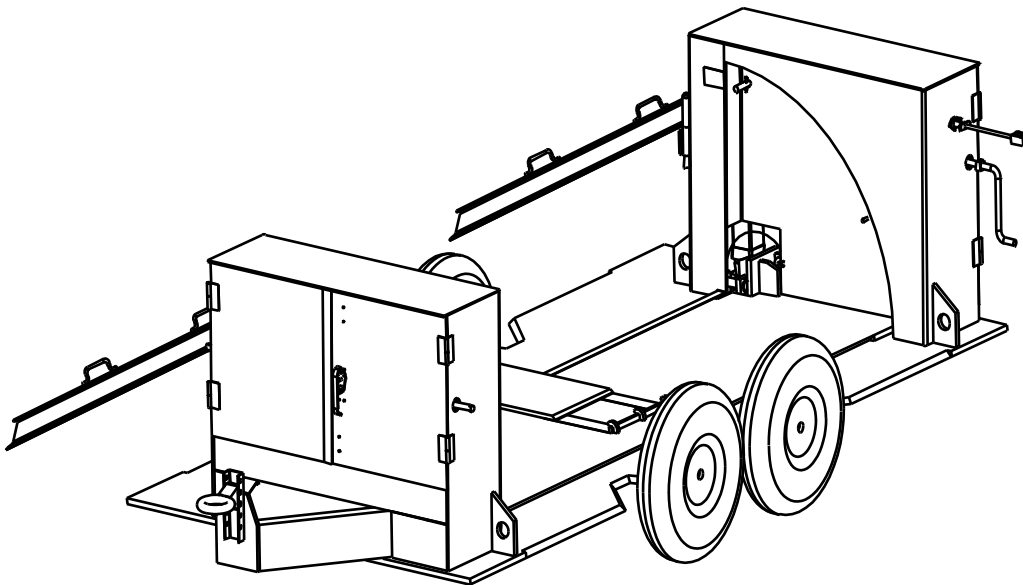




MODEL 850 SERIES TOWABLE VEHICLE BARRIER

OPERATIONS & MAINTENANCE MANUAL



B&B ARMOR

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MADE IN THE USA



Your safety is extremely important to us. If you have any questions or are in doubt about any aspect of the equipment, please contact us.

INTRODUCTION

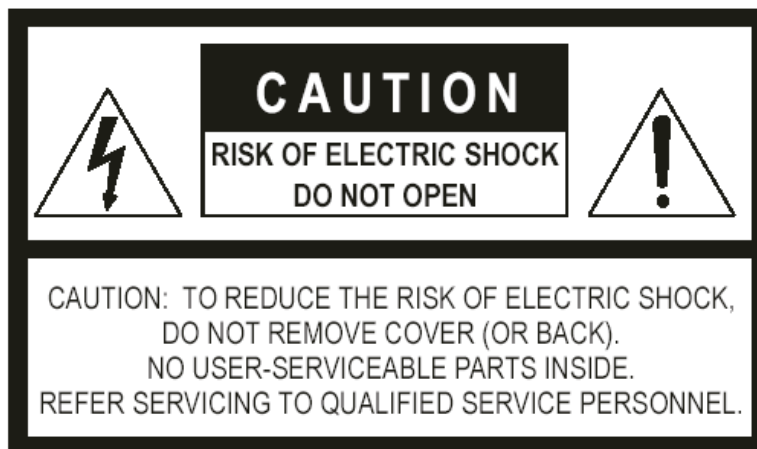
Welcome!

Congratulations on your purchase of a B&B ARMR vehicle barrier. In addition to providing detailed operating instructions, this manual describes how to install, maintain, and troubleshoot your vehicle barrier. If you require additional assistance with any aspect of your vehicle barrier's installation or operation, please contact us.

We have years of experience in all aspects of perimeter security and related disciplines, and our products are used throughout the world to control access and to protect people, equipment, and facilities. We offer a broad range of vehicle barrier and related security services:

- Turnkey installations
- Routine barrier preventative maintenance or emergency repairs (including work on non-B&B ARMR products)
- Spare or replacement parts
- Custom designs or special installations
- Equipment upgrades (modernize your old equipment with state-of-the-art hydraulics and control systems)
- Ancillary security equipment such as security guard enclosures, card readers, security lighting, and many other security related products.

Safety



B&B ARMR does not assume responsibility for injury to persons or property during installation, operation, or maintenance. As the user, you are responsible for correct and safe installation, operation, and maintenance of this equipment. Users must follow the specific instructions and safety precautions located in this manual. In addition they must: Follow the safety standards of the Occupational Safety and Health Administration (OSHA), as well as other applicable federal, state, and local safety regulations and industry standards and procedures. For installation outside the United States, users must also follow applicable international, regional, and local safety standards. Engage only trained and experienced staff to install, operate, and maintain the equipment. Ensure that all repairs are performed correctly, using properly trained technicians and the correct tools and equipment.

The Model 850 Towable Barrier is developed for portability for low tow speed applications only. For use in high speed applications, please contact B&B ARMR sales.

How to Contact Us

If you have any questions or experience any problems with your vehicle barrier—or if we can help you with any other facility security issues—please contact us directly at:

Corporate/Tech Support:

B&B ARMR

5900 S. Lake Forest Drive, Suite 230

McKinney, TX 75070 USA

Telephone: (972) 385-7899

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1 ORIENTATION

1.1 Overview

This manual addresses B&B ARMR's Model 850 Series towable vehicle barriers. The Model 850 vehicle barrier is designed to contain a high-speed vehicle impact and prevent that vehicle from entering a restricted access control area. The barrier consists of a towable base plate frame, raising plate with support locking linkage, and associated hardware to allow the plate to move from a horizontal position to a raised, secure position with the aid of a hydraulic cylinder. The unit is designed to be moved into position by use of a tow vehicle or fork lift and lowered onto the existing roadway.

The standard barrier is tested to Department of State specifications STD 02.01. The barrier is designed to stop a 15,000-pound vehicle traveling at 30 mph in less than 50 feet.

Figure 1: Model 850 Towable Barrier Basic Components

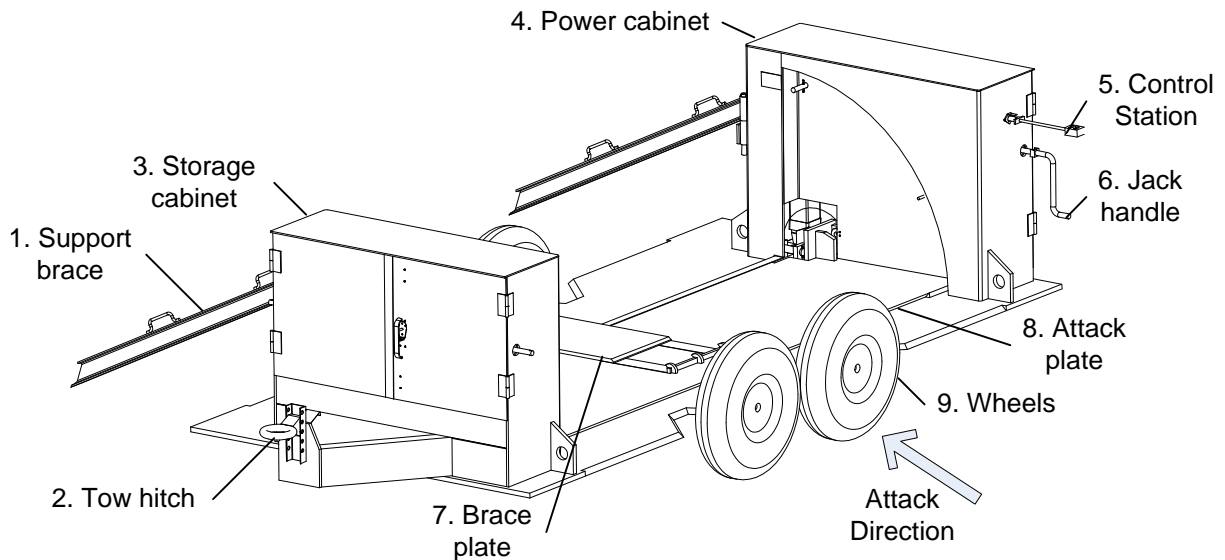


Figure 1 orients you to the basic components of the Model 850 vehicle barrier:

1.1.1 Support Brace

There are two support braces supplied with the Model 850 barrier. These braces are designed to assist in stabilizing the unit during a vehicle impact. Upon impact, the braces will dig into the road surface directly behind the barrier.

1.1.2 Tow Hitch

The tow hitch is used to attach the barrier to the tow vehicle during re-deployment.



CAUTION: Ensure vehicle has adequate capability to support and tow the barrier. Barrier should be towed at safe speed at all times.

1.1.3 Storage Cabinet

The storage cabinet is supplied to allow easy storage for wheel pins, jack handles and supporting maintenance tools.

1.1.4 Power Cabinet

The power cabinet houses the electronics and hydraulics to operate the vehicle barrier.



DANGER: High voltage electrical components are located in cabinet. Service by qualified technicians only.



CAUTION: Hydraulic linkages are located in cabinet. Do not operate barrier with cabinet door open.

1.1.5 Control Station

The control station has an UP, DOWN, and STOP control buttons to operate the gate.

1.1.6 Jack handle

The jack handle is used to rotate the lifting jacks. The handle is universally designed to allow rotation on either the attack side or safe side of barrier.

1.1.7 Brace Plate

The brace plate is a non-removable plate used to brace the attack plate during a vehicle impact.

1.1.8 Attack plate

The attack plate lifts and lowers using the hydraulic linkages. When the attack plate is in the down position, vehicle access is allowed. When deployed (UP), the attack plate ensures vehicles can not pass.

1.1.9 Wheels

The wheels on the product are used to allow the product to be towed behind an adequate vehicle. Ensure wheels and axles have been installed correctly, secured and checked prior any movement of the barrier.

1.1.10 Options

The Model 850 vehicle barrier is available with several options. Consult your order's documentation to determine whether your unit has the optional equipment.

- A traffic control gate arm to warn the vehicle operator. This arm is positioned in front of the gate and does not rise until the gate is fully open, and it closes before the gate starts to close
- Red/amber traffic lights. The light remains red if the gate is in any position except fully open
- Infrared safety beams to detect pedestrian traffic or as an additional vehicle sensing device
- Heater for the electric or hydraulic system
- Battery backup
- Diesel backup generator system

2 OPERATION



CAUTION: Do not connect or disconnect batteries with AC power on!

NOTE: BEFORE RUNNING THE BARRIER, LEAVE MOTOR BREAKER OFF AND MAKE SURE THAT THE DOWN LIMIT SWITCH TURNS ON I3 AND THE UP LIMIT SWITCH TURNS ON I4.

To see inputs on PLC:

From Time/Date screen, press right arrow button. There will be an "I" followed by 3 rows of numbers. The numbers that are highlighted are ON.

Normal Operation:

To raise the barrier, push and release the CLOSE control button on the control station.

To lower the barrier, push and release the OPEN button on the control station. The STOP button will stop the barrier in any position, however it is not recommended that the barrier be left in any position other than fully up or fully down. Refer to the flow adjustment section of this manual for correct valve positioning.

Battery Power Operation:

If the incoming power is lost, and the unit is equipped with a battery backup, it will automatically switch to battery power and operate normally. **DO NOT CONNECT OR DISCONNECT BATTERIES WITH AC POWER ON.** Once power is restored, the barrier will automatically switch back to AC power, and the batteries will recharge.

Hand Pump Manual Operation (Deploy):

1. Open manual by-pass ball valve.
2. Close manual down flow valve.
3. Operate hand pump

Manual operation lower plate (down):

1. Open manual down flow valve.

3 MAINTENANCE



Do not attempt repairs unless you are trained and qualified. This vehicle barrier can cause equipment damage and severe injury if it is operated or maintained improperly.

3.1 Introduction

The Model 850 Series vehicle barriers are designed to be largely maintenance free. As with any complex electromechanical device however, they must be regularly inspected to ensure they are operating correctly. We recommend a simple monthly visual inspection and a more thorough biannual inspection as described below. Also described below is the procedure for draining and changing the hydraulic oil, should this ever be required. Remember, you may contact B&B ARMR for assistance with inspections, maintenance, or repairs.

Component damage is likely if a vehicle strikes the barrier. If this occurs, contact B&B ARMR. We will help you assess the damage and make sure there is no hidden damage that will compromise safety or effectiveness. We will help you determine which components should be replaced, and will provide guidance on the repairs.

3.2 Monthly Inspections

We recommend you perform the following visual inspections monthly. An equipment maintenance log is supplied in the appendix to assist in the logging.

- Raise and lower the barrier and observe its motion.
- During the opening and closing cycles, verify the barrier operates smoothly and does not bind. Also verify that the barrier does not hit with excessive force when it contacts its fully up or down positions. If necessary, adjust the barrier's speed.
- Inspect the condition of the paint. If rust is present, wire brush and sand the area then paint with a primer and the matching color.

3.3 Six-Month Inspections

We recommend you perform the following inspections every six months.

- Repeat the visual inspections on the monthly inspection list
- Lower the barrier to the fully DOWN position
- Turn the 3 breakers off *in the following order* (DO NOT CONNECT OR DISCONNECT THE BATTERIES WITH THE AC POWER ON)
 1. Motor
 2. AC power
 3. Battery
- Inspect the hydraulic unit for signs of oil leaks. Check the hoses for wear or abrasion. Check all fittings for tightness. Inspect the oil level by opening the tank; the level should be 1-1.5 inches below the top of the tank. Add oil as necessary. Make sure there is no dirt or water in the oil. We recommend using environmentally safe oil such as Mobil EAL 224.

Note: Before removing any hose, make sure the barrier is fully down, and all 3 breakers are OFF.

4 TROUBLESHOOTING

The table below provides guidance on identifying and correcting any problems with your Model 850 Series vehicle barrier. If you encounter problems that you cannot fix, contact B&B ARMOR and we will gladly work with you to correct them.

To see inputs on PLC:

From Time/Date screen, press right arrow button. There will be an “I” followed by 3 rows of numbers. The numbers that are highlighted are ON.

4.1 Model 850 Troubleshooting Guide

Symptom	Actions
Barrier does not raise	<ul style="list-style-type: none"> Check power Verify UP turns on I1 on PLC Verify ‘MOTOR’ breaker is on Verify manual bypass valve is closed Check thermal overload (resettable) Verify there are no safety devices active
Barrier does not lower	<ul style="list-style-type: none"> Check power Verify DOWN turns on I2 on PLC Verify ‘MOTOR’ breaker is on Verify manual bypass valve is closed Check thermal overload (resettable) Check for obstacles under plate
Barrier moves down too slowly (up speed is fixed and non-adjustable)	<ul style="list-style-type: none"> Check flow control valve
Traffic indicator light does not change	<ul style="list-style-type: none"> Check proper limit switch operation Check bulbs

5 WARRANTY

BBRSS warranties for a period of one (1) year FOB manufacturing facility, unless otherwise specified by BBRSS in writing, from defects due to faulty material or workmanship. Damage due to handling during shipment and installation are not covered under warranty. BBRSS assumes no responsibility for service at customer site. BBRSS is in no event responsible for any labor costs under the warranty. Subject to the above limitation, all service, parts, and replacements necessary to maintain the equipment as warranted shall be furnished by others. BBRSS shall not have any liability under these specifications, other than for repair or replacement as described above for faulty product material or workmanship. Equipment malfunction or equipment failure of any kind, caused for any reason, including, but not limited to unauthorized repairs, improper installation, installation not performed by BBRSS authorized personnel, incoming supply power is outside the tolerance for the product, failure to perform manufacturer's suggested preventative maintenance, modifications, misuse, accident, catastrophe, neglect, natural disaster, are not under warranty.

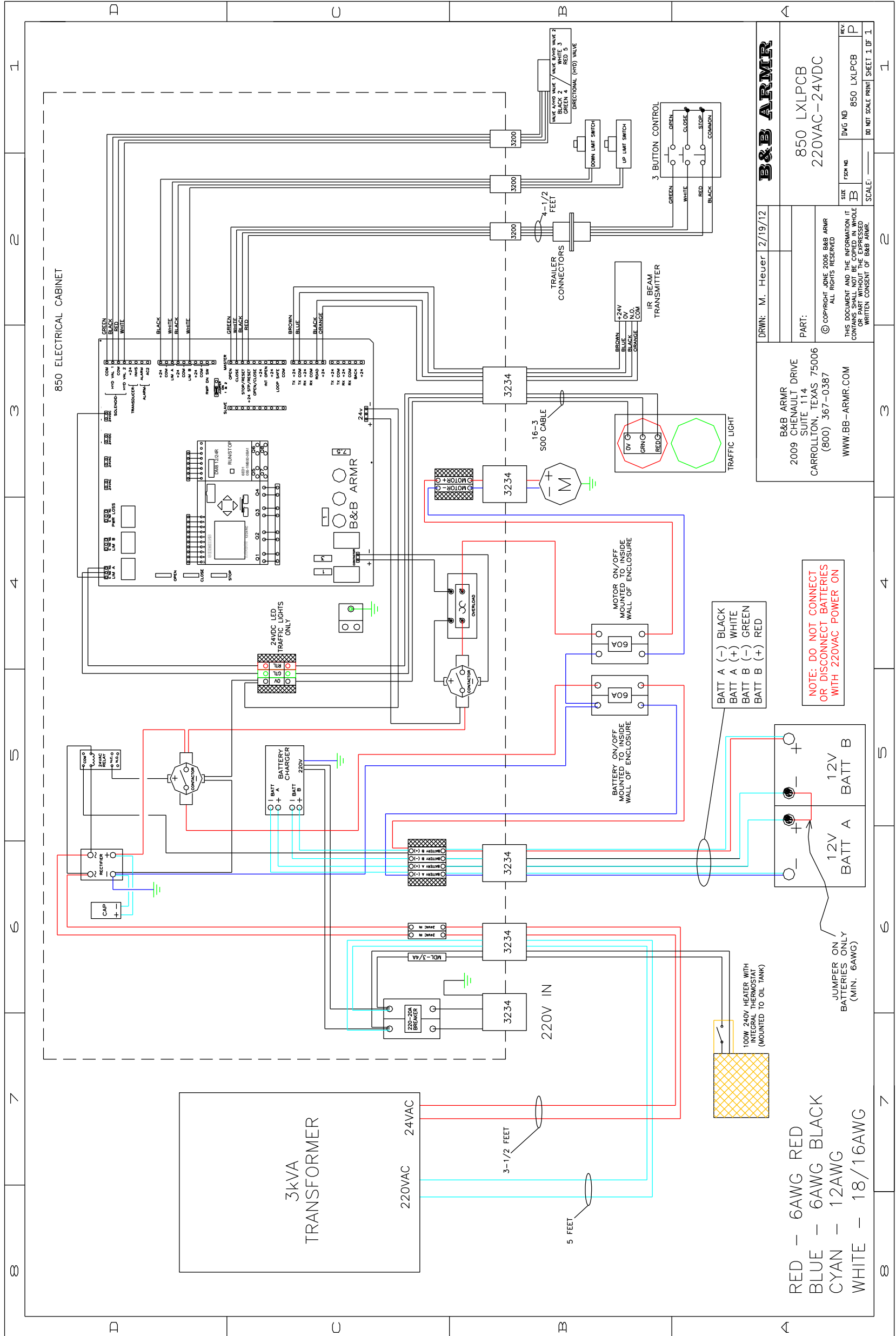
The exclusive remedy for breach of any warranty by BBRSS shall be the repair or replacement at BBRSS's option, of any defects in the equipment. **IN NO EVENT SHALL BBRSS BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES OR ANY KIND OF PERSONAL DAMAGES.** Except as provided herein, BBRSS makes no warranties or representations to consumer or to anyone else and consumer hereby waives all liability against BBRSS as well as any other person for the design, manufacture, sale, installation, and/or servicing of the Products.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO OTHER WARRANTIES EXIST.

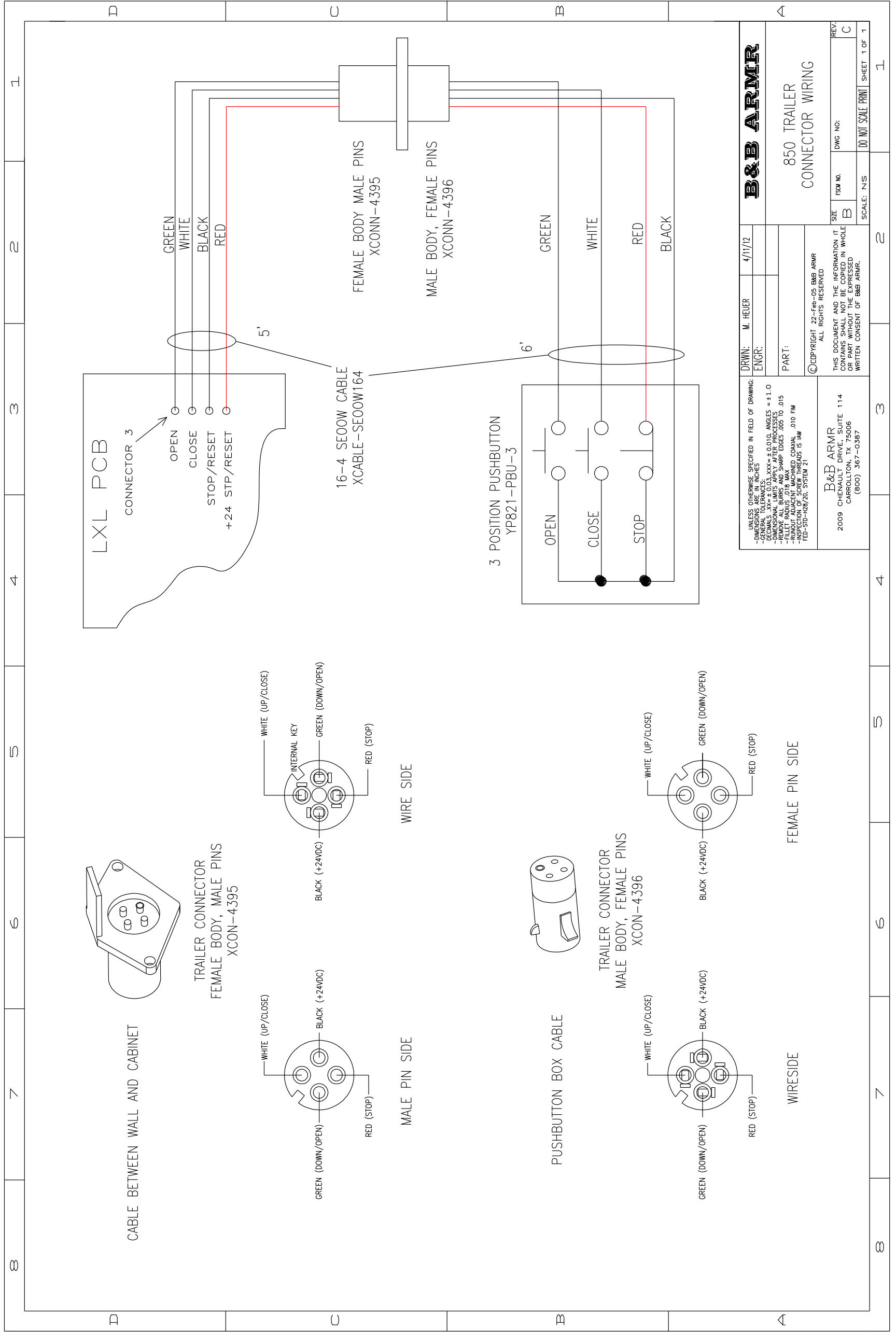
Any modification or alteration by anyone other than BBRSS will render the warranty herein as null and void.

6 SYSTEM DIAGRAMS

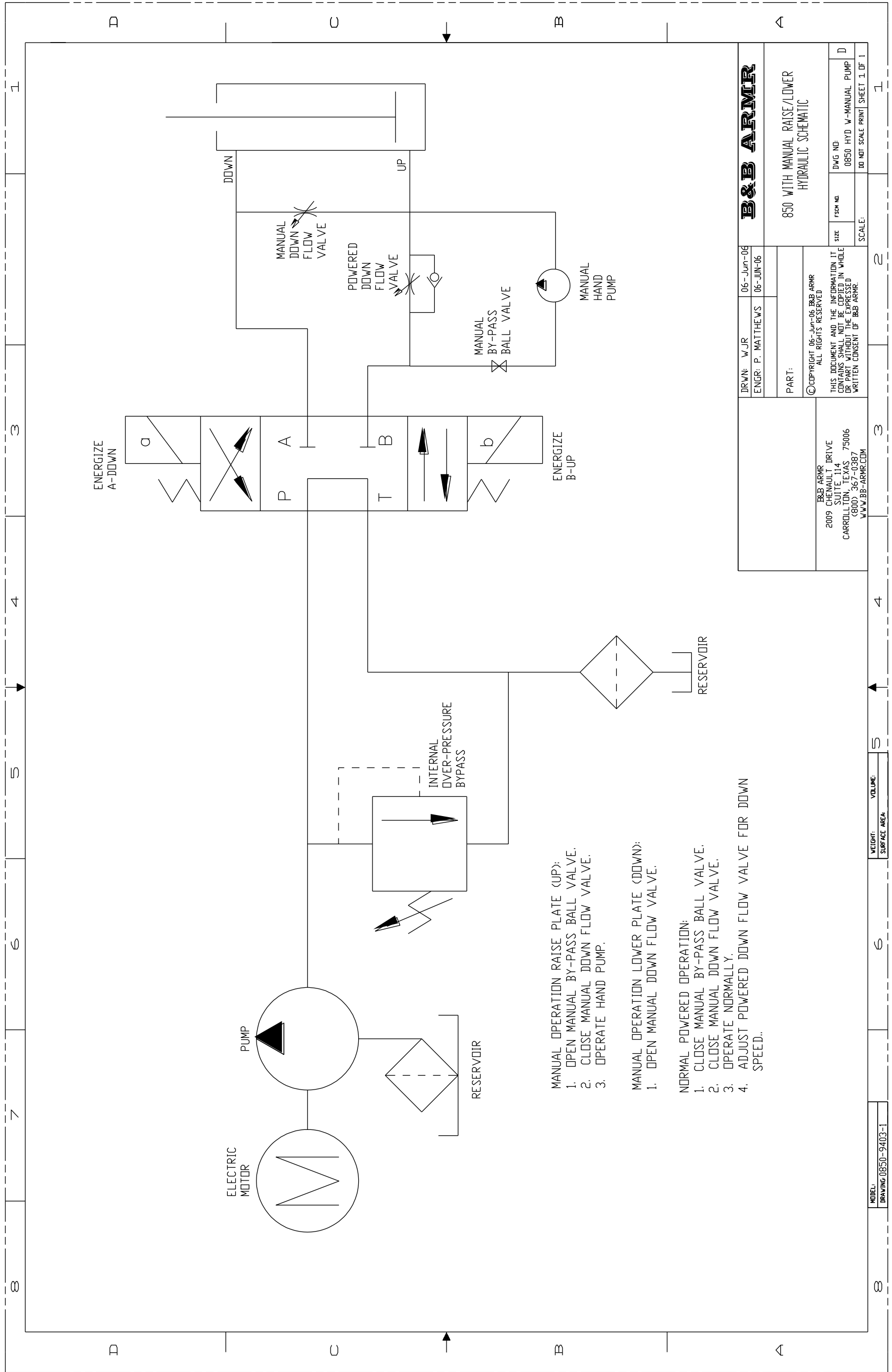
6.1 Electrical Diagram – 220VAC with Battery Backup



6.2 Control Station Wiring



6.3 Hydraulic Diagram





Equipment Maintenance Log Form
Product Type: _____

B&B ARMOR
800-367-0387

Location: _____

info@bb-armr.com

	Date	Performed By	Checklist Complete	Anomalies	Notes
Jan			Yes No		
Feb			Yes No		
Mar			Yes No		
Apr			Yes No		
May			Yes No		
Jun			Yes No		
Jul			Yes No		
Aug			Yes No		
Sep			Yes No		
Oct			Yes No		
Nov			Yes No		
Year			Yes No		

	Date	Performed By	Checklist Complete	Anomalies	Notes
Jan			Yes No		
Feb			Yes No		
Mar			Yes No		
Apr			Yes No		
May			Yes No		
Jun			Yes No		
Jul			Yes No		
Aug			Yes No		
Sep			Yes No		
Oct			Yes No		
Nov			Yes No		
Year			Yes No		