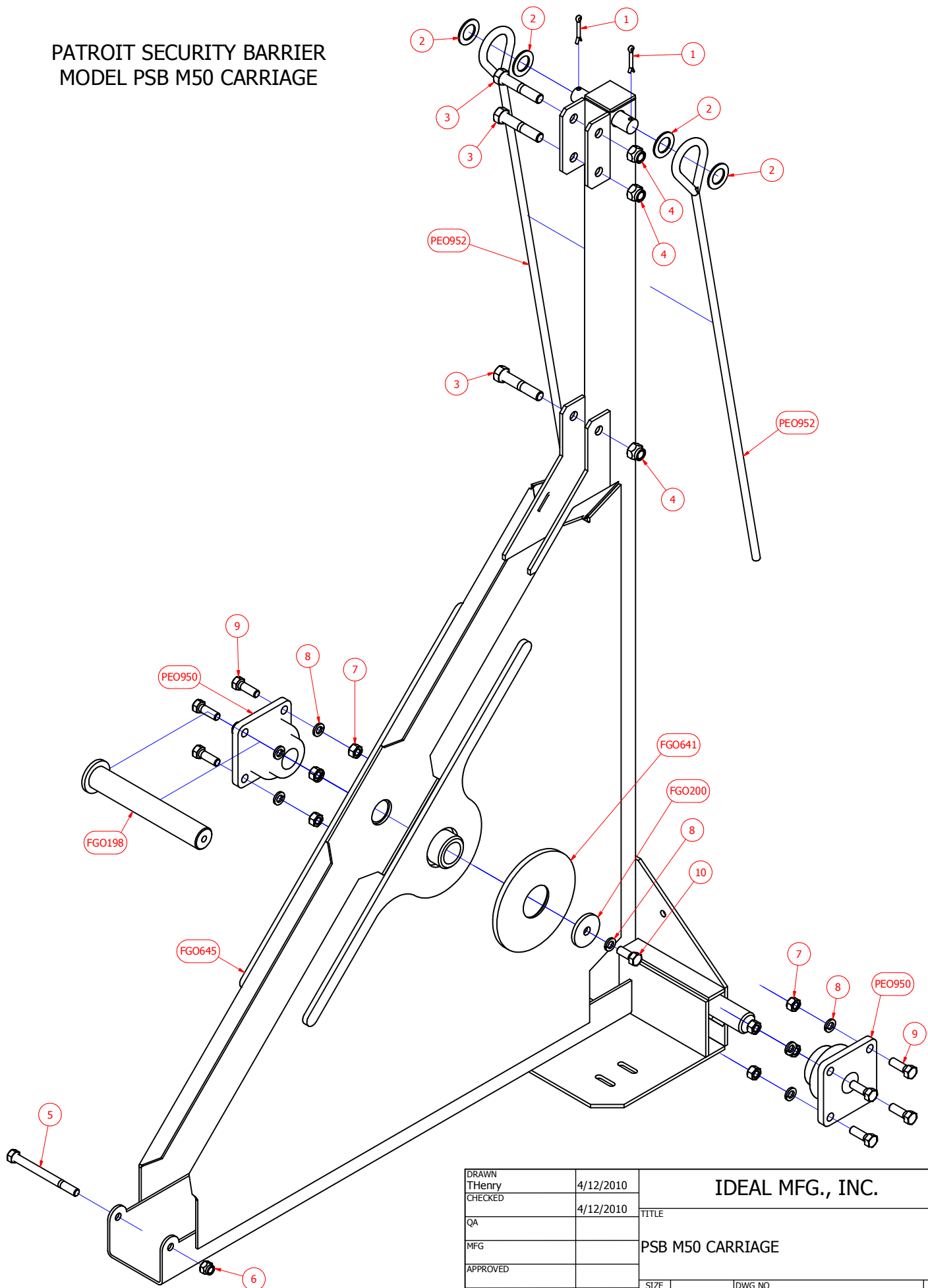
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|-----------------|-----------|--------------------------------------|-------------|
| DRAWN THenry | 4/12/2010 | IDEAL MFG., INC. | |
| CHECKED | 4/12/2010 | TITLE | |
| QA | | PSB M50 OPERATOR GENERAL ARRANGEMENT | |
| MFG | | | |
| APPROVED | | | |
| SIZE | C | DWG NO | PSB M50 106 |
| SCALE | | | |
| | | SHEET 1 OF 1 | |

**TILT-A-WAY
PATROIT SECURITY BARRIER
MODEL PSB M50
BARRIER CARRIAGE**

DRAWING # PSB M50 104

| REF NO. | PART NO. | DESCRIPTION | REQ'D NO. |
|----------------|-----------------|-----------------------------------|------------------|
| 1 | ID1006 | 3/16 X 1 1/2 Stainless Cotter Pin | 2 |
| 2 | N/A | 10 SAE Flat Washer | 4 |
| 3 | N/A | 5/8-11 X 3 1/4 Hex Bolt | 3 |
| 4 | N/A | 5/8-11 Nylock | 3 |
| 5 | N/A | 1/2-13 x 5 1/2 Hex Bolt | 1 |
| 6 | N/A | 1/2-13 Nylock | 1 |
| 7 | N/A | 1/2-13 Hex Nut | 8 |
| 8 | N/A | 1/2 Lock Washer | 8 |
| 9 | N/A | 1/2-13 X 1 1/2 Hex Bolt | 8 |
| 10 | N/A | 1/2-13 X 1 1/4 Hex Bolt | 1 |
| FGO198 | FGO198 | Rod End Pivot Shaft | 1 |
| FGO200 | FGO200 | Bearing Sleeve Pressure Washer | 1 |
| FGO641 | FGO641 | Plastic Rub Washer | 1 |
| FGO645 | FGO645 | PSB M50 Carriage | 1 |
| PEO950 | PEO950 | Flange Bearing | 2 |
| PEO952 | PEO952 | Cable | 2 |

PATROIT SECURITY BARRIER
MODEL PSB M50 CARRIAGE

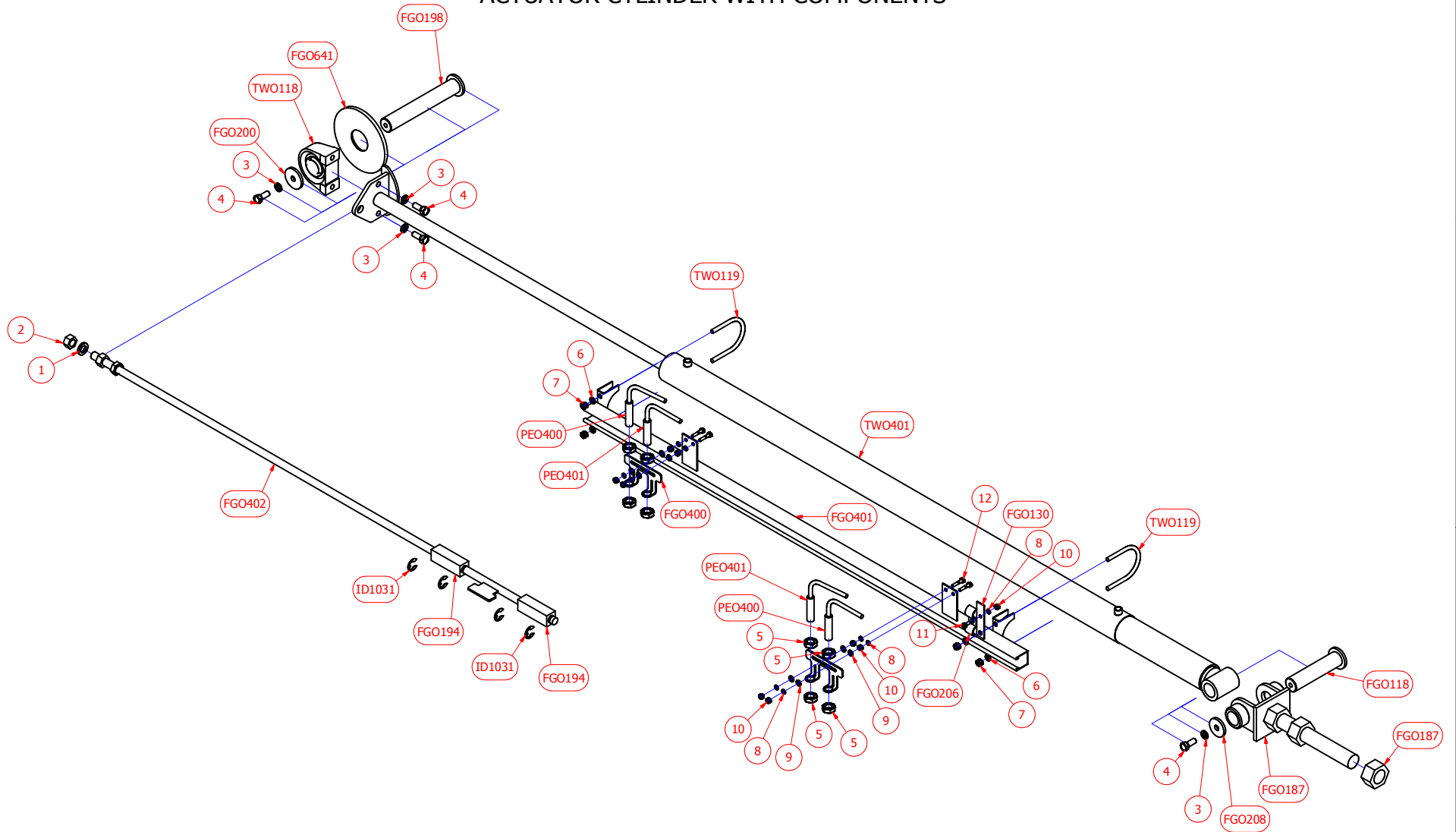


| | | | | |
|----------|-----------|------------------|--------------|-----|
| DRAWN | 4/12/2010 | IDEAL MFG., INC. | | |
| THENRY | 4/12/2010 | | | |
| CHECKED | | TITLE | | |
| QA | | PSB M50 CARRIAGE | | |
| MFG | | | | |
| APPROVED | | | | |
| | | SIZE | DWG NO | REV |
| | | C | PSB M50 104 | |
| | | SCALE | SHEET 1 OF 1 | |

**TILT-A-WAY
PATROIT SECURITY BARRIER
MODEL PSB M50
ACTUATING CYLINDER WITH COMPONENTS
DRAWING # PSB M50 105**

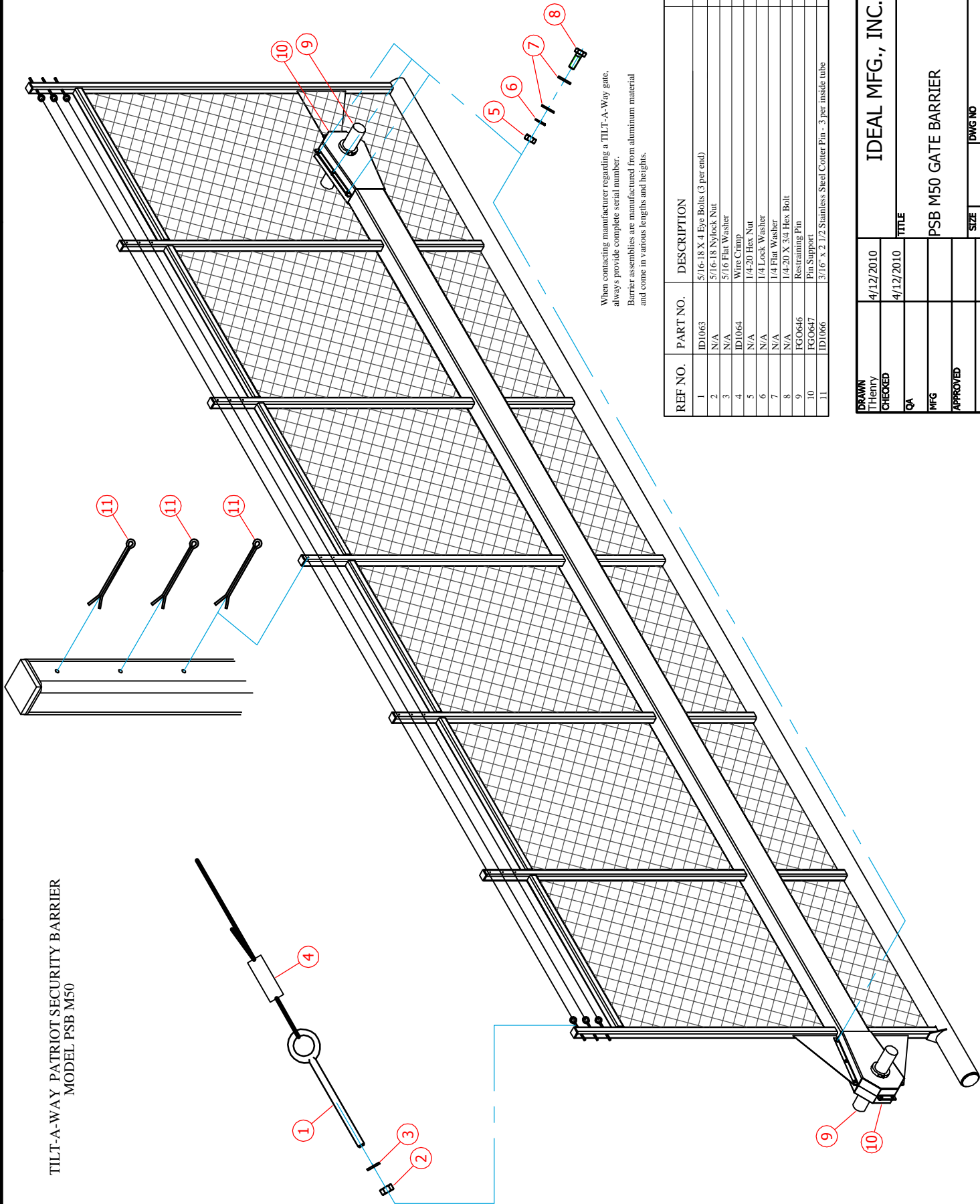
| REF NO. | PART NO. | DESCRIPTION | REQ'D NO. |
|----------------|-----------------|--------------------------------|------------------|
| 1 | N/A | 3/4 Lock Washer | 1 |
| 2 | N/A | 3/4-10 Hex Nut | 2 |
| 3 | N/A | 1/2 Lock Washer | 4 |
| 4 | N/A | 1/2-13 x 1 1/4 Hex Bolt | 4 |
| 5 | N/A | Jam Nut Proximity Switch | 8 |
| 6 | N/A | 3/8 Lock Washer | 4 |
| 7 | N/A | 3/8-16 Hex Nut | 4 |
| 8 | N/A | 1/4 Lock Washer | 9 |
| 9 | N/A | 1/4 Flat Washer | 8 |
| 10 | N/A | 1/4-20 Hex Nut | 9 |
| 11 | N/A | 1/4-20 x 3/4 Hex Bolt | 1 |
| 12 | N/A | 1/4-20 x 1 1/4 Hex Bolt | 8 |
| FGO118 | FGO118 | Foot Clevis Pivot Shaft | 1 |
| FGO130 | FGO130 | Hydraulic Hose Support | 1 |
| FGO187 | FGO187 | Foot Clevis Assembly | 1 |
| FGO198 | FGO198 | Rod End Pivot Shaft | 1 |
| FGO200 | FGO200 | Bearing Sleeve Pressure Washer | 1 |
| FGO206 | FGO206 | Hydraulic Hose Clamp | 1 |
| FGO208 | FGO208 | Shaft Pressure Washer | 1 |
| FGO400 | FGO400 | Adjustable Mount Plate | 2 |
| FGO401 | FGO401 | Cylinder Actuator Track | 1 |
| FGO402 | FGO402 | Control Actuator Rod | 1 |
| FGO641 | FGO641 | Plastic Rub Washer | 1 |
| PEO400 | PEO400 | Limit Proximity Switch / NC | 2 |
| PEO401 | PEO401 | Slow Down Proximity Switch /NO | 2 |
| TWO118 | TWO118 | Rod End Pivot Bearing | 1 |
| TWO119 | TWO119 | Actuator Track Clamp | 2 |
| TWO401 | TWO401 | Extended Hydraulic Cylinder | 1 |

ACTUATOR CYLINDER WITH COMPONENTS



| | | | | | |
|----------|--------|-----------|-----------------------------------|--------------|-----|
| DRAWN | THenry | 4/12/2010 | IDEAL MFG., INC. | | |
| CHECKED | | 4/12/2010 | | | |
| QA | | | ACTUATOR CYLINDER WITH COMPONENTS | | |
| MFG | | | | | |
| APPROVED | | | SIZE | DWG NO | REV |
| | | | C | PSB M50 A05 | |
| | | | SCALE | SHEET 1 OF 1 | |

TILT-A-WAY PATRIOT SECURITY BARRIER
MODEL PSB M50



| REF NO. | PART NO. | DESCRIPTION | REQNO |
|---------|----------|--|-------|
| 1 | ID1063 | 5/16-18 X 4 Eye Bolts (3 per end) | 6 |
| 2 | N/A | 5/16-18 N9lock Nut | 6 |
| 3 | N/A | 5/16 Flat Washer | 6 |
| 4 | ID1064 | Wire Clamp | 6 |
| 5 | N/A | 1/4-20 Hex Nut | 16 |
| 6 | N/A | 1/4 Lock Washer | 16 |
| 7 | N/A | 1/4 Flat Washer | 32 |
| 8 | N/A | 1/4-20 X 3/4 Hex Bolt | 16 |
| 9 | FGO646 | Restraint Pin | 2 |
| 10 | FGO647 | Pin Support | 4 |
| 11 | ID1066 | 3/16" x 2 1/2 Stainless Steel Cotter Pin - 3 per inside tube | 6 |

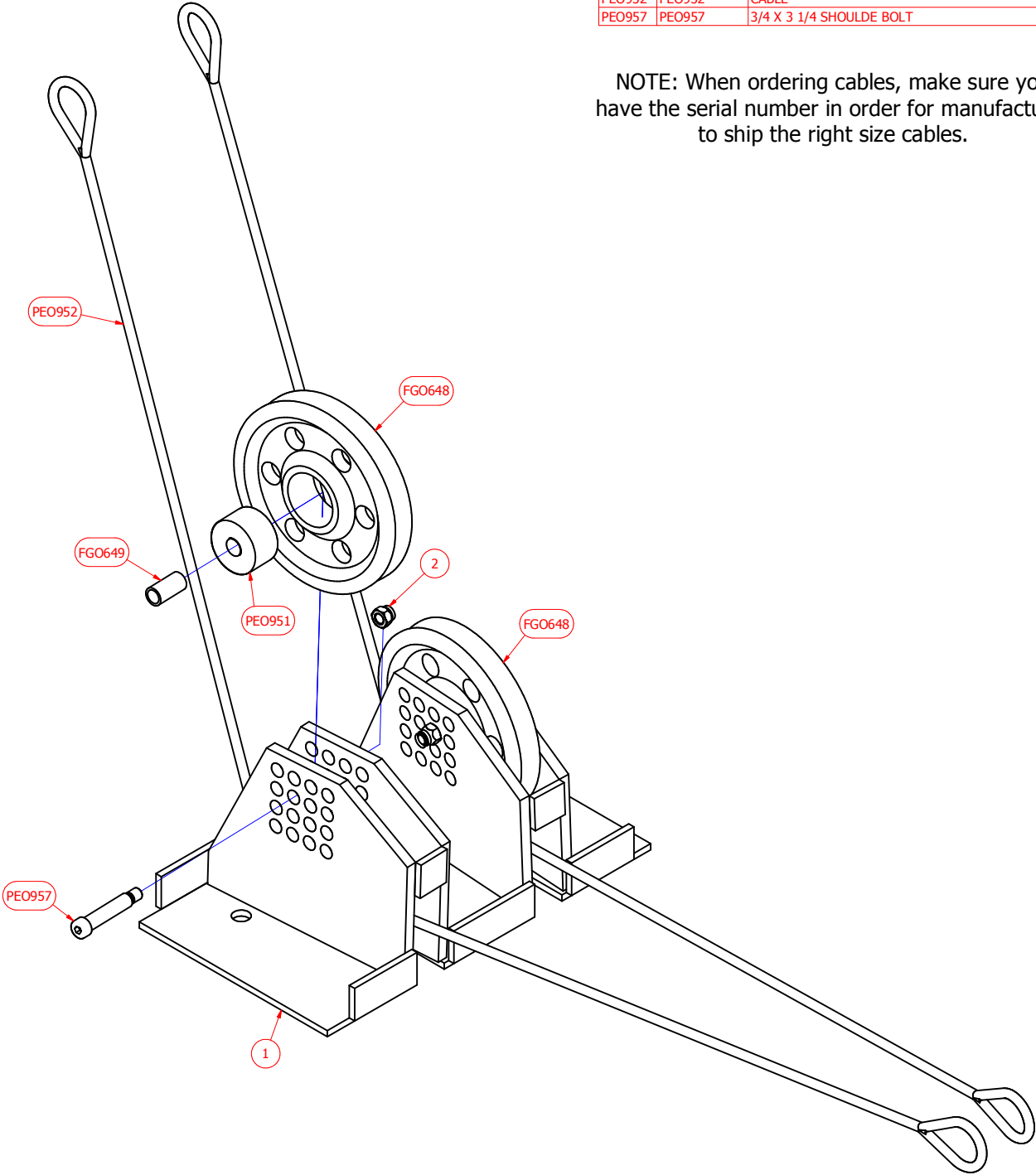
IDEAL MFG., INC.

| | | | |
|------------------|-----------|-------|----------------------|
| DRAWN T.Henry | 4/12/2010 | TITLE | PSB M50 GATE BARRIER |
| CHECKED | 4/12/2010 | SIZE | C |
| QA | | SCALE | PSB M50 107 |
| MFG | | SIZE | C |
| APPROVED | | SCALE | PSB M50 107 |
| | | SIZE | C |
| | | SCALE | PSB M50 107 |

PATRIOT SECURITY BARRIER
MODEL PSB M50
BALANCE SYSTEM CABLE & SHEAVE

| Parts List | | | |
|------------|-------------|--|-----|
| REF. NO. | PART NUMBER | DESCRIPTION | QTY |
| 1 | N/A | PSB M50 SHEAVE PLATE ON OPERATOR FRAME | 1 |
| 2 | N/A | 5/8-11 NYLOCK NUT | 2 |
| FGO648 | FGO648 | PSB M50 SHEAVE | 2 |
| FGO649 | FGO649 | BUSHING | 2 |
| PEO951 | PEO951 | BEARING | 2 |
| PEO952 | PEO952 | CABLE | 2 |
| PEO957 | PEO957 | 3/4 X 3 1/4 SHOULDE BOLT | 2 |

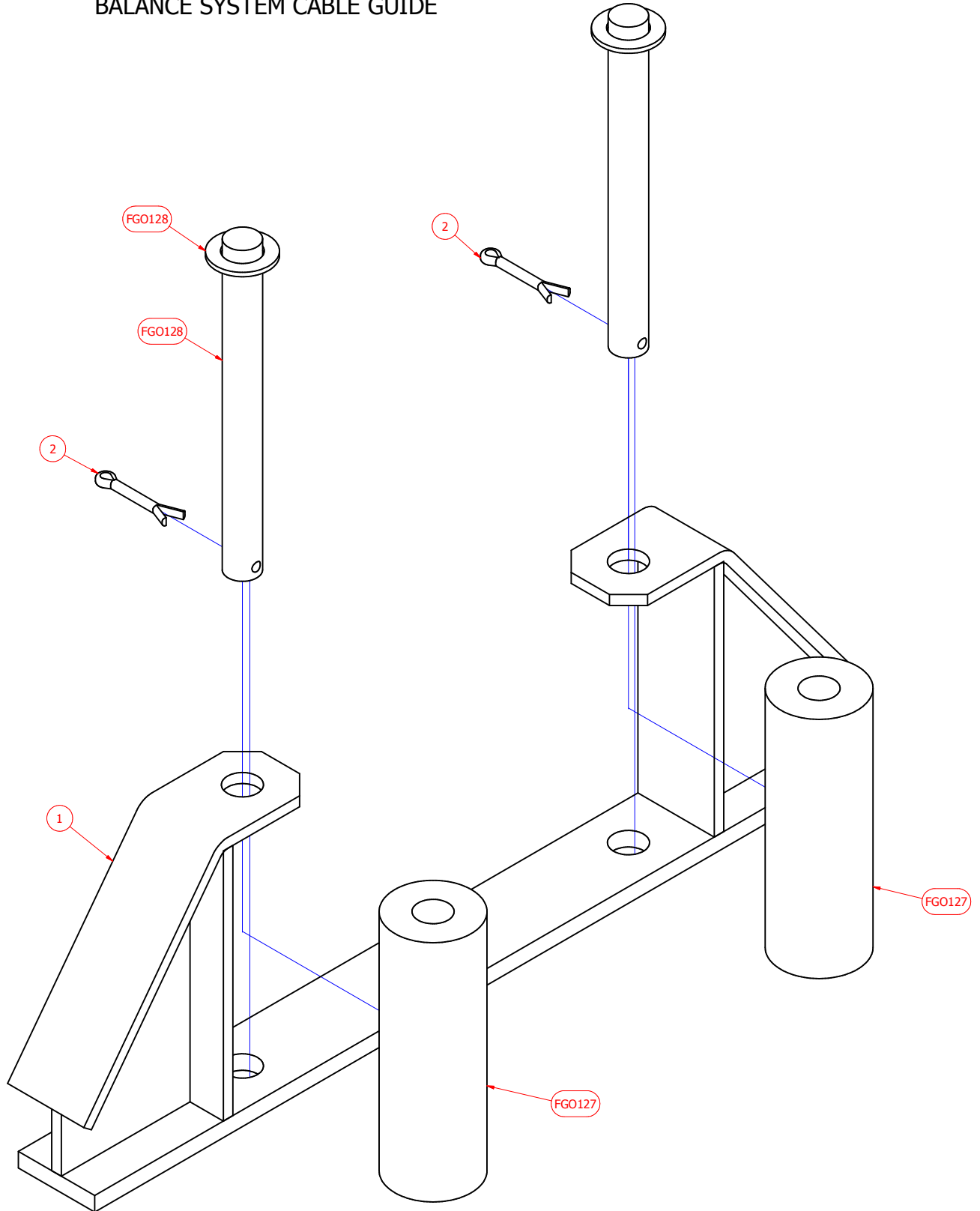
NOTE: When ordering cables, make sure you have the serial number in order for manufacturer to ship the right size cables.



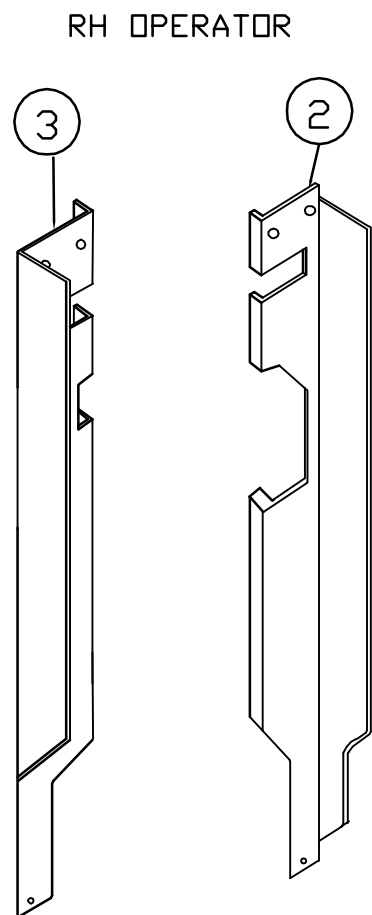
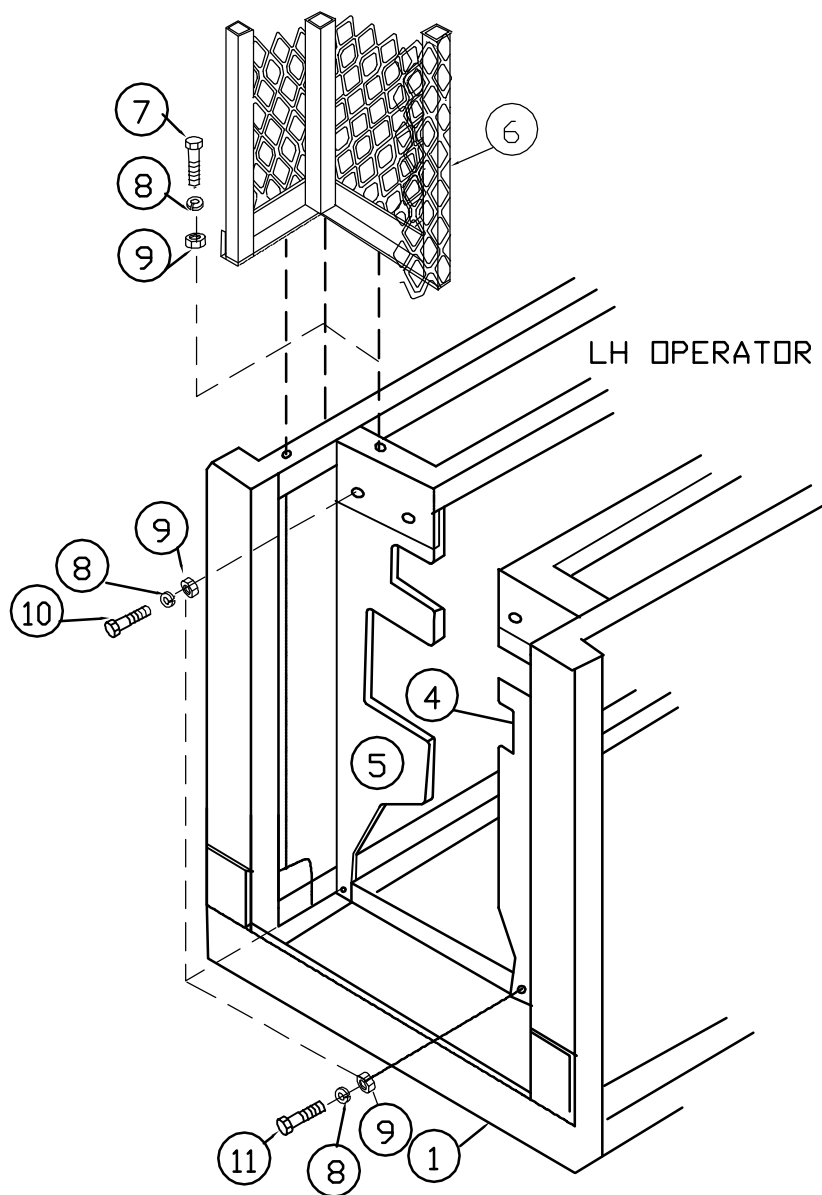
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| DRAWN | 4/13/2010 | IDEAL MFG., INC. | |
| THenry | 4/13/2010 | | |
| CHECKED | | TITLE | |
| QA | | BALANCE SYSTEM CABLE & SHEAVE | |
| MFG | | | |
| APPROVED | | SIZE | DWG NO |
| | | C | PSB M50 108 |
| | | SCALE | REV |
| | | | |
| | | SHEET 1 OF 1 | |

PATRIOT SECURITY BARRIER
MODEL PSB M50
BALANCE SYSTEM CABLE GUIDE

| Parts List | | | |
|------------|-------------|------------------------------------|-----|
| REF. NO. | PART NUMBER | DESCRIPTION | QTY |
| 1 | N/A | SUPPORT CARRIAGE ON OPERATOR FRAME | 1 |
| 2 | ID1006 | 3/16 X 1 1/2 STAINLESS COTTER PIN | 2 |
| FGO127 | FGO127 | PLASTIC ROLLER | 2 |
| FGO128 | FGO128 | SHAFT | 2 |



| | | | | |
|----------|--------|-----------|----------------------------|-------------|
| DRAWN | THenry | 4/13/2010 | IDEAL MFG., INC. | |
| CHECKED | | 4/13/2010 | | |
| QA | | | TITLE | |
| MFG | | | BALANCE SYSTEM CABLE GUIDE | |
| APPROVED | | | SIZE | DWG NO |
| | | | C | PSB M50 109 |
| | | | SCALE | REV |
| | | | | |



TILT-A-WAY PATRIOT SECURITY BARRIER ACCESS GUARDS MODEL PSB M50

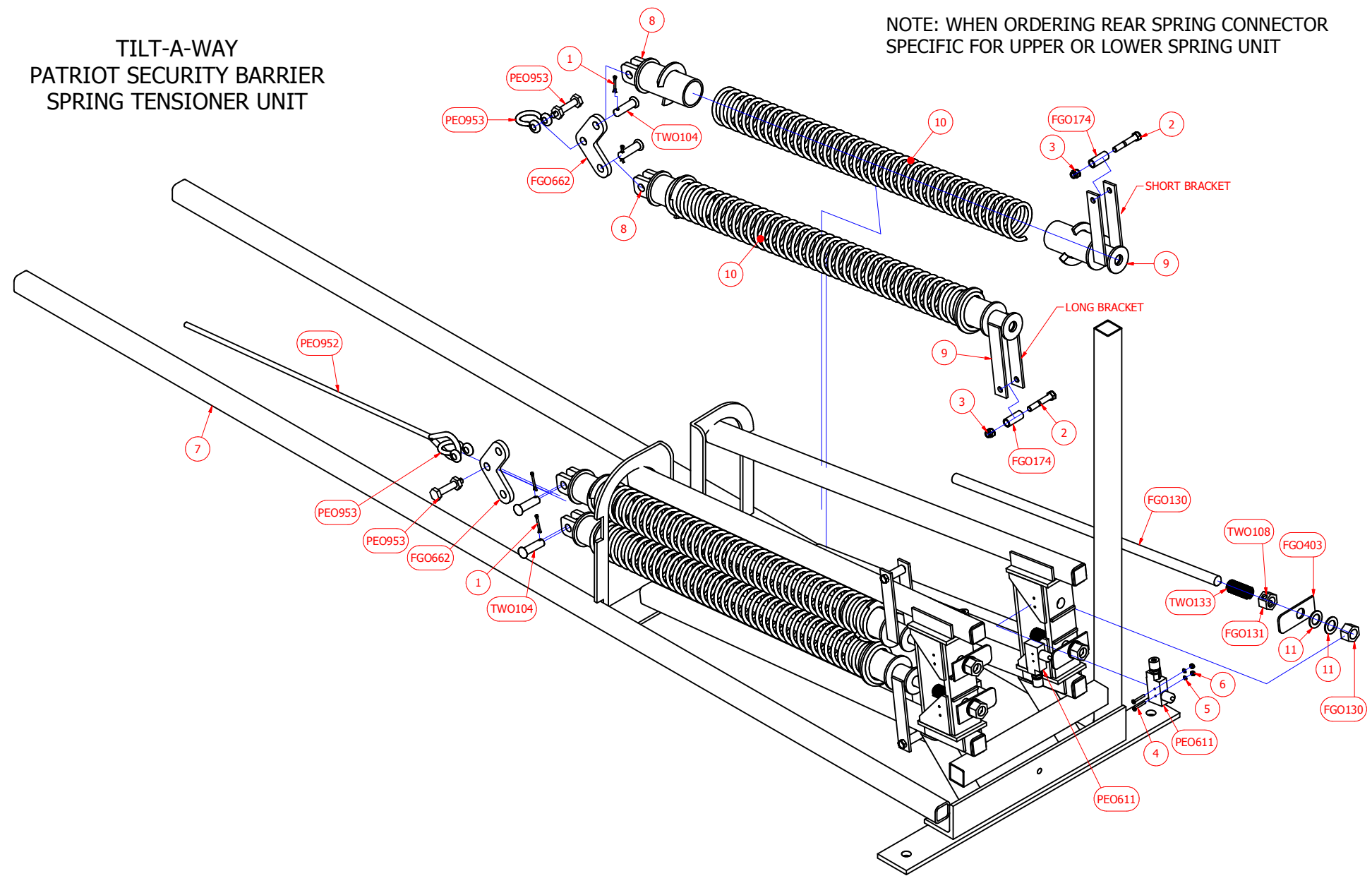
| REF NO. | PART NO. | DESCRIPTION | REQ NO |
|---------|----------|---------------------------------------|--------|
| 1 | N/A | Operator Frame | 1 |
| 2 | FGO660 | Left Inner Guard for Right Hand Gate | 1 |
| 3 | FGO661 | Right Inner Guard for Right Hand Gate | 1 |
| 4 | FGO660A | Left Inner Guard for Left Hand Gate | 1 |
| 5 | FGO661A | Right Inner Guard for Left Hand Gate | 1 |
| 6 | FGO175 | Outer Guard Aluminum Amplimesh | 1 |
| 7 | NA | 3/8-16 X 2 3/4 Hex Head Bolt | 2 |
| 8 | N/A | 3/8 Lock Washer | 8 |
| 9 | N/A | 3/8-16 Hex Nut | 8 |
| 10 | N/A | 3/8-16 X 3/4 Hex Head Bolt | 4 |
| 11 | N/A | 3/8-16 X 1 1/2 Hex Head Bolt | 2 |

**TILT-A-WAY
PATRIOT SECURITY BARRIER
BALANCE SYSTEM SPRING TENSIONER UNIT
DRAWING PSB M50 111
(4 ASSEMBLIES INCLUDED)**

| REF NO. | PART NO. | DESCRIPTION | REQ'D NO. |
|----------------|-----------------|-----------------------------------|------------------|
| 1 | ID1061 | Cotter Pin | 4 |
| 2 | N/A | 1/2-13 X 3 Hex Head Bolt | 4 |
| 3 | N/A | 1/2-13 Nylock Nut | 4 |
| 4 | N/A | 10-24 X 1 1/2 Machine Screw | 8 |
| 5 | N/A | #10 Lock Washer | 8 |
| 6 | N/A | 10-24 Hex Nut | 8 |
| 7 | N/A | Operator Frame | 1 |
| 8 | | Front Spring Connector | 4 |
| | FGO168 | 500 or 1000 Pound Spring | 1 per spring |
| | FGO170 | 1500 or 1750 Pound Spring | 1 per spring |
| | FGO171 | 2000 or 2500 Pound Spring | 1 per spring |
| 9 | | Rear Spring Connector | 4 |
| | FGO139 | 500 or 1000 Pound Spring | 1 per spring |
| | FGO157 | 1500 or 1750 Pound Spring | 1 per spring |
| | FGO159 | 2000 or 2500 Pound Spring | 1 per spring |
| 10 | | Tension Spring | 4 |
| | TWO137 | 500 Pound | Blue |
| | TWO138 | 1000 Pound | Yellow |
| | TWO139 | 1500 Pound | Orange |
| | TWO112 | 1750 Pound | Green |
| | TWO140 | 2000 Pound | Red |
| | TWO113 | 2500 Pound | White |
| 11 | N/A | 10 SAE Washer | 8 |
| FGO130 | FGO130 | Tension Screw with End Nut Welded | 4 |
| FGO131 | FGO131 | Safety Nut | 4 |
| FGO174 | FGO174 | Pipe Spacer | 4 |
| FGO403 | FGO403 | Safety Release Bar | 4 |
| FGO662 | FGO662 | Clevis Bracket | 2 |
| PEO611 | PEO611 | Safety Switch | 4 |
| PEO953 | PEO952 | Cable | 2 |
| PEO953 | PEO953 | Clevis | 2 |
| TWO104 | TWO104 | Clevis Pin | 4 |
| TWO108 | TWO108 | Set Screw | 4 |
| TWO133 | TWO133 | Safety Compression Spring | 4 |

TILT-A-WAY PATRIOT SECURITY BARRIER SPRING TENSIONER UNIT

NOTE: WHEN ORDERING REAR SPRING CONNECTOR
SPECIFIC FOR UPPER OR LOWER SPRING UNIT

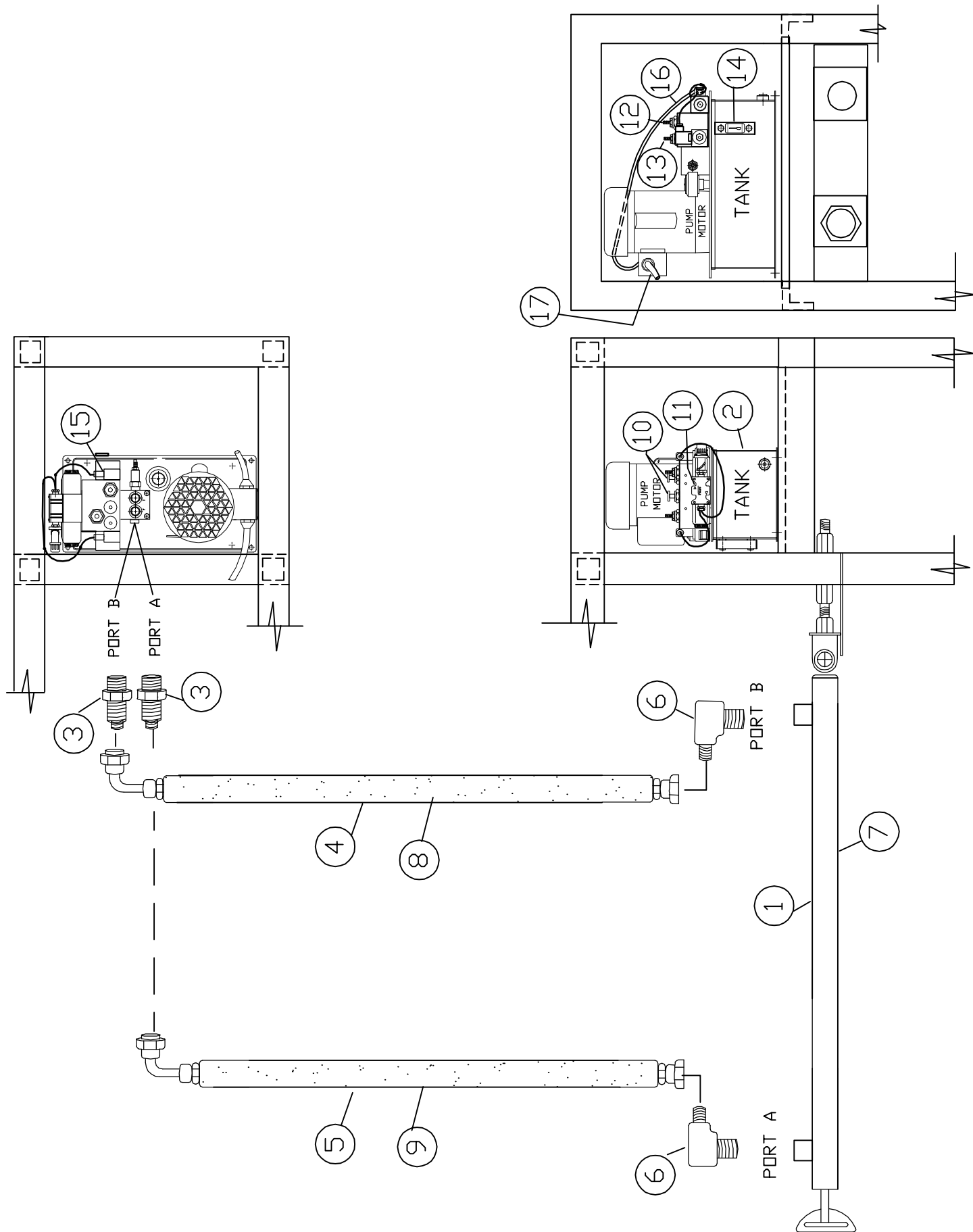


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|----------|--------|--------------|-----------------------|-----|
| DRAWN | THenry | 4/13/2010 | IDEAL MFG., INC. | |
| CHECKED | | 4/13/2010 | | |
| QA | | | TITLE | |
| MFG | | | SPRING TENSIONER UNIT | |
| APPROVED | | | | |
| SIZE | C | DWG NO | PSB M50 111 | REV |
| SCALE | | SHEET 1 OF 1 | | |

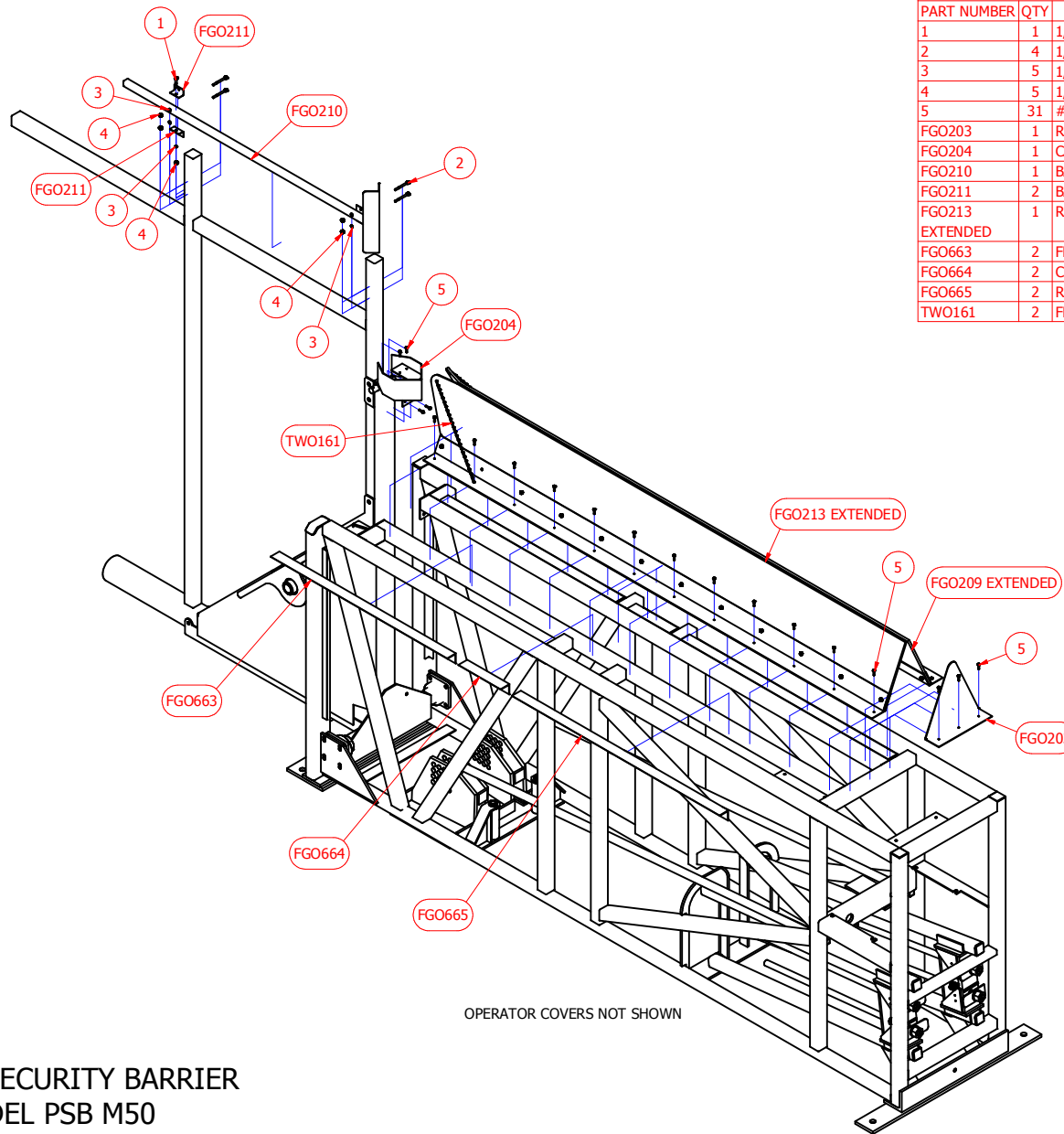
**TILT-A-WAY
PATRIOT SECURITY BARRIER
MODEL PSB M50
EXTENDED HYDRAULIC SYSTEM**

DRAWING PSB M50 112

| REF NO. | PART NO. | DESCRIPTION | REQ'D NO. |
|----------------|-----------------|--|------------------|
| 1 | TWO401 | Extended Hydraulic Cylinder | 1 |
| 2 | TWO410B | Hydraulic Pump & Reservoir Set | 1 |
| 3 | TWO411 | #8 O Ring Male Boss X 3/8" JIC Adapter | 2 |
| 4 | TWO403 | Extended Short 3/8" Pressure Hose 46" | 1 |
| 5 | TWO165 | Extended Long 3/8" Pressure Hose 107" | 1 |
| 6 | TWO154 | 90 degree Elbow | 2 |
| 10 | | Manual Override Valves | 2 |
| 11 | | Solenoid | 1 |
| 12 | | Cylinder slow down open | 1 |
| 13 | | Cylinder slow down closed | 1 |
| 14 | | Sight Gauge | 1 |
| 15 | | Directional Valves | 2 |
| 16 | | Conduit | 1 |
| 17 | | Conduit to Electrical Box | 1 |



TILT-A-WAY PATRIOT SECURITY BARRIER EXTENDED HYDRAULIC SYSTEM
MODEL PSB M50

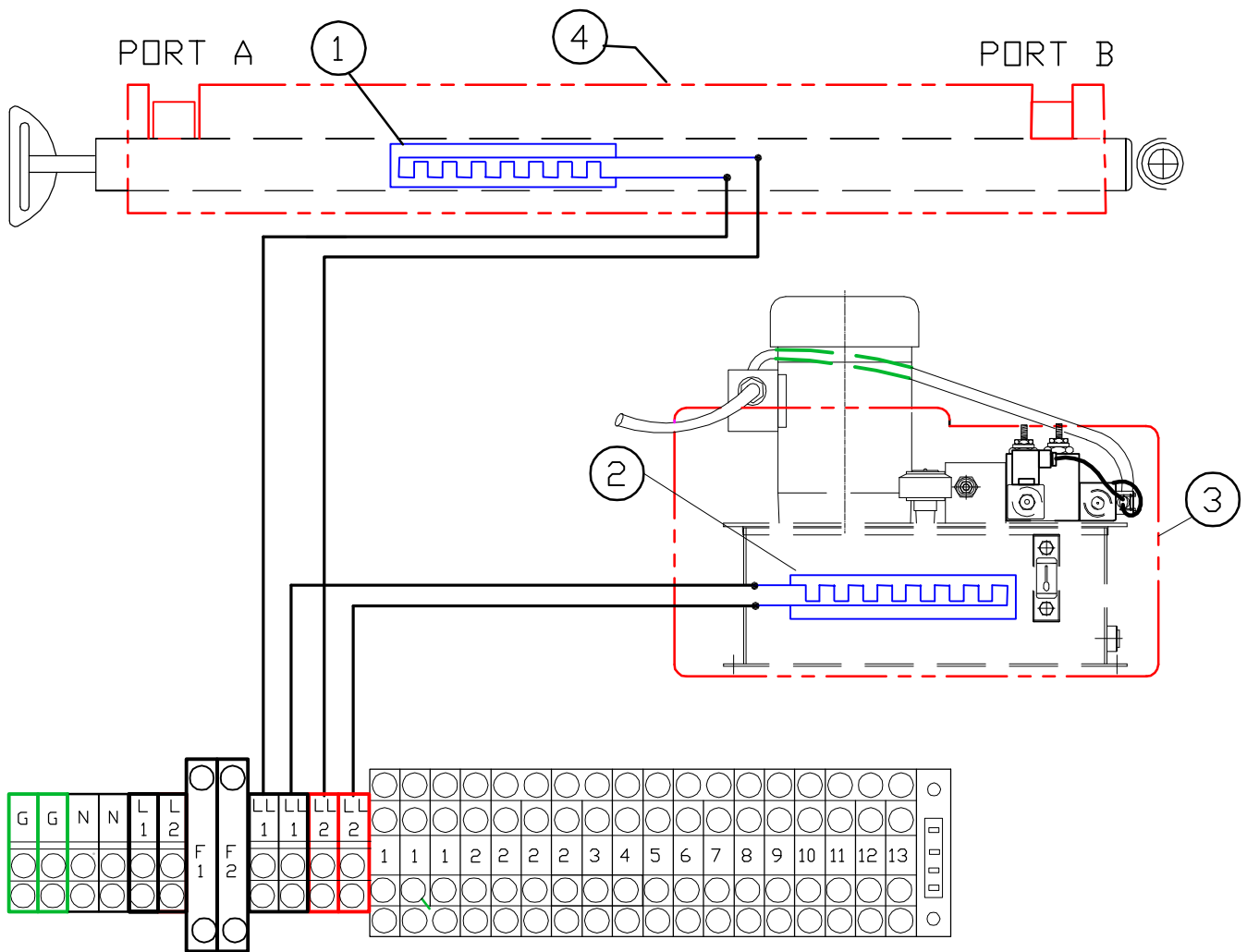


| Parts List | | |
|-------------|-----|---|
| PART NUMBER | QTY | DESCRIPTION |
| 1 | 1 | 1/4-20 X 3/4 HEX BOLT |
| 2 | 4 | 1/4-20 X 2 3/4 HEX BOLT |
| 3 | 5 | 1/4 LOCK WASHER |
| 4 | 5 | 1/4 HEX NUT |
| 5 | 31 | #12 X 7/8 TEK SCREW |
| FGO203 | 1 | REAR END CAP |
| FGO204 | 1 | CABLE CONNECTION GUARD |
| FGO210 | 1 | BARBED WIRE GUARD |
| FGO211 | 2 | BARBED WIRE GUARD END BRACKET |
| FGO213 | 1 | RIGHT HAND FLEXIBLE SHROUD UNIT |
| EXTENDED | | |
| FGO663 | 2 | FRONT ANGLE BRACKET |
| FGO664 | 2 | CENTER ANGLE BRACKET |
| FGO665 | 2 | REAR ANGLE BRACKET |
| TWO161 | 2 | FRONT SPREADER CHAIN WITH EXTRA LENGTH FOR ADJUSTMENT |

PATRIOT SECURITY BARRIER
MODEL PSB M50
WEATHER GUARD OVERHEAD PROTECTION

OPERATOR COVERS NOT SHOWN

| | | | |
|-----------------|-----------|------------------------|-----------------------|
| DRAWN THenry | 4/14/2010 | IDEAL MFG., INC. | |
| CHECKED | 4/14/2010 | | |
| QA | | TITLE | |
| MFG | | PSB M50 WEATHER GUARDS | |
| APPROVED | | SIZE C | DWG NO PSB M50 113 |
| | | SCALE | REV |
| | | | SHEET 1 OF 1 |

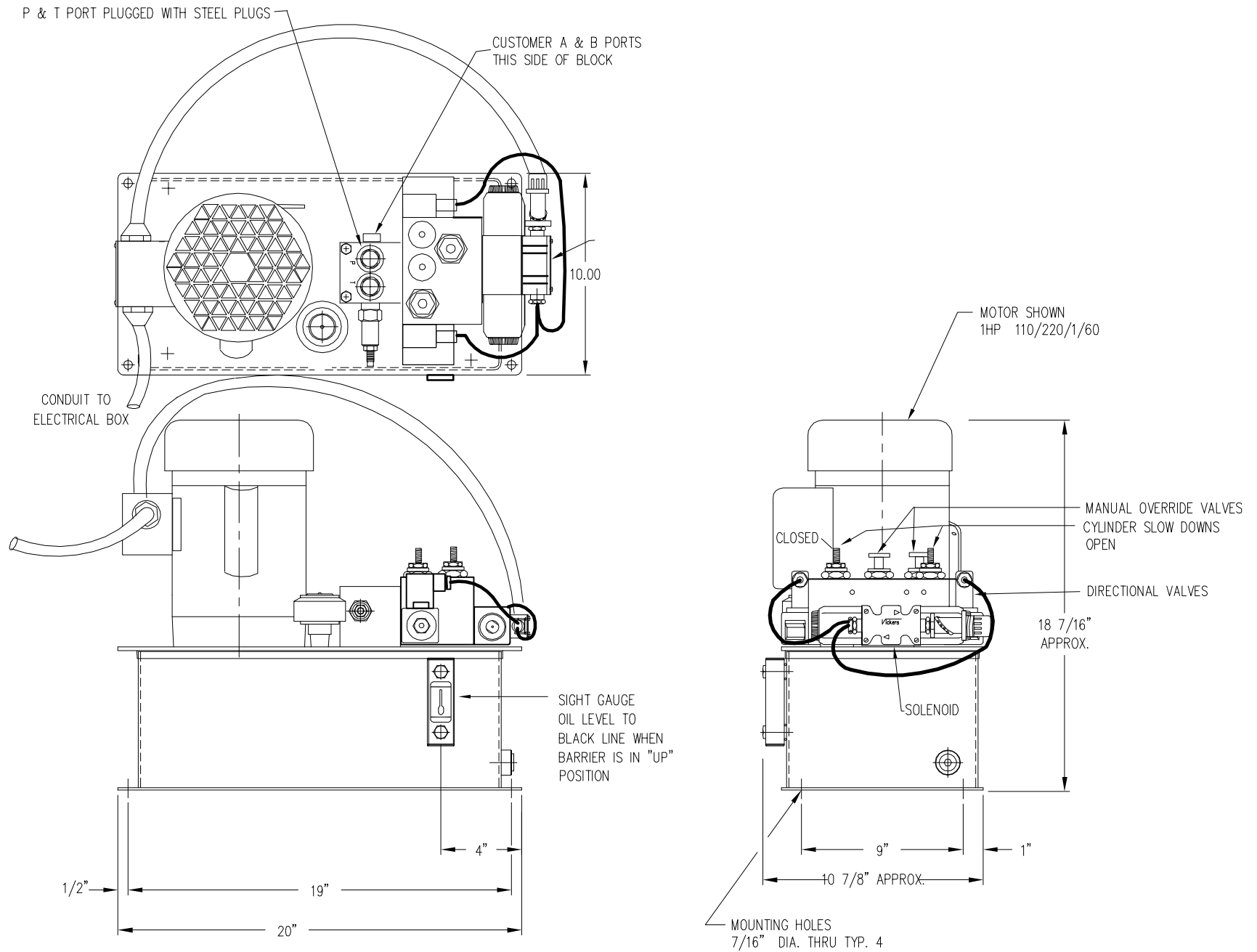


**TILT-A-WAY PATRIOT SECURITY BARRIER
MODEL PSB M50
COLD WEATHER PACKAGE**

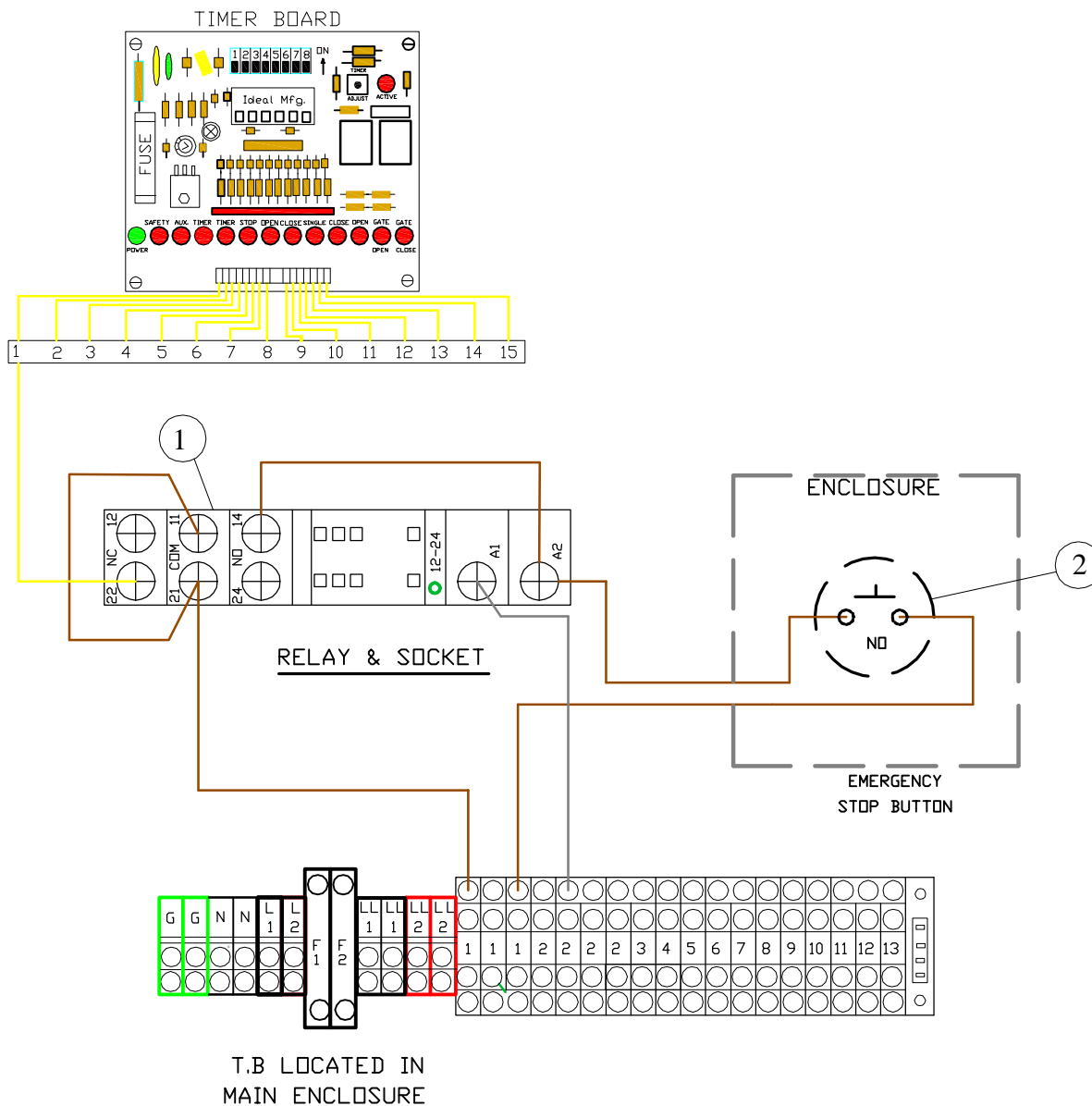
| REF. NO. | PART NO. | DESCRIPTION | REQ. NO. |
|----------|----------|---|----------|
| 1 | PEO247 | Cylinder Heating Strip With Thermostat | 1 |
| 2 | PEO249 | Pump Heating Strip With Thermostat | 1 |
| 3 | PEO420 | Hydraulic Pump & Reservoir Insulating Cover | 1 |
| 4 | PEO421 | Cylinder Insulating Cover | 1 |
| | | | |

**TILT-A-WAY
PATRIOT SECURITY BARREIR
BILL OF MATERIALS POWER UNIT
4 GALLON POWER UNIT LAYOUT**

| PART NO. | DESCRIPTION | REQ'D NO. |
|----------------------------------|---------------------------------------|------------------|
| 723629 | Custom Reservoir | 1 |
| 3004871-35 | Hyco Sight Gauge | 1 |
| 382069-4 | Vickers Pump | 1 |
| 3004827-25 | Baldor Electric Motor | 1 |
| SP-02948-00 | Filter Air Vent ¾ NPT | 1 |
| AD03P12S/C DO3 1 station | Damon Manifold W/Relief Cavity | 1 |
| 02-113123/RV5-10-S-0-35/30 | Vickers Relief Cartridge | 1 |
| 02-145150/DG4V-3S-8C-VM-FW-B5-61 | Vickers Control Valve | 1 |
| 02-199679/MCD-8289 | Custom Valve Assembly | 1 |
| 02-178114 | Custom Valve Coil | 1 |
| 565542/SV4-10-00 | Custom Valve Solenoid Valve Cartridge | 1 |
| 02-113019/FCV7-10-S-0NVF | Custom Valve Slow Down Cartridge | 2 |
| 565590/NV1-10-K-0 | Custom Valve Emergency Open Cartridge | 1 |



VICKERS 4 GALLON POWER UNIT LAYOUT

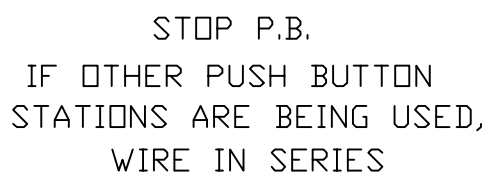


TILT-A-WAY PATRIOT SECURITY BARRIER MODEL PSB M50 EMERGENCY STOP COMPONENTS

| REF. NO. | PART NO. | DESCRIPTION | REQ. NO. |
|----------|----------|-----------------------|----------|
| 1 | PEO639B | Socket & Relay | 1 |
| 2 | PEO257 | Emergency Stop Button | 1 |
| | | | 1 |



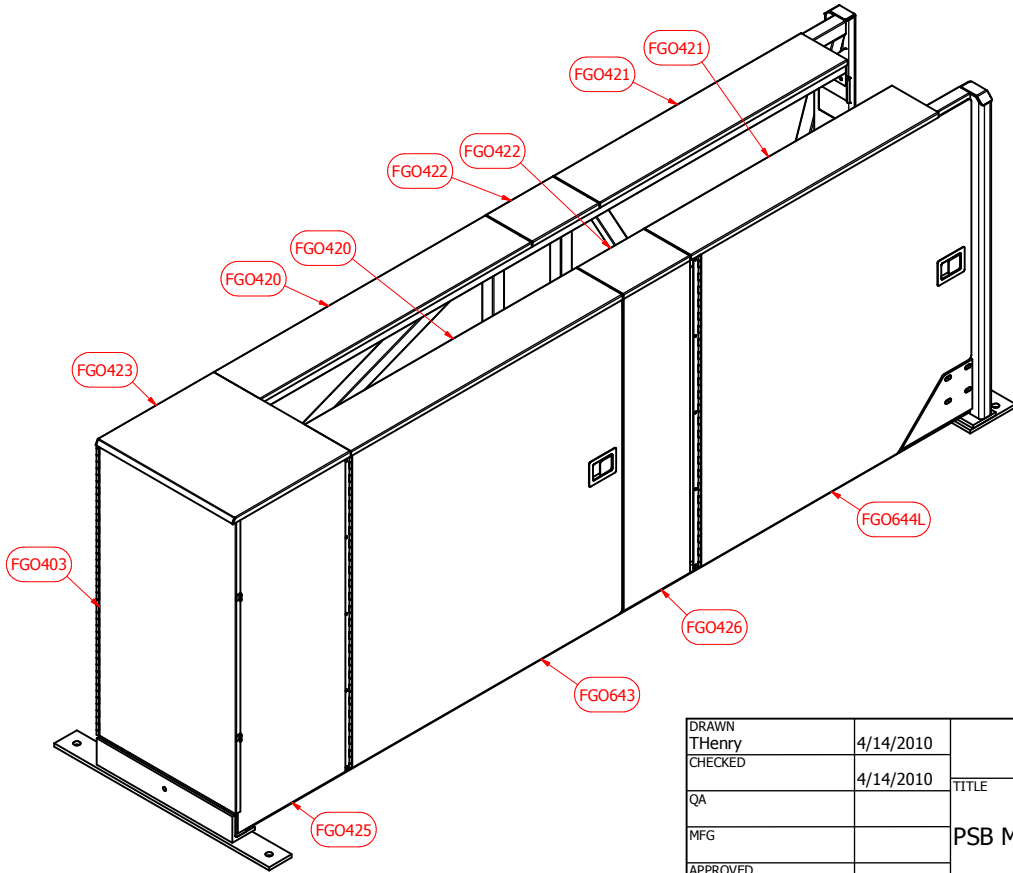
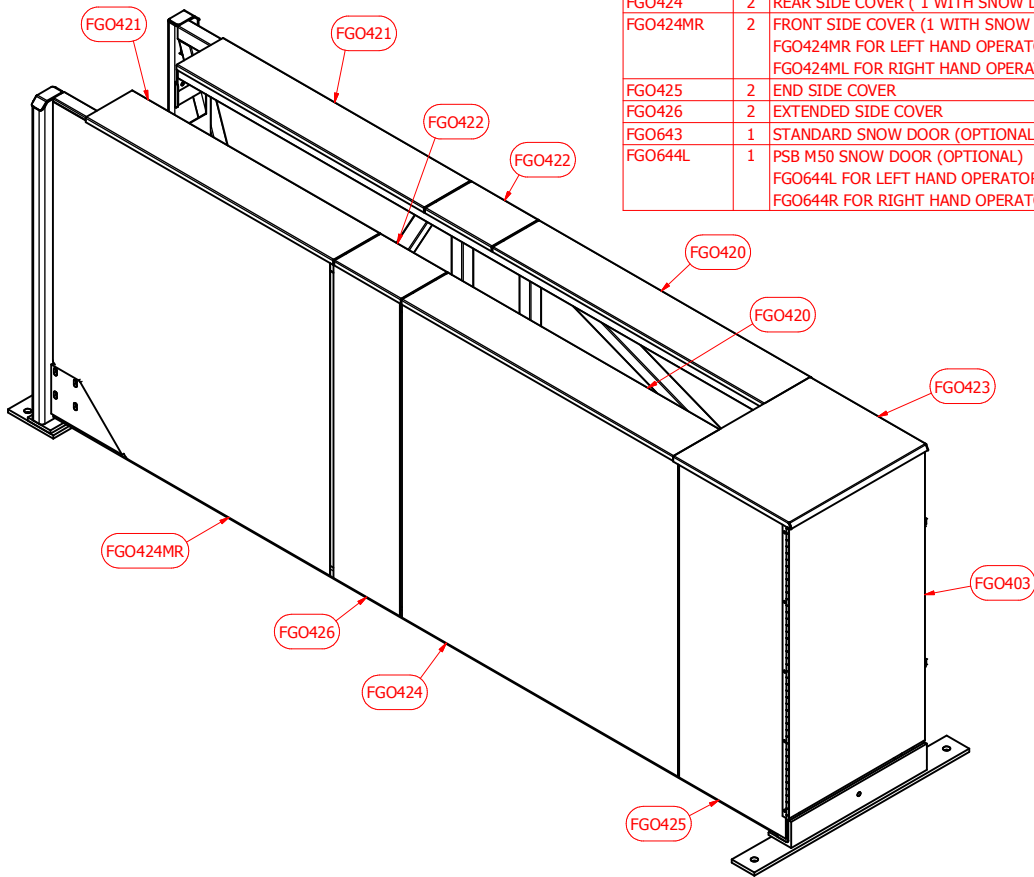
31



| | PART NO | DESCRIPTION | REQ NO |
|--|---------|-------------------|----------|
| | PEO263 | Manual Key Switch | as req'd |

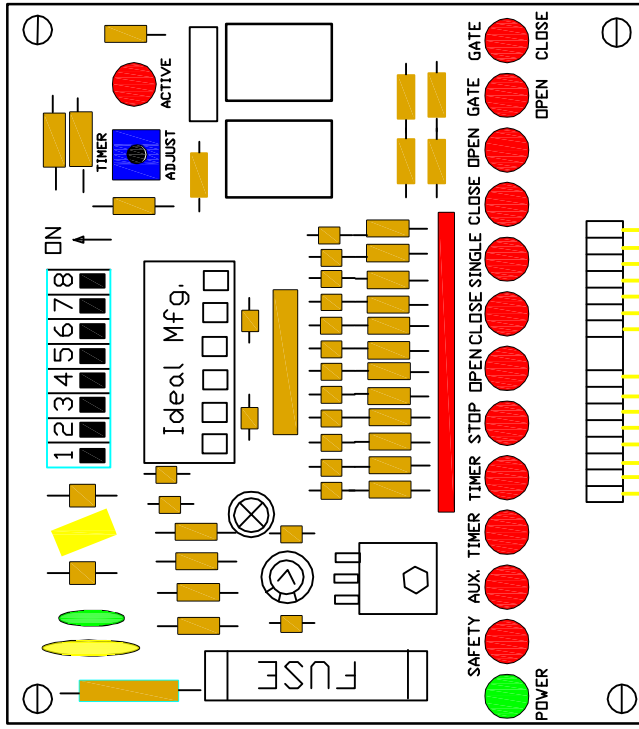
PATRIOT SECURITY BARRIER
MODEL PSB M50
LEFT HAND OPERATOR SHOWN

| Parts List | | |
|-------------|-----|---|
| PART NUMBER | QTY | DESCRIPTION |
| FGO403 | 1 | ACCESS DOOR |
| FGO420 | 2 | REAR TOP COVER |
| FGO421 | 2 | FRONT TOP COVER |
| FGO422 | 2 | EXTENDED TOP COVER |
| FGO423 | 1 | END TOP COVER |
| FGO424 | 2 | REAR SIDE COVER (1 WITH SNOW DOOR OPTION) |
| FGO424MR | 2 | FRONT SIDE COVER (1 WITH SNOW DOOR OPTION) FGO424MR FOR LEFT HAND OPERATOR FGO424ML FOR RIGHT HAND OPERATOR |
| FGO425 | 2 | END SIDE COVER |
| FGO426 | 2 | EXTENDED SIDE COVER |
| FGO643 | 1 | STANDARD SNOW DOOR (OPTIONAL) |
| FGO644L | 1 | PSB M50 SNOW DOOR (OPTIONAL) FGO644L FOR LEFT HAND OPERATOR FGO644R FOR RIGHT HAND OPERATOR |

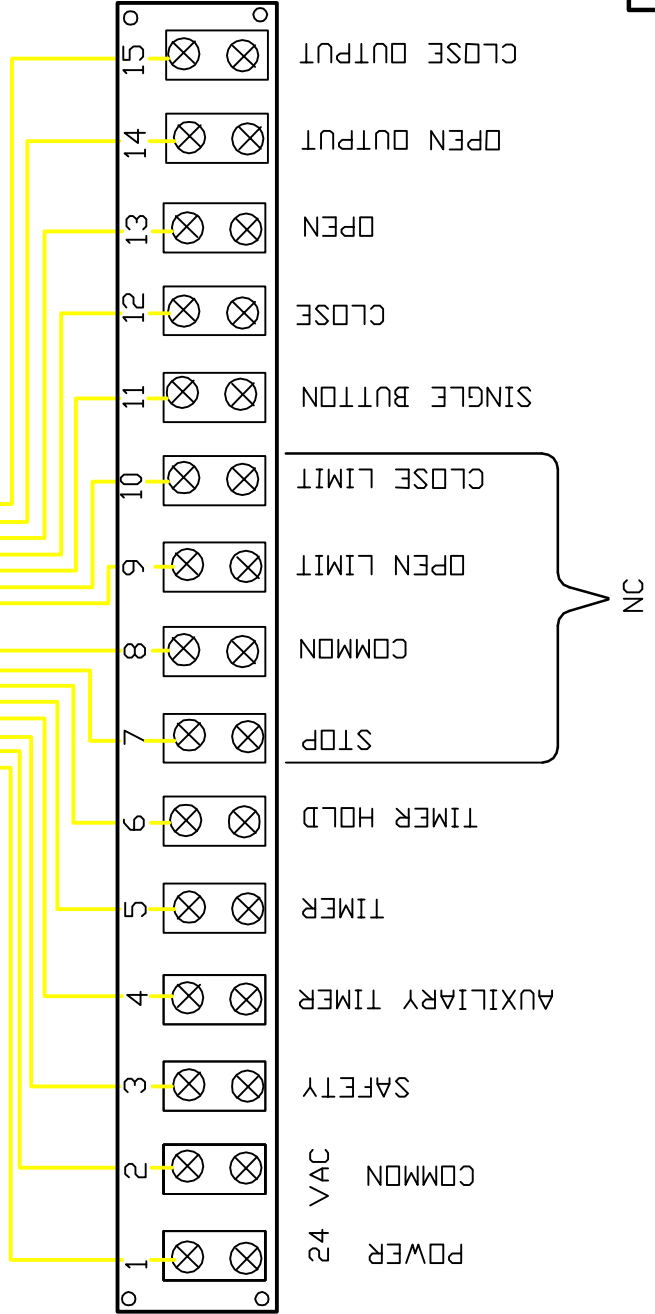


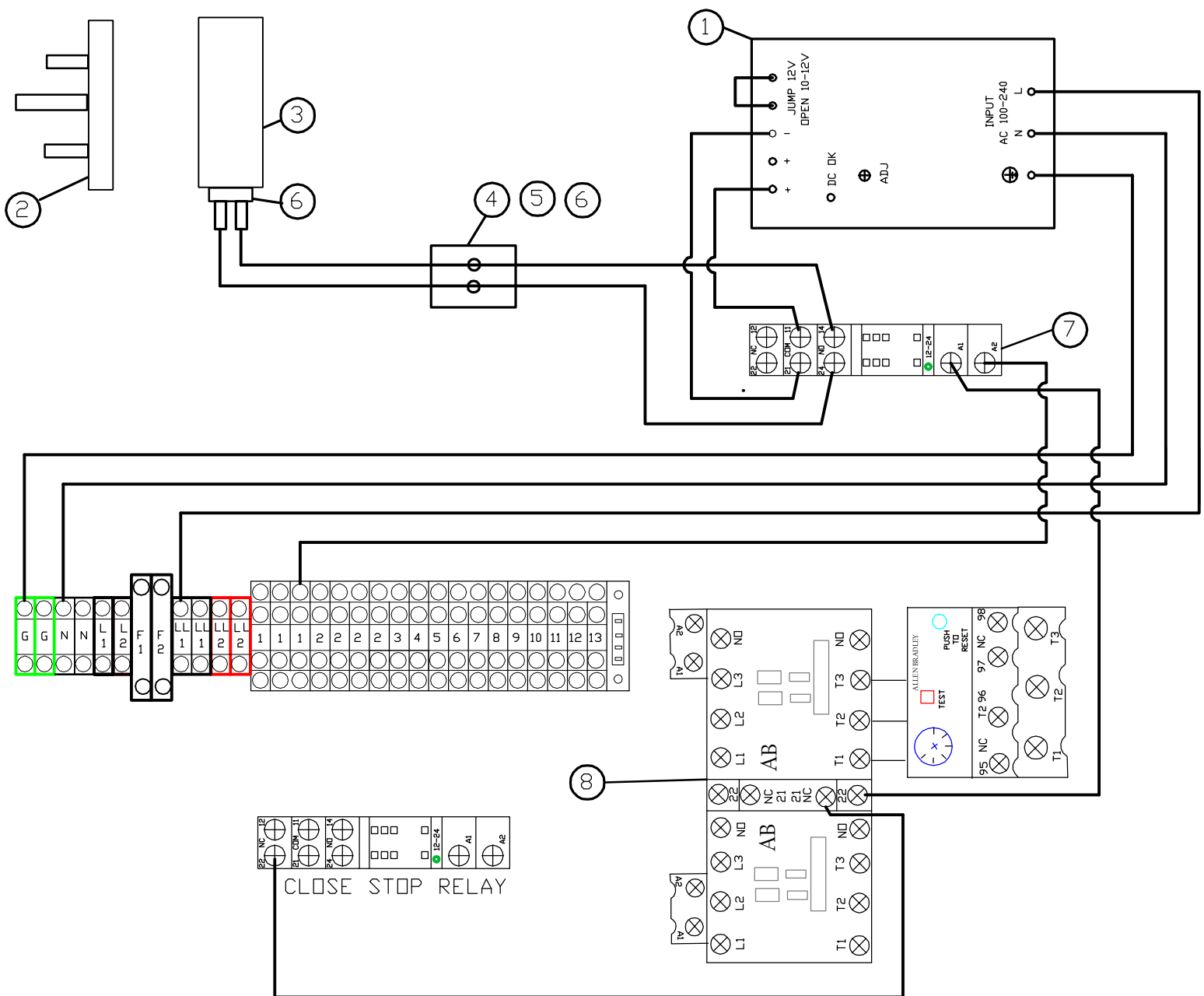
| | | | | |
|----------|-----------|------------------|--------------|-----|
| DRAWN | 4/14/2010 | IDEAL MFG., INC. | | |
| THenry | 4/14/2010 | | | |
| CHECKED | | TITLE | | |
| QA | | PSB M50 COVERS | | |
| MFG | | | | |
| APPROVED | | | | |
| | | SIZE | DWG NO | REV |
| | | C | PSB M50 119 | |
| | | SCALE | SHEET 1 OF 1 | |

TIMER BOARD



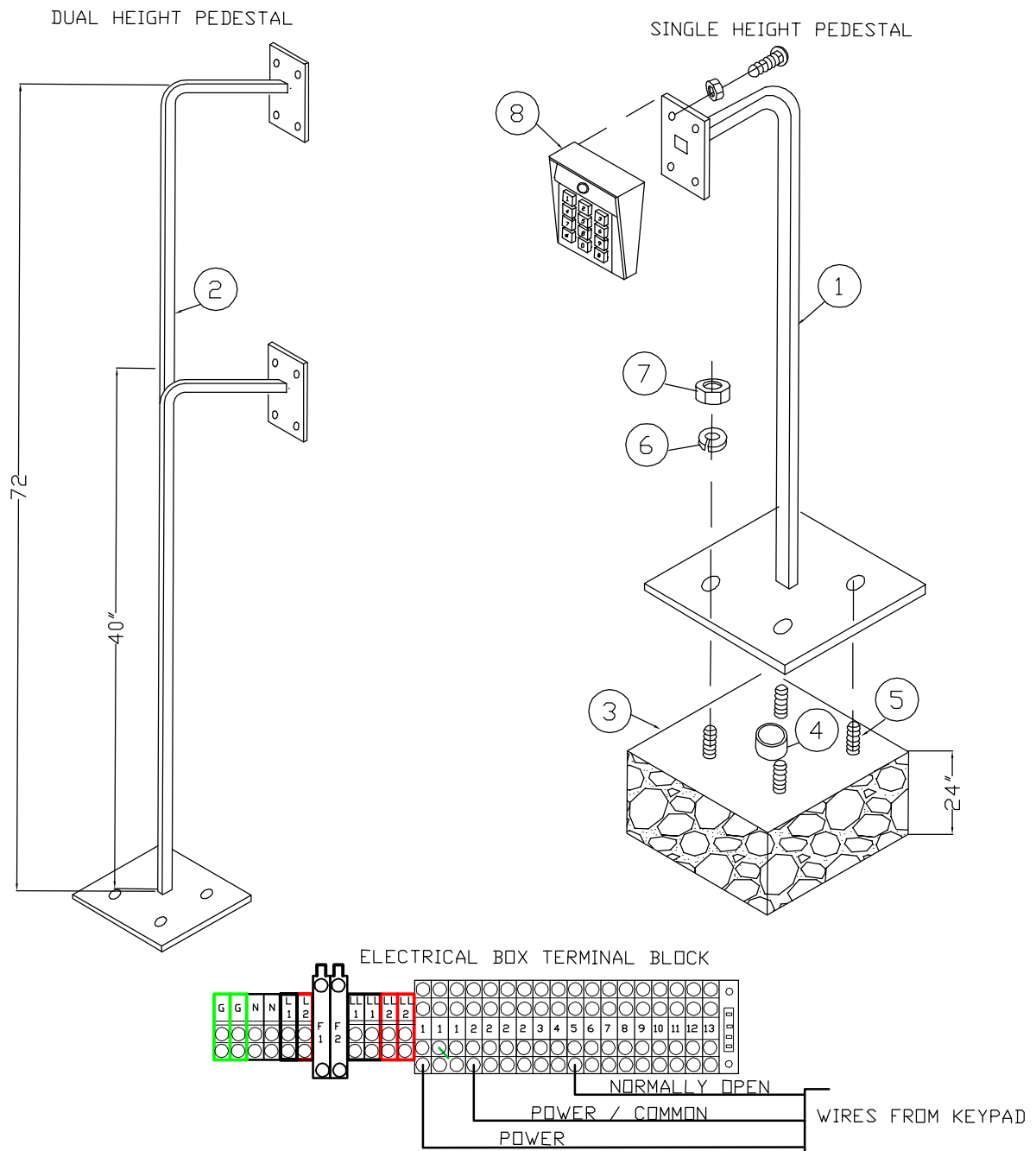
NOTE:
WIRES NUMBER
9, 10, 14, 15
CONNECT TO RELAYS
SEE DWG# RIGHT JD-E200
PAGE 7





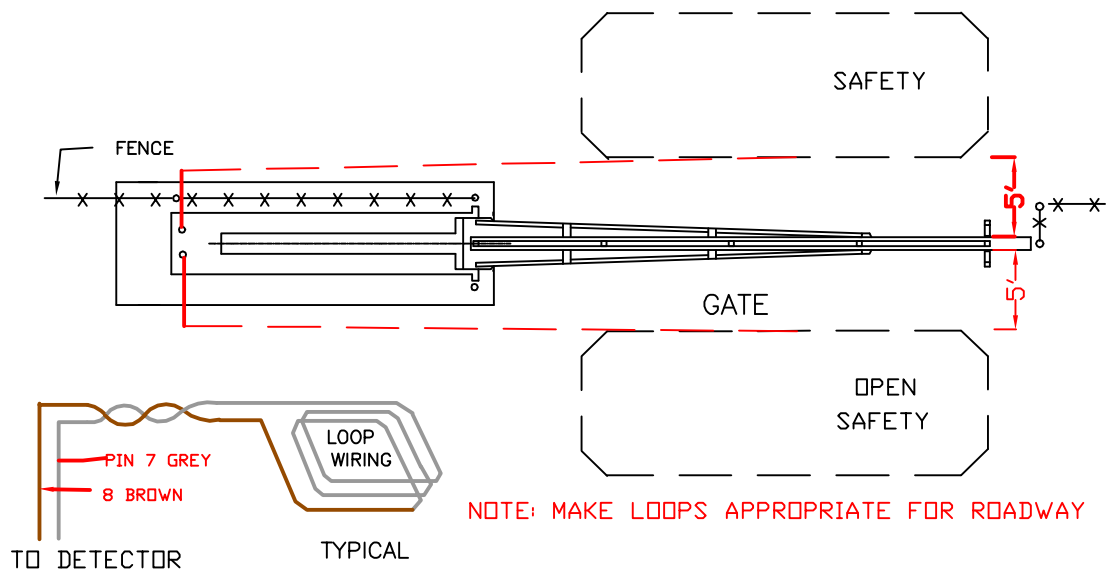
**TILT-A-WAY PATRIOT SECURITY BARRIER
MODEL PSB M50
ELECTROMAGNETIC LOCK**

| REF NO. | PART NO. | DESCRIPTION | REQ NO |
|---------|----------|--|--------|
| 1 | PEO276 | 110 VAC to 12 VDC Converter (Located in or near machine) | 1 |
| 2 | PEO277 | Electromagnetic Armature (Located stationary at outer end of barrier or at outer end of an opposite barrier) | 1 |
| 3 | PEO277 | Electromagnetic Lock (Located at outer end of barrier) | 1 |
| 4 | PEO245 | Junction Box (Located inside front of pedestal frame) | 1 |
| 5 | PEO237 | Junction Box Cover | 1 |
| 6 | PEO246 | 1/2" Strain Relief Fitting (one at barrier lower pipe) | 4 |
| 7 | PEO639B | Relay & Socket | 1 |
| 8 | PEO603 | Reversing Controller | N/A |
| | | 24 VAC Terminal Block | N/A |
| | | 120 VAC Terminal Block | N/A |
| | | Close Stop Relay | 1 |
| | | Auxiliary Contactor | 1 |



**TILT-A-WAY PATRIOT SECURITY BARRIER
MODEL PSB M50
PEDESTAL AND GATELOCK**

| REF NO. | PART NO. | DESCRIPTION | REQ NO |
|---------|----------|--|--------|
| 1 | N/A | Single Height Pedestal | 1 |
| 2 | N/A | Dual Height Pedestal 72" in Height | 1 |
| 3 | N/A | Concrete Support Pier 15" X 15" X 24" Deep | 1 |
| 4 | N/A | 1" in Diameter Electrical Conduit with 2 1/2" projection above Concrete. Conduit Routed from Barrier Pedestal. | 1 |
| 5 | N/A | 1/2" x 8" Expansion Bolt | 4 |
| 6 | NA | 1/2" Lock Washer | 4 |
| 7 | N/A | 1/2" Hex Nut | 4 |
| 8 | N/A | Remote Control Station of Choice (Included are bolts, nuts, keys and plate. | 4 |



OPEN SAFETY

| | | | | | |
|----------------|-------------|--------|------------|--------|--------|
| LOOP DETECTOR | PIN 1 BROWN | 2 GREY | 4 GREEN | 5 GREY | 6 BLUE |
| TERMINAL BLOCK | 1 | 2 | BOX GROUND | 2 | 5 |

SAFETY

| | | | | | |
|----------------|-------------|--------|------------|--------|----------|
| LOOP DETECTOR | PIN 1 BROWN | 2 GREY | 4 GREEN | 5 GREY | 6 ORANGE |
| TERMINAL BLOCK | 1 | 2 | BOX GROUND | 2 | 3 |

NOTE:

Lead wires from more than one loop installation may be routed in same conduit if wires from each individual loop are twisted at least 6 turns per 12 inches.

NOTE: Loop to open gate, pin-6 Blue

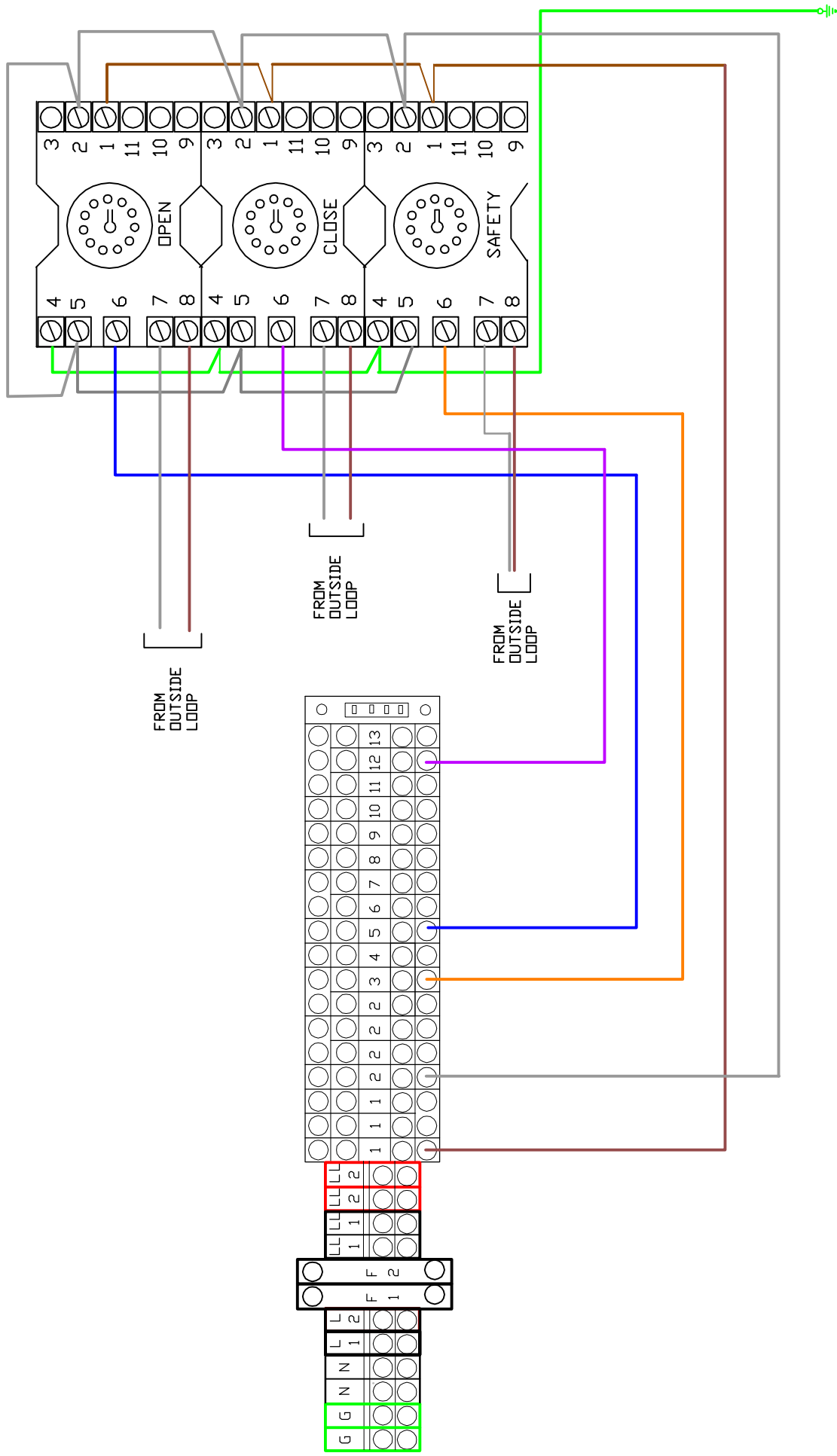
Terminal - 13 OR 5 FOR TIME TO CLOSE

Loop to close gate, pin-6 Purple

Terminal - 12

TILT-A-WAY PATRIOT SECURITY BARRIER MODEL PSB M50

ELECTRICAL LOOP WIRING



TILT-A-WAY PATRIOT SECURITY BARRIER
 MODEL PSB M50
 LOOP DETECTOR DIAGRAM

TO: **Loop Detector Installers**
FROM: Joe Rozgonyi
DATE: July 15, 1996
SUBJECT: **Loop Wires Installation**

Dear Installer:

You may have installed loops for some time. Or, you may be just starting out. In any case, it is good to refresh our memory and maybe learn some new tricks.

First, remember that the loop is an integral part of the detector electronic circuitry. We, the loop detector manufacturers entrust you with making a very important electronic part of our loop detector.

Materials used in the construction of the loop are important. The loop wire should be 16 gage stranded tinned copper wire with cross-linked polyethylene (XLPE) insulation rated for 600V. By using this wire you get the following **advantages**:

- a. The wire gage is large enough so the serial resistance of the loop is low.
- b. The wire is flexible enough to work with in the saw cut, minimizing the possibility of a damage to the insulation.
- c. The XLPE insulation has increased moisture and solvent resistance, and superb aging characteristics. Moisture and solvents in the black top pavement or oil spills from the cars are the major causes in long term insulation damage that causes **intermittent loop lockups and false detection**.

Note: The standard THHN wire so popular with installers is designed for the following applications:

" An all around general purpose building wire, for fixture raceways, conduit and tubing raceways, internal wiring of fixtures and applications requiring building wire".

Please note that the THHN wire was designed for conduit application. It sometimes has a very thin sheeting of nylon, which protects it from moisture, but it is easily damaged during wire installation in the saw cut.

Sealant: Use only a commercial type of loop sealant designed for traffic loops. Any other material will not work for a long time.

Backer Rod: Use a backer rod to ensure that the wires are in place and do not vibrate under the backer rod. Any vibration or wire movement will cause a false detection.

We have the materials covered so let's discuss the **wire installation**. The purpose of all the installation rules you may have heard or read is very simple. We want you to construct a wire coil in the pavement that will comply with the following:

- a. The loop wire insulation will be intact for a long time after you have sealed it in the pavement.
- b. The loop wire will not move or vibrate in the pavement.
- c. The loop wire will be away from any electrical noise.
- d. The loop wire will be away from any moving metal you do not want to detect.
- e. The loop wire continuity (or serial resistance) will be low and constant.

Let's expand on these five points:

a. The wire insulation is very important in preventing a false detection and detector lock-ups. So any scratches on the wire insulation, sharp edges in the saw cut, or small stones in the saw cut and sharp tools used during the installation will cause damage to the wire.

Good Insulation = No Call Back

b. Any vibration of the loop wires or the movement of the steel mesh underneath of the loop will cause false detection. Before the loop installation, inspect the pavement. If in the area of the loop you see large cracks in the pavement and there is an evidence of pavement movement, there is a potential problem. Parts of the pavement may move after you have installed the loops and damage the wire, or cause false detection. Use the backer rod to make sure that the wire is held firm in the saw cut.

No Wire Vibration and Good Pavement = No Call Back

c. If you have a power line running under the loop wire do not be surprised if you get false detects. The changes in electrical current are detected by the loop detector as cars.

No Power Lines Close To The Loop = No Call Back

d. If you have a metal slide gate or a metal overhead door close to the loop, the detector will detect it. The detector cannot distinguish between the metal in the gate and the metal in the car.

No Moving Metal Close To The Loop = No Call Back

e. Wire nut as a splice connection is great when dealing with mains. However, when you have to make a splice on the lead-in wire use a solder iron. The current on the loop wire is too low to overcome the long term oxidation occurring on a wire nut connection.

Soldered Splices = No Call Back

In summary

The following elements can reduce the loop detector sensitivity:

1. Underground steel reinforcing - make the loop cut shallow in concrete pavement (approx. 1 inch) or use fiberglass mesh when installing new concrete pavement.
2. More than one loop connected to one detector - if you are experiencing a low sensitivity problem and you have two loops on one detector, consider adding an additional loop detector. Two loops on one detector = half of the sensitivity.

The following elements can cause detector lock up or intermittent detection:

1. Cross-talk between adjacent loops due to both having the same operating frequency. Use the LD-2000 loop detector frequency counter feature to measure the loop frequency.
2. Inadequate loop spacing - keep loops 4 feet apart.
3. Loop wire vibration in the saw cut - use backer rod.
4. Splices with wire nut - solder all splices
5. Lead-in wires not twisted - twist lead-in wire at least 6 turns per foot.
6. Power lines close to the loop - keep at least 6 feet away from power lines.
7. Loop too close to moving gate - keep at least 4 feet way.

Note: Always connect safety loops in series, free exit loops can be connected in parallel.

Use automatic sensitivity boost to detect high bed vehicles.

Use the filter function to filter out RF noise generated by police and EMS vehicles.

Use fail safe detector for safety and fail secure detector for free exit application.

Shortcut: You can avoid installation problems and guess work by simply installing a well constructed preformed loop like our EMX Lite Loop.

Loop Sizes and Loop Characteristics

| Loop Size | Loop Size | Inductance | Turns | Detect. Height |
|-----------|-----------|------------|-------|----------------|
| 2 | 2 | 60 | 5 | 1.6 |
| 2 | 4 | 60 | 4 | 1.6 |
| 2 | 6 | 80 | 4 | 1.6 |
| 2 | 8 | 60 | 3 | 1.6 |
| 2 | 10 | 72 | 3 | 1.6 |
| 2 | 12 | 84 | 3 | 1.6 |
| 2 | 14 | 96 | 3 | 1.6 |
| 2 | 16 | 108 | 3 | 1.6 |
| 2 | 18 | 120 | 3 | 1.6 |
| 2 | 20 | 132 | 3 | 1.6 |
| 4 | 4 | 80 | 4 | 3.2 |
| 4 | 6 | 100 | 4 | 3.2 |
| 4 | 8 | 72 | 3 | 3.2 |
| 4 | 10 | 84 | 3 | 3.2 |
| 4 | 12 | 96 | 3 | 3.2 |
| 4 | 14 | 108 | 3 | 3.2 |
| 4 | 16 | 120 | 3 | 3.2 |
| 4 | 18 | 132 | 3 | 3.2 |
| 4 | 20 | 144 | 3 | 3.2 |
| 4 | 22 | 156 | 3 | 3.2 |
| 4 | 24 | 168 | 3 | 3.2 |
| 4 | 26 | 180 | 3 | 3.2 |
| 4 | 28 | 192 | 3 | 3.2 |
| 4 | 30 | 102 | 2 | 3.2 |
| 4 | 32 | 108 | 2 | 3.2 |
| 4 | 33 | 111 | 2 | 3.2 |
| 4 | 34 | 114 | 2 | 3.2 |
| 4 | 36 | 120 | 2 | 3.2 |
| 4 | 38 | 126 | 2 | 3.2 |
| 4 | 40 | 132 | 2 | 3.2 |
| 6 | 6 | 120 | 4 | 4.8 |
| 6 | 8 | 84 | 3 | 4.8 |
| 6 | 10 | 96 | 3 | 4.8 |
| 6 | 12 | 108 | 3 | 4.8 |
| 6 | 14 | 120 | 3 | 4.8 |
| 6 | 16 | 132 | 3 | 4.8 |
| 6 | 18 | 144 | 3 | 4.8 |
| | | | | |
| | | | | |
| | | | | |

All the numbers are approximated, actual results may vary.

Loop Sizes and Loop Characteristics

| Loop Size | Loop Size | Inductance | Turns | Detection Hight |
|---|-----------|------------|-------|-----------------|
| 6 | 20 | 78 | 2 | 4.8 |
| 6 | 22 | 84 | 2 | 4.8 |
| 6 | 24 | 90 | 2 | 4.8 |
| 6 | 26 | 96 | 2 | 4.8 |
| 6 | 28 | 102 | 2 | 4.8 |
| 6 | 30 | 108 | 2 | 4.8 |
| 6 | 32 | 114 | 2 | 4.8 |
| 6 | 33 | 117 | 2 | 4.8 |
| 6 | 34 | 120 | 2 | 4.8 |
| 6 | 36 | 126 | 2 | 4.8 |
| 6 | 38 | 132 | 2 | 4.8 |
| 6 | 40 | 138 | 2 | 4.8 |
| | | | | |
| 8 | 4 | 120 | 4 | 3.2 |
| 8 | 6 | 140 | 4 | 4.8 |
| 8 | 8 | 96 | 3 | 5.6 |
| 8 | 10 | 108 | 3 | 5.6 |
| 8 | 12 | 120 | 3 | 5.6 |
| 8 | 14 | 132 | 3 | 5.6 |
| 8 | 16 | 144 | 3 | 5.6 |
| 8 | 18 | 78 | 2 | 5.6 |
| 8 | 20 | 84 | 2 | 5.6 |
| 8 | 22 | 90 | 2 | 5.6 |
| 8 | 24 | 96 | 2 | 5.6 |
| 8 | 26 | 102 | 2 | 5.6 |
| 8 | 28 | 108 | 2 | 5.6 |
| 8 | 30 | 114 | 2 | 5.6 |
| 8 | 32 | 120 | 2 | 5.6 |
| 8 | 33 | 123 | 2 | 5.6 |
| 8 | 34 | 126 | 2 | 5.6 |
| 8 | 36 | 132 | 2 | 5.6 |
| 8 | 38 | 138 | 2 | 5.6 |
| 8 | 40 | 144 | 2 | 5.6 |
| | | | | |
| Loop Numbers | | | | |
| Serial Resistance: between two lead-in wires - less than 5 ohms | | | | |
| Leakage to Ground: between one lead-in wire and the ground more than 10 mega ohm at 500VDC for one minute. | | | | |
| Use DI 6200 insulation tester or equivalent | | | | |
| | | | | |
| | | | | |
| | | | | |

All the numbers are approximated, actual results may vary.

D-TEK Vehicle Loop Detector - Operating Instructions

We at EMX have designed the new D-TEK vehicle loop detector with the following objectives in mind:

1. Compact package to allow easy installation into small operator housings.
2. All the controls are accessible from the outside for easy installation and operation.
3. Integral loop conditioner is provided, to enable detector operation with marginal loops.
4. Provide all the features and controls necessary for a variety of applications.
5. Use metal housing for maximum durability and RF blocking.
6. Provide maximum surge protection on all inputs and outputs of the detector.

We took extra care to achieve and exceed these objectives. For example the controls are divided into two groups. The group on the front of the detector is for basic operation and the group on the back of the detector is for advanced settings. This way the more advanced settings are not visible to the casual user.

There is no skimping on the quality in the D-TEK detector. The housing is made from aircraft quality anodized aluminum. All the switches have gold plated contacts and are sealed for protection. The detector is protected by easily replaceable fuse, snubbing circuitry on the relay contacts, metal oxide varistor on the power input and triple protection on the loop input.

The D-TEK features are extensive and they include full loop diagnostics with frequency counter, 10 sensitivity settings, delay and extend features, "fail safe" and "fail secure" operation, automatic sensitivity boost, pulse or two presence relay operation and more.

Technical Information

Detector Connections

| Pin | Function | Harness |
|-----|-----------------------|---------------------|
| 1 | Power | White |
| 2 | Power | Black |
| 3 | Relay 2 N.O | Orange |
| 4 | Ground | Green |
| 5 | Presence Relay Comm.. | Yellow |
| 6 | Presence Relay N.O. | Blue |
| 7 | Loop | Gray |
| 8 | Loop | Brown |
| 9 | Relay 2 Comm.. | Red |
| 10 | Presence Relay N.C. | White/Blk or Pink |
| 11 | Relay 2 N.C. | White/Red or Violet |

Note: Functions on pins 6 and 10 are reversed if DIP 4 is set to **OFF** "Fail Secure" operation

Front Indicators

1. Green Led is ON - the detector is powered.
2. Red Led is ON - the detector detected a vehicle
3. Green Led is Blinking - the loop failed and is shorted or disconnected
4. Green Led is Blinking with two consecutive fast blinks - the loop failed in the past and now is working correctly.
5. Red Led is Blinking at the start of a vehicle detection - the Filter function is ON
6. Red Led is Blinking at the end of a vehicle detection - the Extend function is ON
7. Red Led is Blinking during a vehicle detection - 4 minute limited presence time has expired.

Note: Functions on pins 6 and 10 are reversed if DIP 4 is set to OFF

Front Controls

- Reset** this toggle switch when pushed momentarily down will reset the detector
- Frequency Counter** this toggle switch when pushed momentarily up will count the frequency on the loop. This count is displayed by the Red Led blinks, each blink represents frequency of 10K Hz. Count between 3 to 13 blinks confirms that the loop detector is tuned to the loop.
- Frequency** This toggle switch controls the loop frequency. Set different frequencies on adjacent loops. Verify frequencies with the frequency counter by counting the Red Led blinks.

Back Controls

- Sensitivity** this rotary switch controls the detector sensitivity. During normal operation the sensitivity level is set to 3 or 4.

DIP Switch Functions

| DIP | OFF | ON |
|-----|-------------------|--------------------------------|
| 1 | Pulse on Relay II | Presence on Relay II |
| 2 | Pulse on detect | Pulse on Un-detect |
| 3 | Constant presence | 4 minute limited presence time |
| 4 | "Fail Secure" | "Fail Safe" |
| 5 | Filter Off | Filter On |
| 6 | ASB Off | Automatic Sensitivity Boost On |
| 7 | Extend detect | 6 seconds |
| 8 | Extend detect | 3 seconds |

When Dip 7 and 8 are in ON position the extend time is 9 seconds.

Warning: Do not use limited presence setting and / or "Fail Secure" setting for reversing gates, doors or barriers.

DIP - Detector Functions

1. Presence function is provided always by the presence relay output on pins 5, 6, and 10. These outputs are active when the detector detects a car. If there is a need for an additional presence output the Relay 2 can be configured as a second presence output by setting DIP 1 to ON position.
2. Pulse function is provided by the Relay 2 output on pins 3, 9, and 11. To obtain pulse on Relay 2 set DIP 1 to OFF position. The pulse of about 0.5 second can be generated when the car enters the loop or when it exits. To generate pulse on vehicle entry to the loop set DIP 2 to OFF position. To generate pulse on vehicle exit from the loop set DIP 2 to ON position.
3. The presence relay provides constant output as long as the car is detected on the loop. To obtain constant presence time set DIP 3 to OFF position. In some applications limited presence time is required. To obtain limited presence time of approximately 4 minutes set DIP 3 to ON position. Be aware that the detector relay will be released after 4 minutes even if the vehicle is still detected by the detector. This may be a serious hazard in applications where gates, doors or barriers are reversed, therefore never use this option in these applications.
4. When DIP 4 is set to ON position the detector works in "Fail Safe" mode of operation the detector will issue a detect signal when a car is detected, loop is disconnected or shorted, or when the power to the detector is interrupted. It is strongly recommended to use the detector in this mode.

In some application there is a need to ignore the loop or power failures and only to provide the detect signal when a car is detected on the loop. To ignore loop or power failures set the detector to "Fail Secure" by setting DIP 4 to OFF position. Do not use this setting for application where gates, doors or barriers have to be reversed.

Note: Functions on pins 6 and 10 are reversed if DIP 4 is set to OFF

5. In some applications it is necessary to filter out short detections such as cross traffic or short burst of radio frequency such as keying of a CB transmitter. To ignore these short detections set DIP 5 to ON position. This will cause any detection that is shorter than 2 seconds to be ignored.
6. To increase detection height when detecting high bed vehicles set DIP 6 to ON position. This setting will cause the sensitivity to automatically increase once the front axle of the truck is detected. The sensitivity will go back to the normal level once the truck left the loop.

NOTES

7. To extend the presence output for 6 seconds after the vehicle left the loop set DIP 7 to ON position.
8. To extend the presence output for 3 seconds after the vehicle left the loop set DIP 8 to ON position.

Note: If DIP 7 and DIP 8 are set to ON position the presence output will be extended 9 seconds after the vehicle left the loop.

Troubleshooting

| Symptom | Possible Cause | Correction |
|--|--|--|
| Green indicator is not ON | No input voltage | 1. Check voltage on pins 1 and 2. 2. Replace internal fuse 3. Check wiring to detector |
| Green indicator flashes | Loop wire shorted or disconnected | 1. Check loop resistance on pins 7 and 8 it should be less than 5 ohms and more than 0.5 ohms. |
| Green indicator flashes with two consecutive fast blinks | Loop wire was temporarily shorted or disconnected | 1. Check loop resistance on pins 7 and 8 while driving over the loop it should be less than 5 ohms and more than 0.5 ohms. The reading should be steady. |
| Detector stays in detect mode after the car left the loop and fails to undetect. | 1. Faulty loop 2. Poorly crimped terminals 3. Loose connections | 1. Perform megger test between loop lead and ground the reading should be larger than 100 megaohms. 2. Check that loop is tightly connected to proper terminals 3. Check that splices are tightly soldered and sealed against moisture. |
| Detector detects intermittently even when there is no car on the loop. | 1. Faulty loop 2. Poorly crimped terminals 3. Loose connections 4. ~ Cross-talk between adjacent loop detectors | 1. Perform megger test between loop lead and ground the reading should be larger than 100 megaohms. 2. Check that loop is tightly connected to proper terminals 3. Check that splices are tightly soldered and sealed against moisture. 4. Set adjacent loops on different frequencies. |

Technical Specifications

Power: the detector is available in the following voltages, 12V AC/DC, 24V AC, 24V DC, 110V AC, 220V AC. maximum current draw 100mA.

Low power detector is available with maximum current draw of 60mA

Temperature: -40F to + 180F

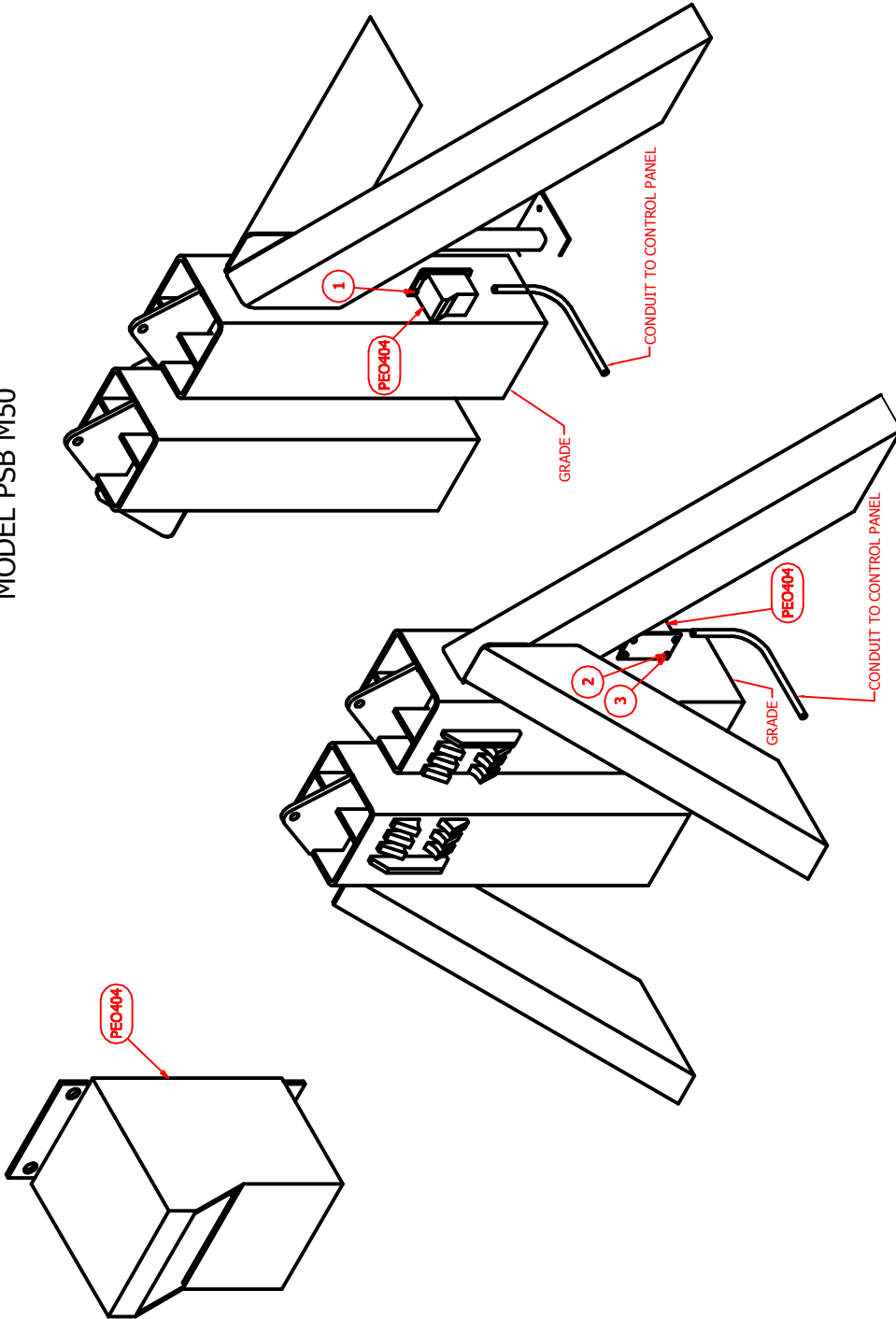
Environmental Protection: Circuit board is conformally coated

Enclosure: Extruded anodized aluminum, Height = 3.25 inches 83 mm
 Width = 2.56 inches 40 mm
 Depth = 3.65 inches 90 mm

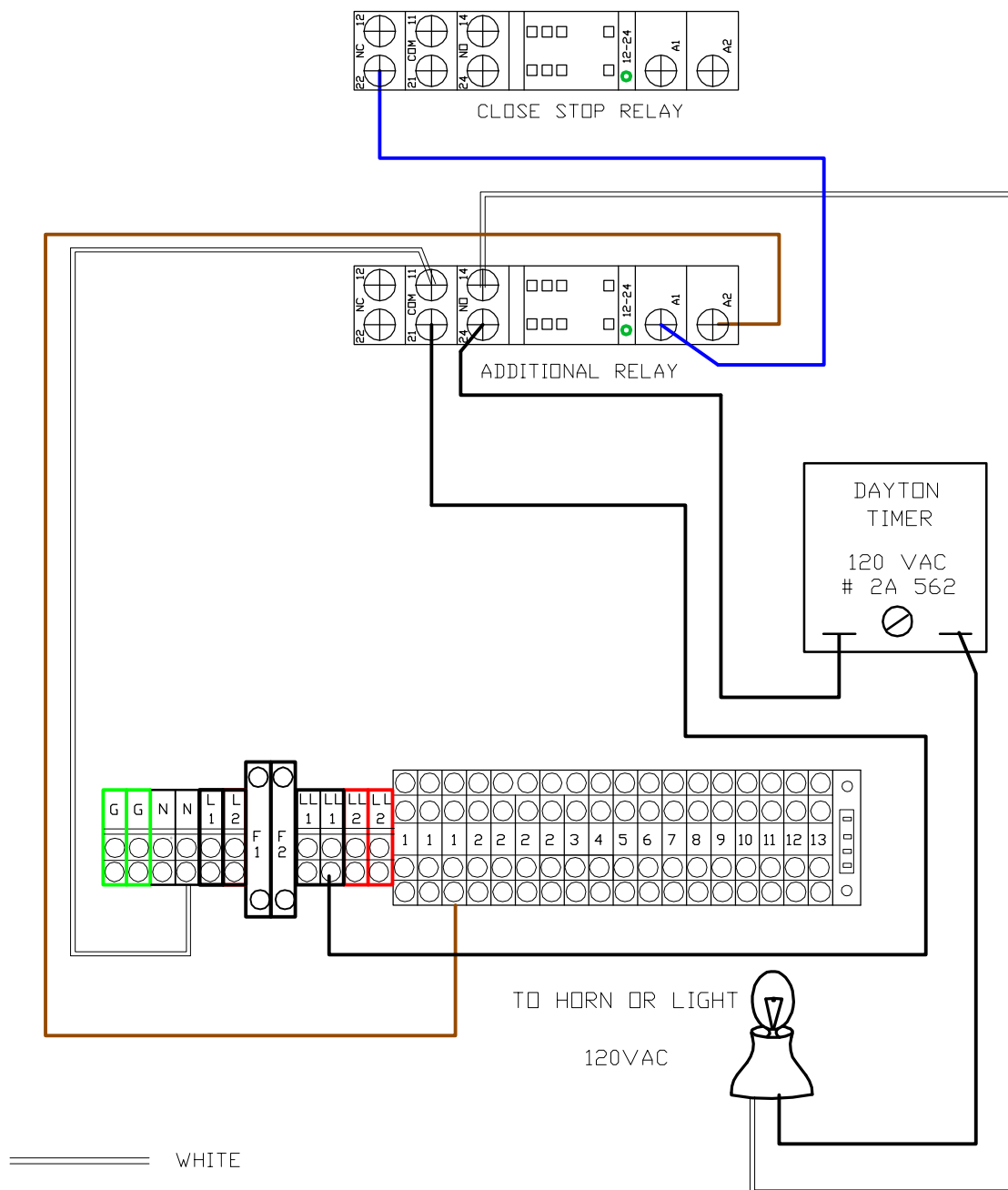
| | |
|--------------------------------|---|
| Output Relays: | 5A/125 V AC standard version, 1A/125 V AC low current version |
| Connector: | 86CP11 compatible with 11pin Octal DIN rail mountable socket or wire harness |
| Surge Protection: | The detector is protected with neon discharge lamps, zenner diodes and surge arrestors. |
| Loop Input: | Transformer isolated |
| Grounded Loop: | The loop isolation transformer allows operation with poor quality loops. |
| Loop Inductance Range: | 20 to 2000 microhenries with Q factor of 5 or higher. |
| Tuning: | Detector automatically tunes to the loop after power application or reset. |
| Tracking: | Detector automatically tracks and compensates for environmental changes |
| Power Indicator: | Green LED solid light indicates power |
| Loop Failure Indicator: | Green LED blinks indicates loop problem |
| Loop Failure Memory: | Green LED blinks with fast consecutive blinks indicates past loop problem that healed. |
| Detect Indicator: | Red LED solid light indicates detection |
| Extend Indicator: | Red LED blinks after a car left the loop indicates time extend feature |
| Sensitivity: | is set by 10 position rotary switch |
| Frequency: | is set three position toggle switch |
| Infinite Presence Mode: | DIP switch selectable presence |
| Limited 4 Minutes | |
| Presence Time: | DIP switch selectable |
| Second Presence Relay: | DIP switch selectable |
| Pulse On Exit / Entry: | DIP switch selectable |
| Fail Safe / Secure : | DIP switch selectable |
| Filter: | DIP switch selectable 2 seconds |
| Extended Detection: | DIP switch selectable 3, 6 and 9 seconds |

PATRIOT SECURITY BARRIER
MODEL PSB M50

| Parts List | | |
|-------------|-----|-----------------------|
| PART NUMBER | QTY | DESCRIPTION |
| 1 | 8 | 1/4-20 X 3/4 HEX BOLT |
| 2 | 8 | 1/4 LOCK WASHER |
| 3 | 8 | 1/20 HEX NUT |
| N/A | 2 | CONDUIT |
| N/A | 1 | BOLLARD RIGHT |
| N/A | 1 | BOLLARD LEFT |
| PEO404 | 2 | PHOTO EYE |

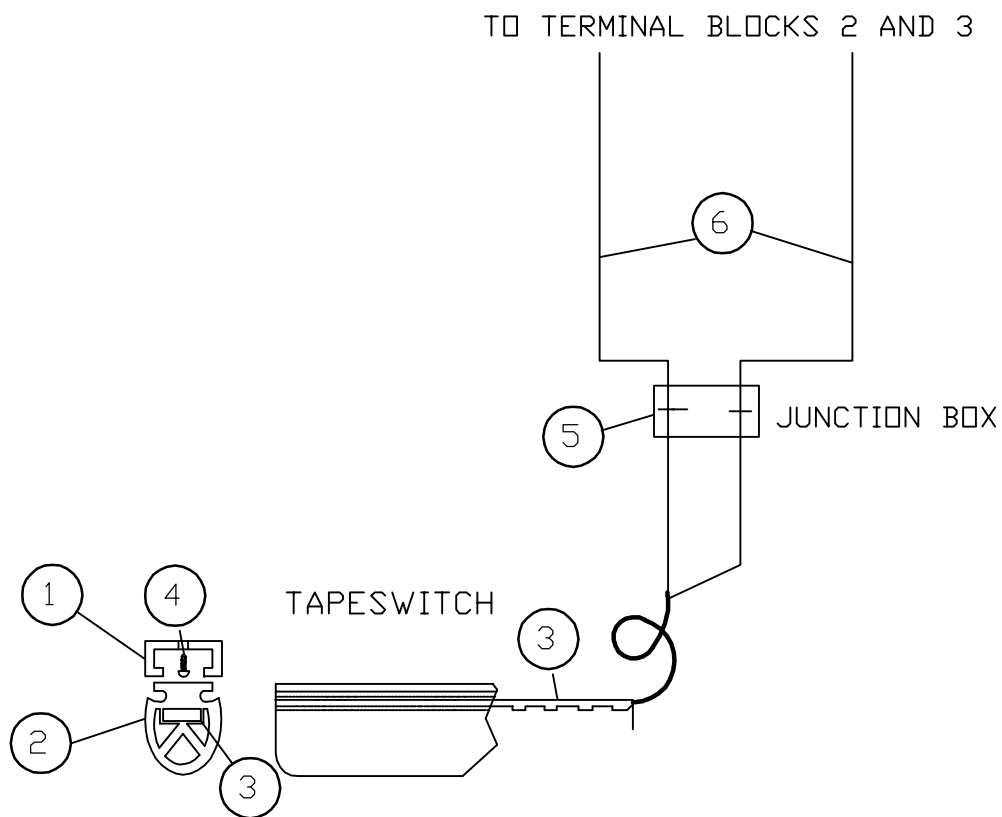
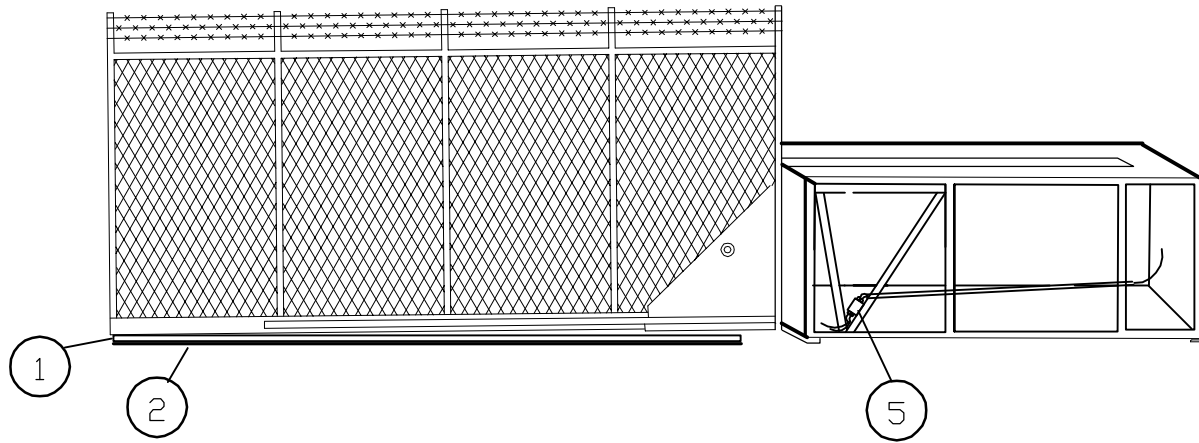


| | | | |
|------------------|-----------|---------------------------|--|
| DRAWN I Henry | 4/15/2010 | IDEAL MFG., INC. | |
| CHECKED | 4/15/2010 | TITLE | |
| QA | | PSB M50 PHOTO EYE BRACKET | |
| MFG | | SIZE | |
| APPROVED | | C | |
| | | DWG NO | |
| | | PSB M50 125 | |
| | | REV | |
| | | SCALE | |
| | | SHEET 1 OF 1 | |



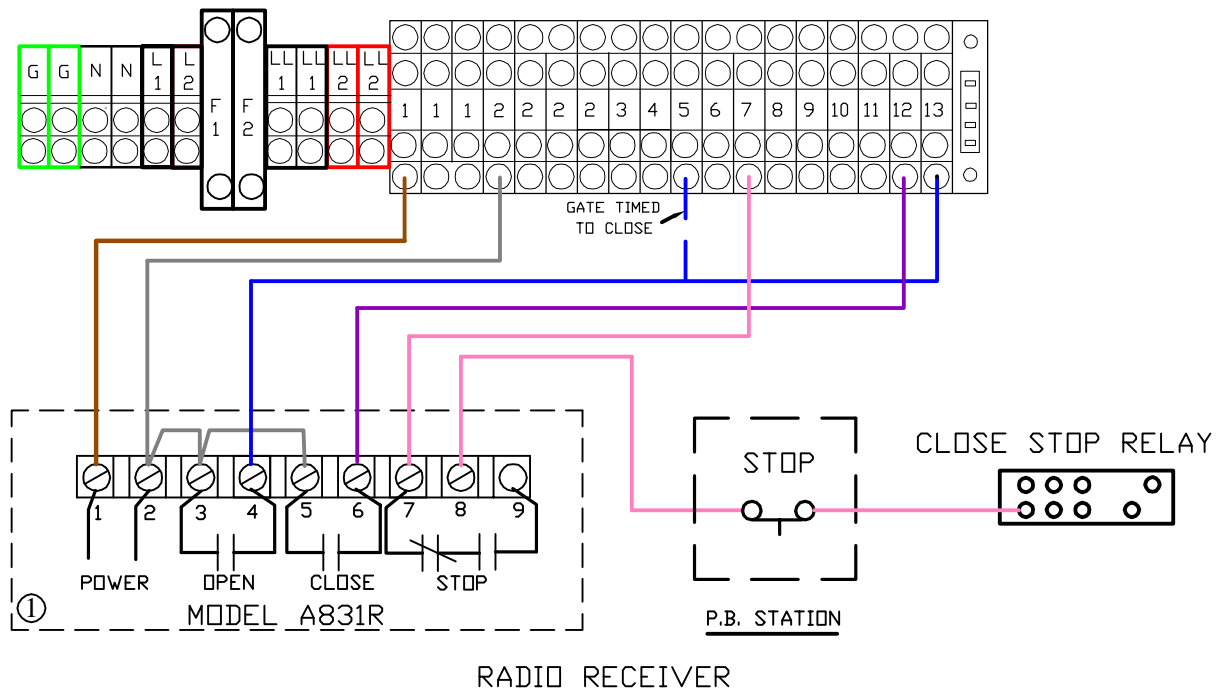
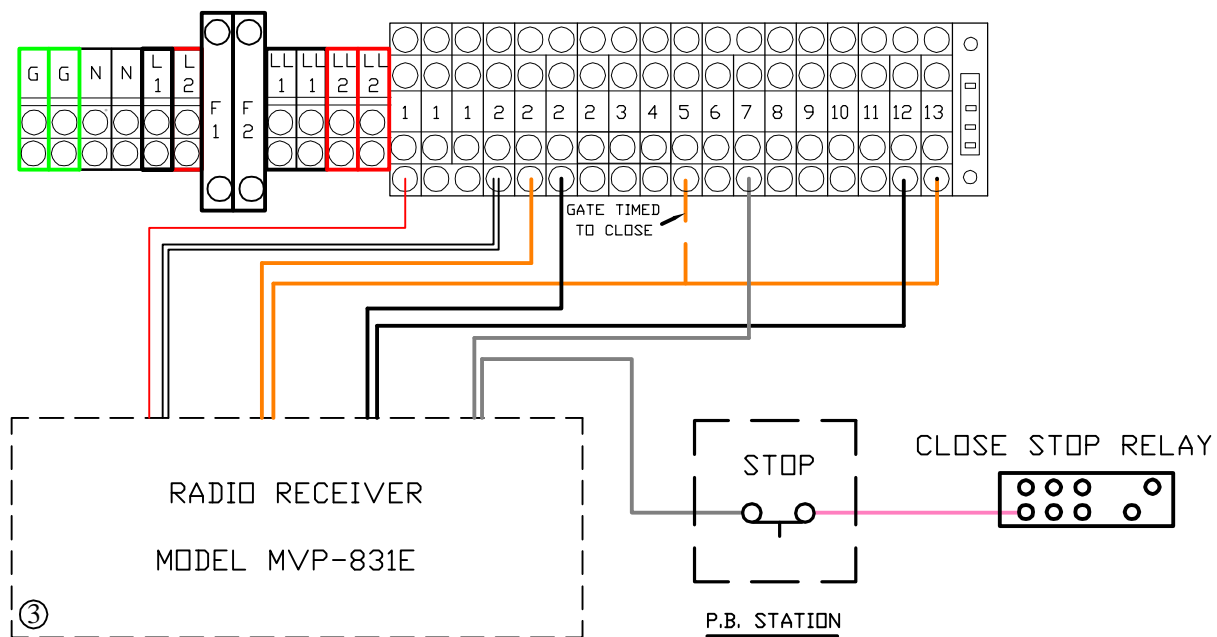
**TILT-A-WAY PATRIOT SECURITY BARRIER
MODEL PSB M50
ROAD GATE HORN & LIGHT GATE OPEN INDICATOR**

| REF NO. | PART NO. | DESCRIPTION | REQ NO |
|---------|----------|---|--------|
| 1 | PEO284 | Delay Timer | 1 |
| 2 | PEO639B | Socket & Relay | 1 |
| | | Vehicle Indicator Light (supplied by customer) | 1 |
| | | | |
| | | | |



TILT-A-WAY PATRIOT SECURITY BARRIER MODEL PSB M50 REVERSING EDGE INSTALLATION

| REF NO. | PART NO. | DESCRIPTION | REQ NO |
|---------|---------------|---|---------|
| 1 | PEO243 | Reversing Edge Holding Track (Length is required) | 1 |
| 2 | PEO243A | Reversing Edge Rubber Strip (Length is Required) (Insert in Track from front) | 1 |
| 3 | PEO244-Length | C Switch (Order Length as Required) (Insert in Tract from front) | 1 |
| 4 | N/A | 8 x 3/4" Tapping Phillips Pan Head Screw | as req. |
| 5 | PEO410 | Junction Box | 1 |
| 6 | N/A | 16/2 S O Cord | 9' |
| | PEO246 | 1/2" Strain Relief Fitting (not shown) | 4 |
| | PEO237 | Junction Box Cover (not shown) | 1 |



NOTE:

ALL STOP CONNECTIONS IN SERIES

TILT-A-WAY PATRIOT SECURITY BARRIER
MODEL PSB M50
RADIO RECEIVER - THREE BUTTON

| REF. NO. | PART NO. | DESCRIPTION | REQ. NO. |
|----------|------------|-------------------------------|----------|
| 1 | PEO261 | Radio Receiver Model A831R | 1 |
| 2 | PEO262 | Radio Transmitter | as req |
| 3 | PEO261-MVP | Radio Receiver Model MVP-831E | 1 |

NOTES:

Product Documentation

General Safety Information



Warning: Read safety information carefully before attempting to assemble, install, operate, or maintain these products. Failure to comply with these instructions may result in personal injury and/or property damage. Retain these instructions for future reference.

1. Make all electrical connections in accordance with the National Electrical Code (NEC) and Occupational Safety and Health Act (OSHA) to avoid electric shock and fire hazards.
2. Avoid potential for oil spills and slippery floor conditions by:

- Mounting oil reservoir on a level surface
 - Maintaining leak-free hydraulic hose or pipe connections to the unit
 - Not overfilling the unit with hydraulic fluid
3. Do not exceed recommended operating temperatures or unit components may become too hot to handle. Overheated components create a potential for burns.
 4. Ensure that the relief valve setting does not exceed the pressure of the lowest rated

component connecting into the power unit, or the rating of the power unit.

5. Make sure that all pressure is released from the system before attempting to remove or repair any valve, pump, or any portion of the system. Failure to follow this procedure may result in the release of pressurized hydraulic fluid with the potential for severe personal injury.
6. Make sure that all electrical power is disconnected before attempting removal or repair of any valve, pump, or any other component in the system.



Classic Quik-Code Transmitter Installation Instructions

Replacement for Models:

•9921T •9931T •8822T •8832T
•8833T •9921MT •9931MT •9921TK
•9931TK •8832TK •9931TK6

Product Features

The Classic Quik Code Transmitter makes it possible to operate a single or group of remotely controlled devices such as a garage door opener, with a single transmitter.

Programming the Classic is done by simply:

1. Put the transmitter in program mode.
2. Select the button you wish to use.
3. Enter your 9 digit code.

Follow these simple instructions.
Please read the instructions completely before starting.
Further instructions are available at www.allstarcorp.com

INSTRUCTIONS FOR REPLACEMENT TRANSMITTERS

Select the block of switches below that best matches the one in the transmitter or receiver that you are replacing.

*The grids display an EXAMPLE using the code shown on the switches to the left.

9 switches w/ + 0 -



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| - | - | 0 | 0 | + | + | - | 0 | + |

turn page Go to Step 1...

9 switches w/ On & Off



OR



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| - | - | + | + | - | - | + | + | - |

turn page
Go to
Step 1a

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| - | - | + | + | - | - | + | + | - |

8 switches w/ + 0 -



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| - | - | 0 | 0 | + | + | - | 0 | + |

turn page Go to Step 1...



WARNING

Disconnect power to operator before any installation or repair. Follow all instructions provided by the manufacturer of your operator.



Allstar Radio Controls are compatible with HomeLink®.
Homelink® is a registered trade mark of Johnson Controls, Inc.

NOTE: The table has a row for each one of the three buttons since it is possible to set a unique code for each button. Write the code that you matched from your transmitter or receiver in the grids below.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------------------|---|---|---|---|---|---|---|---|---|
| + / On BUTTON | | | | | | | | | |
| Zero BUTTON | | | | | | | | | |
| - / Off BUTTON | | | | | | | | | |

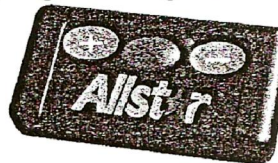
- PUT THE TRANSMITTER IN PROGRAM MODE -

1. First, press and hold the **+** button. The Red LED will turn on. **Next**, while continuing to hold the **+** button, press and hold the **-** button. Continue to hold both buttons until the LED starts to blink (approximately 5 seconds). **Release both buttons while the LED is blinking.** The LED will blink two times and then remain on to confirm you are in programming mode. Go to Step 2



**If the LED goes out, start over.*

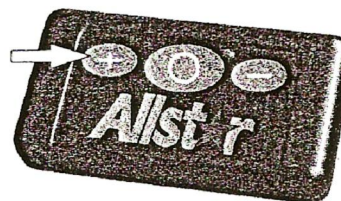
1a. First, press and hold the **-** button. The Red LED will turn on. **Next**, while continuing to hold the **-** button, press and hold the **+** button. Continue to hold both buttons until the LED starts to blink (approximately 5 seconds). **Release both buttons while the LED is blinking.** The LED will blink two times and then remain on to confirm you are in programming mode. Go to Step 2



**If the LED goes out, start over.*

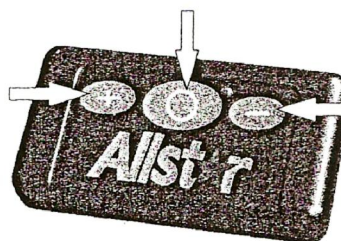
- SELECT THE BUTTON YOU WISH TO USE

2. While the LED is on, **press the button you wish to use.** (If your block has 8 switches press the **+** button, if not, press any button you'd like to use). The LED will blink off once and then remain on. Go to Step 3...

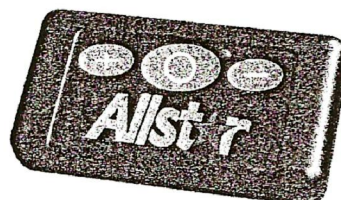


- ENTER YOUR 9 DIGIT CODE

3. Enter the 9-digit code from the table pressing the buttons that correspond with the grid above. (If your block has 8 switches use the **+** button in the 9th position) Go to Step 4...



4. After the 9-digit code is entered, the LED will blink twice to confirm a valid code and remain off.



5. Repeat the procedure for the remaining buttons.

INSTRUCTIONS FOR USE WITH AN ALLSTAR SMART RECEIVER

When using the Allstar Classic with a Smart Receiver there is no need to match a switch setting.

Simply make up your own unique code, enter it in the grid on page 2 and follow the instructions starting with Step 1.

When the transmitter is programmed, follow the instructions for teaching the receiver the transmitter code.

Note: If you want to program all the buttons you can Express Code them by selecting the **+** button in Step 2 and ending the 9 position code in Step 3 with a **+**. This will code all three buttons in one programming step.

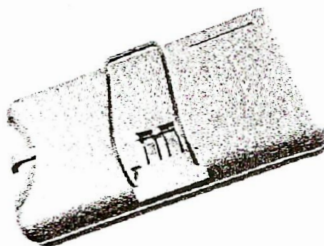
IMPORTANT
The **SAME CODE** must be set on both the transmitter and receiver. The controls will not function if the codes are mismatched.

WARNING

Keep transmitters and remote controls out of the reach of children.
Do not let children play with or use the transmitter or remote controls.
Unexpected door operations can cause personal injury or property damage.
Do not place transmitter where the buttons can be accidentally or unintentionally activated.

Installing the Transmitter

The transmitter is supplied with a metal clip which may be used to attach the unit to a sun visor. If the clip is used, slide it into the recess provided on the back of the transmitter case until the snaps on the case fit around the clip. If the transmitter is installed in a pocket in your car, follow all the manufacturer's instructions.



Battery Replacement

The MVP Quik-Code transmitter is provided with two factory installed 3-volt batteries which should be replaced after two years of normal use. The transmitter code is retained in permanent memory and will not be lost during battery replacement. To replace the batteries, remove the back of the case with a small screwdriver. Carefully slip the batteries out of the holders and replace with fresh CR2032 3-volt batteries. The "+" on the batteries must point away from the circuit board. Replace the back of the cover and resume normal use.

Improper transmitter installation or use may cause intermittent operation which can result in unexpected door operations.

Operational Check

After installing your receiver and transmitter, check the operation of your radio controls by moving approximately 45 feet back from the garage door, then press the transmitter button. Operation at this distance should be reliable. However, environmental conditions and the location of the transmitter and receiver will affect distance.

- If the transmitter doesn't activate the operator check the coding on both the transmitter and receiver. The code setting must match **exactly**.
- If the distance is inadequate check the battery and replace if necessary.
- To maximize the operating distance move the transmitter to different locations in the car until a satisfactory distance is achieved. Vanity mirrors on sun visors will affect performance.
- If the receiver is in the proximity of a metal beam or other obstruction it may be necessary to relocate the receiver to increase the operating range.
- If multiple receivers are mounted closer than 15 feet, blocking and interference may occur. Move the receivers further apart.
- If system does not work at any distance, check that the receiver terminals are connected to the proper operator terminals.
- If the HomeLink® transmitter does not activate the operator or distance is inadequate, verify proper operation using the hand-held transmitter. Contact your HomeLink® system provider for help with configuring the HomeLink® transmitter and to resolve distance problems when using the HomeLink® system.

Manufacturer's Limited Warranty

Allstar warrants its radio controls to be free from defect in material and workmanship for a period of one (1) year from the date of purchase. To obtain service, contact your dealer.

To obtain service under this warranty the buyer must obtain authorization instructions for the return of any goods from Allstar before returning the goods. The goods must be returned with complete identification, with copy of proof-of-purchase, freight prepaid and in accordance with Allstar's instructions or they will not be accepted. In no event will Allstar be responsible for goods returned without proper authorization or identification.

Goods returned to Allstar for warranty repair within the warranty period, which upon receipt by Allstar are confirmed to be defective and covered by this limited warranty, will be repaired or replaced at Allstar's sole option, at no cost and returned pre-paid. Defective parts will be repaired or replaced with new or factory rebuilt parts at Allstar's sole option.

This limited warranty does not cover non-defect damage, damage caused by unreasonable use, damage caused by improper installation or care, vandalism or lightning, fire or excessive heat, flood or other acts of God (including, but not limited to misuse, abuse or alterations, failure to provide reasonable and necessary maintenance), labor charges for dismantling or reinstalling a repaired or replaced unit, or replacement batteries.

These warranties are in lieu of all other warranties, either expressed or implied. All implied warranties of merchantability and/or fitness for a particular purpose are hereby disclaimed and excluded. Under no circumstances shall Allstar be liable for consequential, incidental or special damages arising in connection with the use or inability to use this product. In no event shall Allstar's liability for breach of warranty, breach of contract, negligence or strict liability exceed the cost of the product covered hereby. No person is authorized to assume for Allstar any other liability in connection with the sale of this product.

This warranty gives you specific legal rights. Warranty effective after July 24, 2002.

WARNING

Unexpected door operations can cause personal injury or property damage.

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



PSB M50 TROUBLE SHOOTING GUIDE

PROBLEM

CIRCUIT BOARD LIGHTS (ON)

SOLUTIONS

| | P O W E R | S A F E T Y | A U X | T I M E R | T I M E R H O L D | S T O P | O P E N L I M I T | C L O S E L I M I T | S I N G L E | C L O S E | O P E N | G A T E O P E N | G A T E C L O S E | T I M E R A C T I V E | |
|--|-----------------------|----------------------------|-------------|-----------------------|---|------------------|---|--|----------------------------|-----------------------|------------------|--|---|---|---|
| Gate stopped in any position | X X X | | | | | X | X | X | | | | X | X | | 1 Check for power 2 Check for broken spring or cable 3 Overload relay tripped ? 4 Stop circuit broken (terminals 7 & 8) 5 Over run timer reached, manual valves open or low oil pressure, out of oil. 6 Over run timer reached same as #5 |
| Gate stopped in open position | X X X | X | | | X | X | | X | | | | | | X | 1 Safety circuit activated (remove wires from terminal 3 until light goes out, trace wire to trouble) 2 Timer circuit activated (remove wire from terminal 5 until light goes out, trace wire to trouble) 3 gate timing, safety and timer must be deactivated to resume operation. 4 Close limit failure |
| Gate stopped in close position | X X X | | | X | | X | X | | | | | X | | | 1 Open limit failure 2 Timer item failure (keypad, card reader, open and set timer button, etc.) 3 Open button failure |
| Motor runs but gate does not operate (shown in closed position) | X X X | | | | | X | X | | | | X | X | X | | 1 Check manual valves (close if needed) 2 If 3 Phase, reverse 2 legs (check rotation) 3 Check for valve operation (115 VAC at coils) |
| Gate opens but motor does not stop running | X | | | | | X | X | X | | | | | | | 1 Open limit failure or open limit relay failure |
| Gate closes but motor does not stop running | X X | | | | | X | X | X | | | | | | | 1 Close limit failure or close limit relay failure 2 Close limit needs to be adjusted |
| Contactors pulls in but motor does not run | X X X | | | | | X | | X | | | | | | | 1 Check wiring at contactor 2 Check wiring in motor junction box 3 Check for motor failure (local motor shop) |
| Gate runs considerably slower in one direction | X X | | | | | X | X | X | | | | | | | 1 Check to see that both manual valves are closed 2 Check balance of barrier (open manual valves and raise barrier by hand checking to see if gate will stay put in any position-adjust springs accordingly) |
| Gate operates in jerky inconsistent manner | X | | | | | X | X | X | | | | | | | 1 Check oil level (use Dexron 3 ATF) |
| Motor runs in jerky inconsistent manner | X X | | | | | X | X | X | | | | | | | 1 Check voltage while running (over 3% drop unacceptable) (compare to cover voltage) 2 Oil pressure too high (consult mfg.) |
| Plastic covering coming off of cable (shut off power when inspecting balance system) | | | | | | | | | | | | | | | 1 Normal wear cable can be lubed (replace cable if seven or more steel strands are broken) |
| Gate squeaking while operating (shut off power) | | | | | | | | | | | | | | | 1 Cable connections dry lube with cable lube 2 Check cable sheave bearings (replace as needed) |
| Barrier no longer slows down before reaching limit | X | | | | | X | X | | | | | | | | 1 Check operation of slow down valves (115 VAC) |

*The stop and both limit circuits are NC therefore the light goes out when that circuit is activated.

*When calling Ideal Mfg. for technical help, please note the lights during the problem occurring for easier trouble shooting.