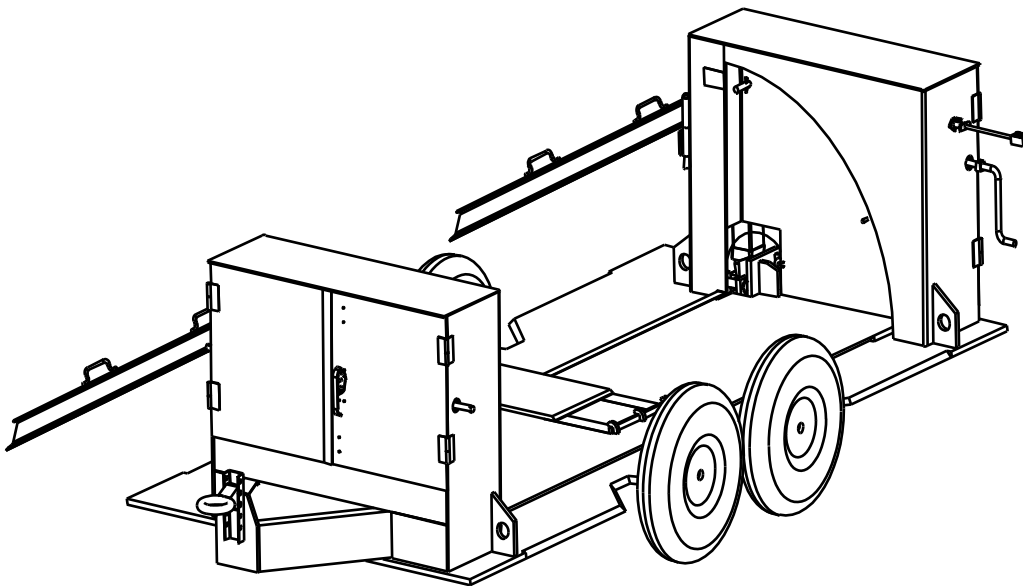




MODEL 850 SERIES TOWABLE VEHICLE BARRIER

INSTALLATION 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 ARMOR 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 ARMOR 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 ARMOR

2009 Chenault Drive Suite 114

Carrollton, TX 75006 USA

Telephone: (972) 385-7899

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1 ORIENTATION

1.1 Overview

This manual addresses B&B ARMOR'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

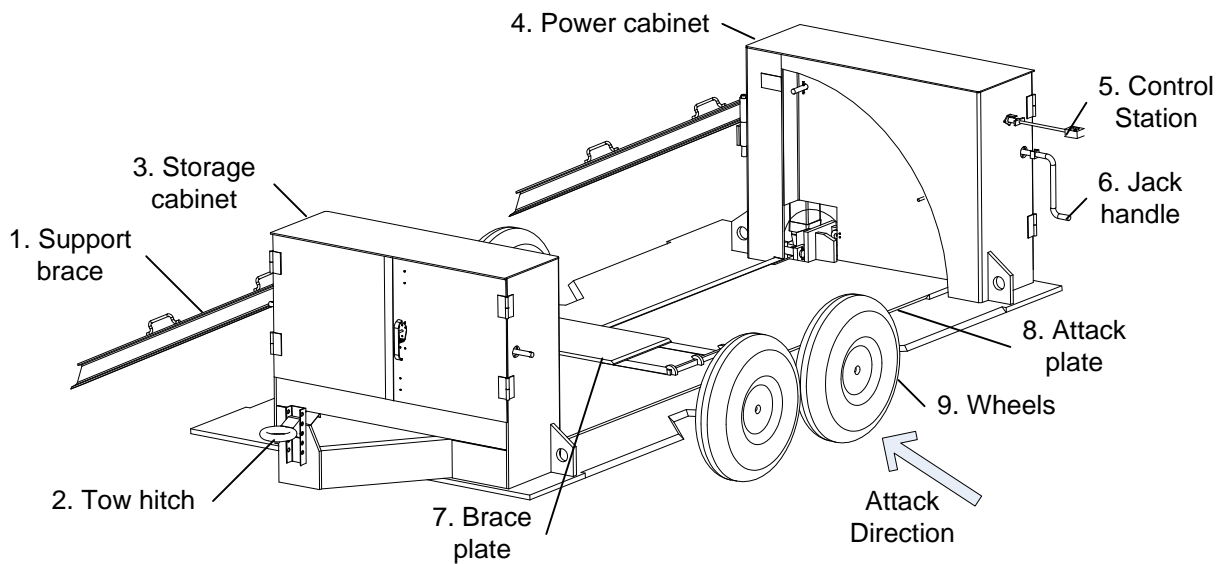


Figure 1 orients you to the basic components of the Model 850 vehicle barrier:

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

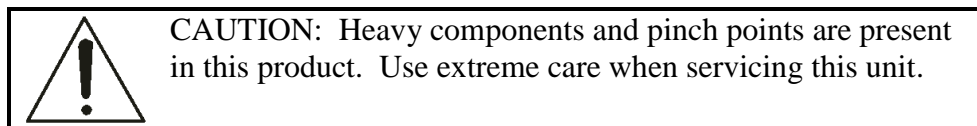
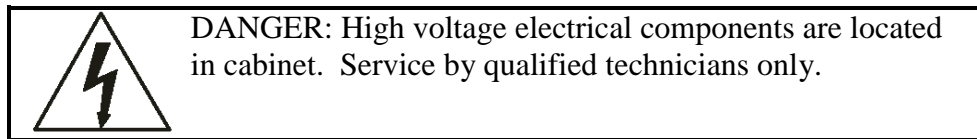
The Model 850 vehicle barrier is available with several options. Consult your order's documentation to determine whether your unit has the optional equipment.

- 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 INSTALLATION

2.1 Introduction

This section of the manual describes the procedure to set-up and configures the Model 850 Towable vehicle barrier for first-time operation. The product ships from the factory tested and ready for deployment following these steps.



NOTE: The hydraulic hoses are constructed with JIC fittings to allow removal and installation without sealant. Care should be used when disconnecting any hose to insure the pressure has been released prior to disconnecting the fitting. The pressure can be relieved by activating the DOWN control button and visually watching the barrier go completely DOWN. If the hydraulic cylinder does not fully retract, the hose may still be under pressure. Once fully DOWN, press the STOP button to de-energize the spring-to-center valve, and relieve the system of any pressure.

Prior to working on unit in UP position, insert supplied Safety Lock Pin to ensure attack plate does not move inadvertently.

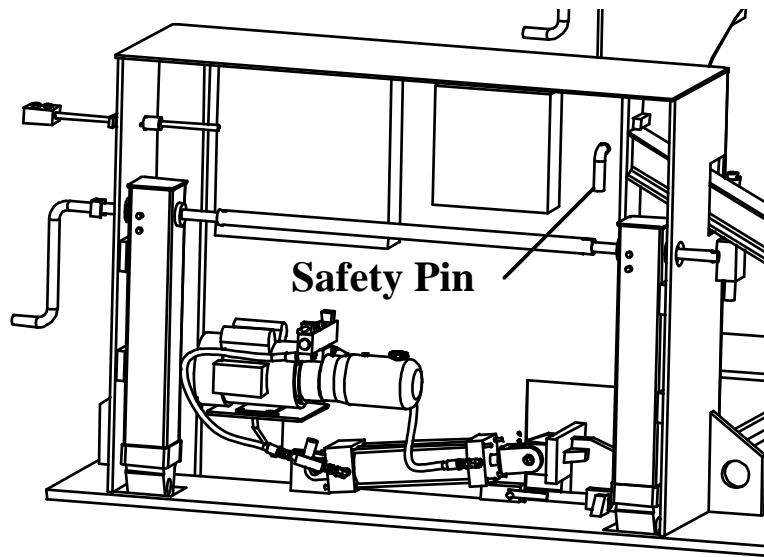


Figure 2: Safety Lock Pin Location

2.2 Pre-Operation

2.2.1 Component Inspection

Your model 850 Towable vehicle barrier is shipped from the factory with the following standard components (See table). It is recommended these items are inspected upon receipt to ensure installation and deployment time is minimized. Refer to shipping documents for other optional items that may have been included. Please contact B&B ARMR support if any items are missing or damaged.

Item Number	Part Number	Description	Quantity
1	0850-1001	Main Assembly	1
2	0850-2006-1	Outrigger Support Brace- Right	1
3	0850-2006	Outrigger Support Brace- Left	1
4	0850-3019	Outrigger Brace Retaining Pin	2
5	0850-2022	Control Station	1
6	0850-2025	Shaft Assembly/Hub	4
7	XPIN-90146A212	Wheel Assembly Lock Pin	4
8	0850-3114	Safety Lock Pin	2
9	XHANDLE-LG0083-03	Jack handle	2
10	0850-9001	User Manual	1
11	22575R15WRA	Wheel	4

2.2.2 Hydraulic Fluid Check

Prior to initial operation, exchange breather plug and shipping plug in hydraulic reservoir.

The product is normally shipped from the factory ready for deployment. In some situations the fluids have been drained to accommodate shipping methods. Prior to electrical hook-up, verify the hydraulic fluid levels. If required, add hydraulic fluid. We recommend using environmentally safe oil Mobil EAL 224 or equivalent.

2.2.3 Electrical Hook-up

The hydraulic pumping unit is a complete assembly which contains both the mechanical components and electrical components necessary to make the unit operate.

Do not power the unit until all traffic and pedestrians have been cleared from harms way.

Please refer to the appropriate wiring diagram that matches your specific product. A wiring diagram is located in the appendix.

In case of main power electrical failure, the barrier may be equipped with an optional battery backup.

2.2.4 Control Hook-up

This barrier includes a control station to raise, lower, and stop the barrier. To install; connect to connector mounted in side of barrier stanchion (see figure 3).

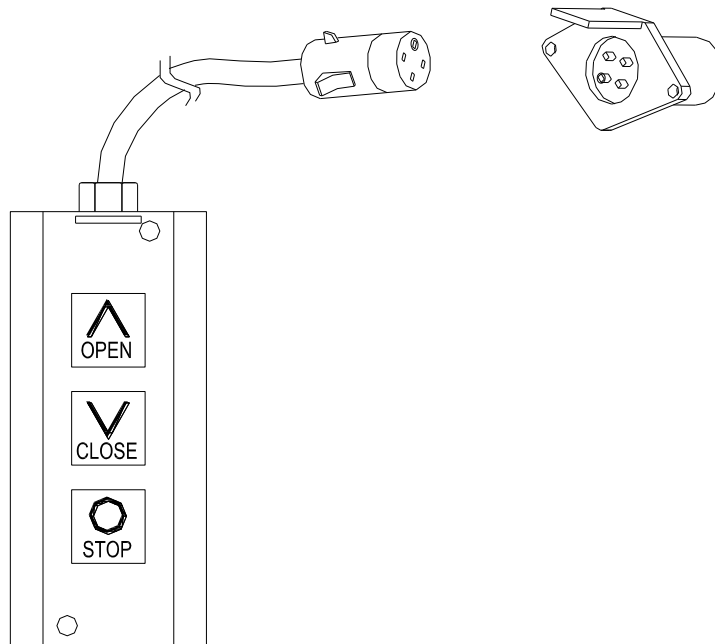


Figure 3: Control Station and connectors

2.2.5 Flow Control Valve Adjustment

The POWERED DOWN FLOW VALVE allows the DOWN speed to be adjusted. It is recommended the down speed be adjusted to allow the attack plate to come down as slow as the application will allow. Normal DOWN speed is 6-8 seconds which corresponds to the blue colored ring on the flow valve.

The MANUAL DOWN FLOW VALVE should remain in the fully closed position for normal operation. Open this valve slowly for manual down operation.

The MANUAL BY_PASS BALL VALVE to enable the hand pump for manual operation. It should normally be left in the vertical position to shut off the hand pump.

The up speed of the barrier is not adjustable, and may range between 10-17 seconds.

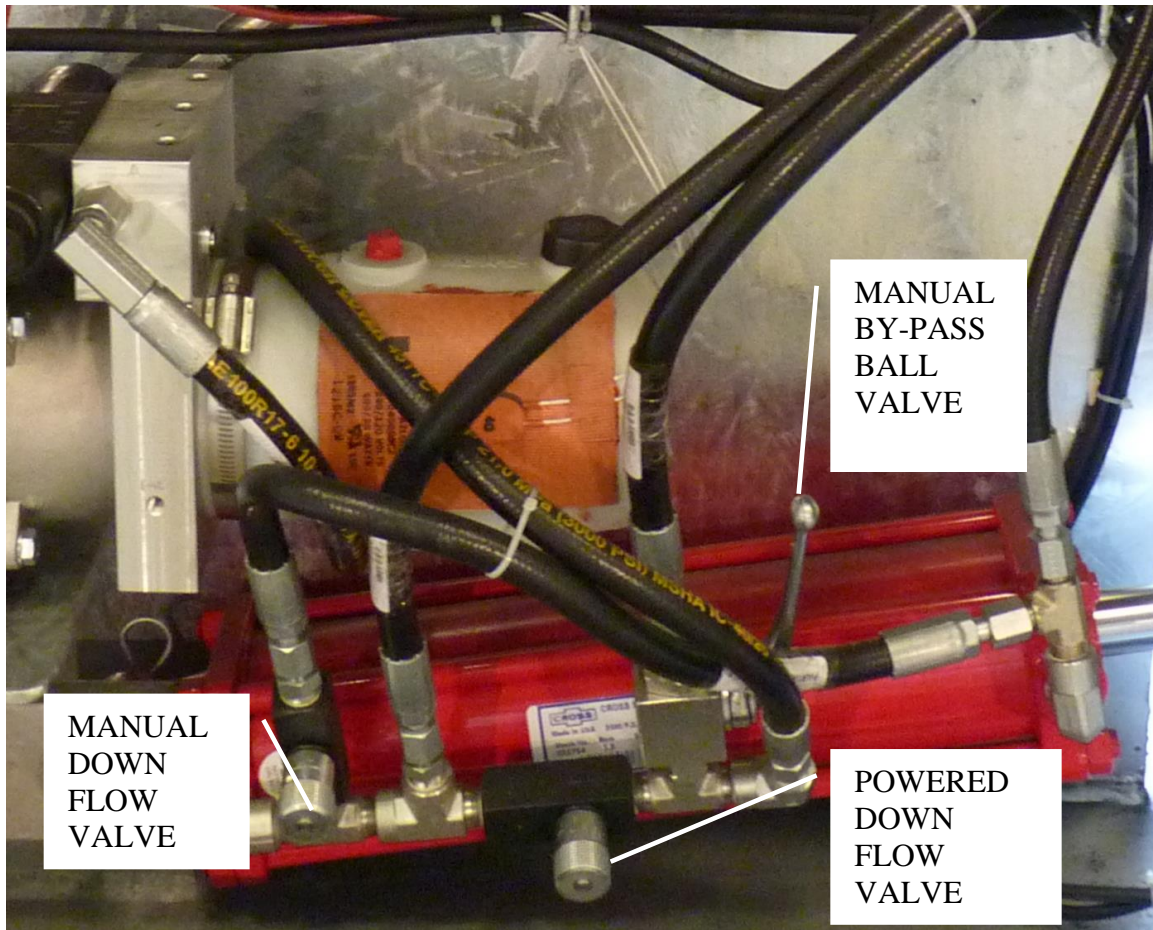
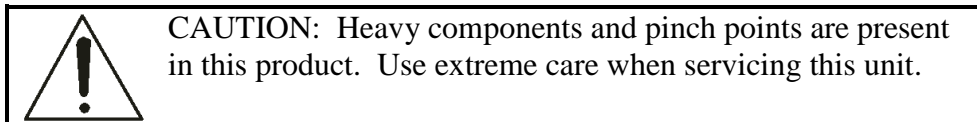
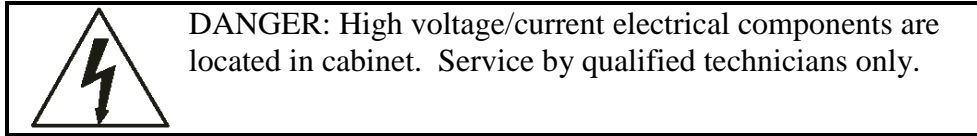


Figure 4: Valve and Hose Configuration

2.3 Towing/Deployment

The Model 850 barrier is designed to be a towable barrier. Four wheel-axle assemblies are included with the product.



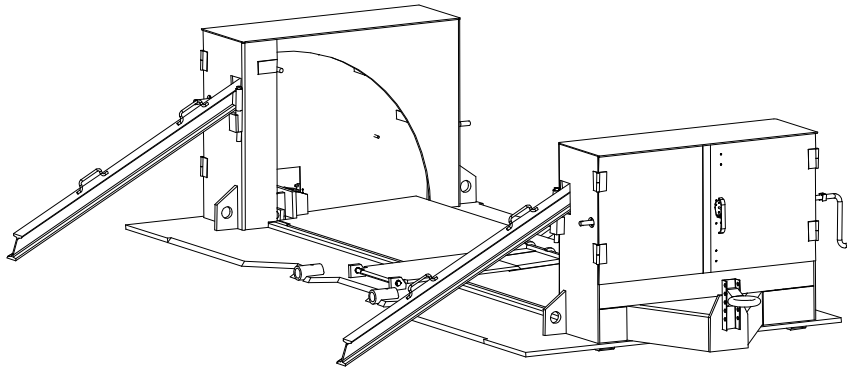
2.3.1 Towing Preparation

Prior to towing, verify towing vehicle has capacity to tow at least 11,000 lbs. Check all tire pressure, bearing lubrication and assure all loose parts and equipment are stowed.

The following are the steps required to prepare the product for movement.

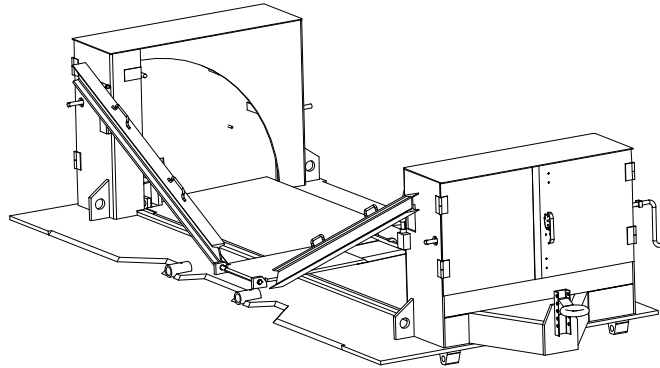
Step 1:

Verify attack plate is in the DOWN position and remove electrical power from the barrier. Unplug control station and traffic light and stow in cabinet.

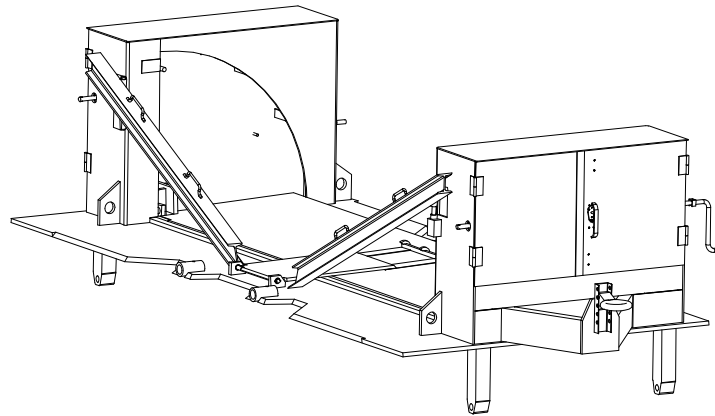


Step 2:

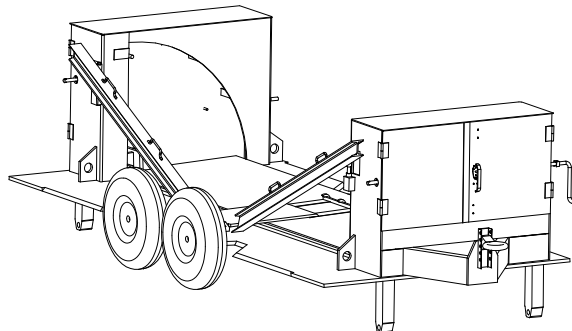
Remove left and right support braces by pulling out support brace pins. If pins are tight, slightly jacking unit up may help.

**Step 3:**

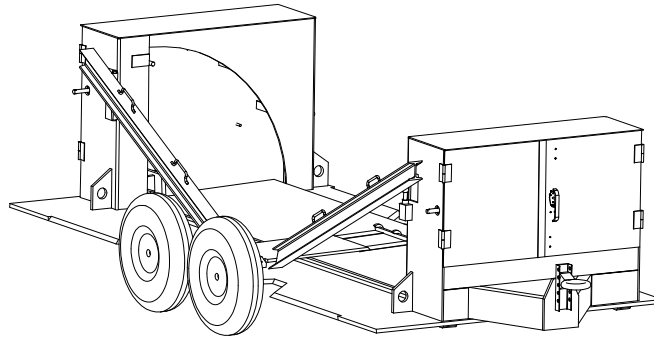
Verify jack cross bar is installed. Jack up unit by rotating the shafts using the supplied jack handles. Unit may be raised by rotating the shafts from both the attack side and safe side. Verify rotation is correct and unit is lifting off ground. Unit must be raised a minimum of 15 inches off the ground to allow wheels and shafts to be installed.

**Step 4:**

On first time use, install wheels onto wheel shafts and hubs. Torque lug nuts to 100 ft-lbs. Install shafts and wheels into wheel hubs and secure with wheel lock pins. Wheels may stay attached to shafts and hubs on subsequent use.

**Step 5:**

Lower unit by rotating jack handles in opposite direction. Raise jacks into stow position. Remove jack handles and stow in storage cabinet.



Step 6:

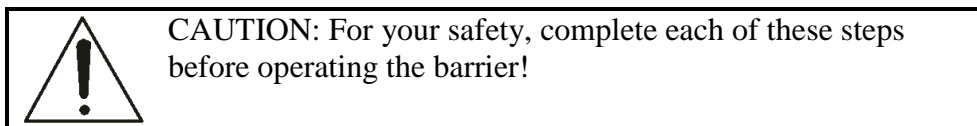
Secure safety pins in storage cabinet. Close and secure cabinet doors. The product is ready for movement.

2.3.2 Field Deployment

Barrier deployment is similar to towing preparations, but in reverse.

NOTE: It is extremely important that the barrier is installed on a level surface. Surface must be flat within 1/2 inch across the entire expanse. Clean surface site of all non-uniform rocks and debris that may cause unit to deform when lowered.

Before operating the Model 850 vehicle barrier, go through the checklist below and verify that each of these steps has been completed.



- Verify pad site is flat
- Verify unit has hydraulic fluid to recommended level
- Verify control unit is plugged in and cable is routed clear of barrier operation
- DO NOT CONNECT OR DISCONNECT THE BATTERIES WITH AC POWER ON**
- Verify area is clear of personnel and other obstructions
- Stow wheels in safe location
- Ensure supplied power matches product requirements
- Verify electrical hookups are completed per electrical wiring diagram matching unit
- It is recommended the unit be cycled 4 complete cycles prior to vehicle traffic

3 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.

3.1 Model 850 Troubleshooting Guide

Symptom	Actions
Barrier does not raise	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	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)	Check flow control valve
Traffic indicator light does not change	Check proper limit switch operation Check bulbs

4 WARRANTY

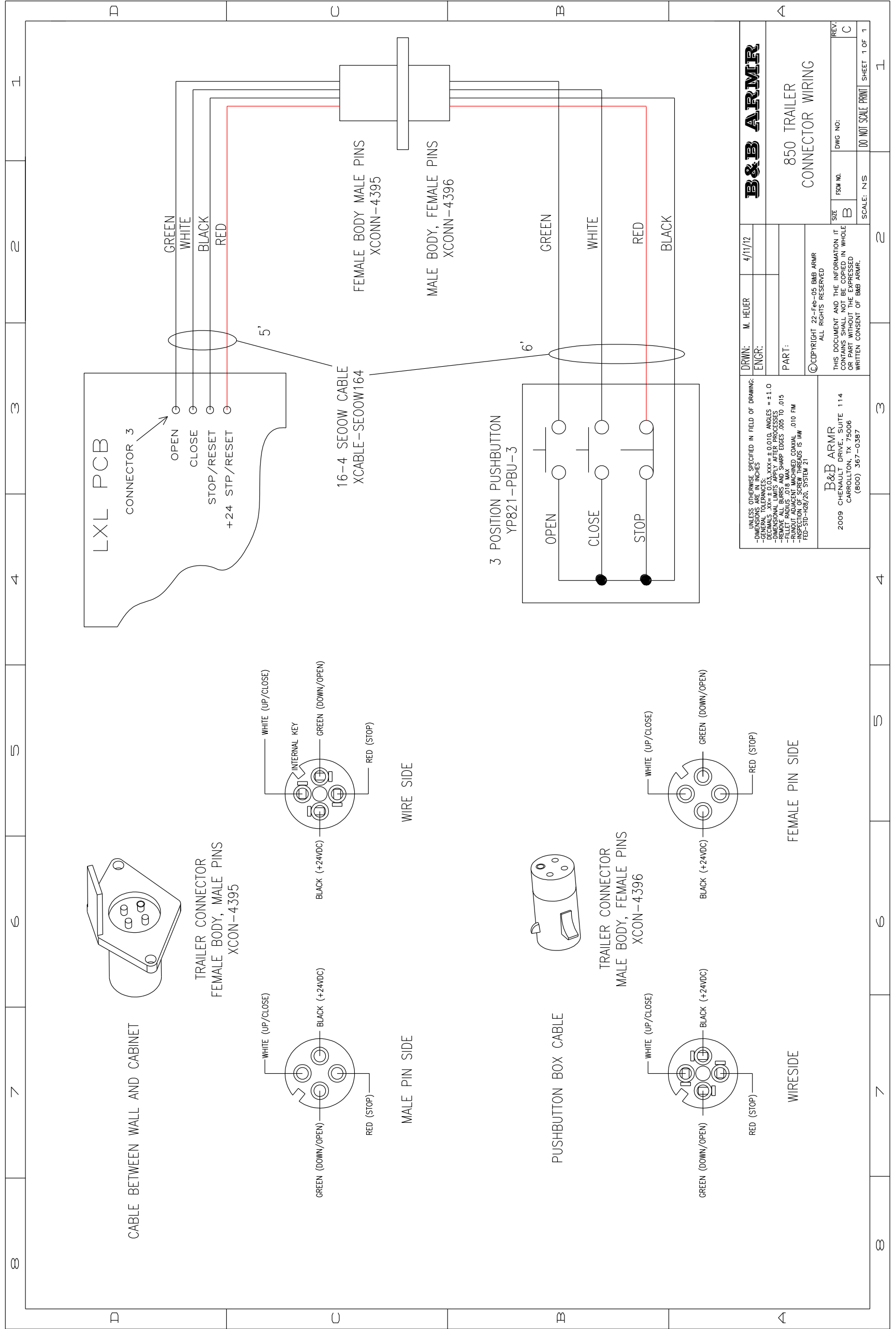
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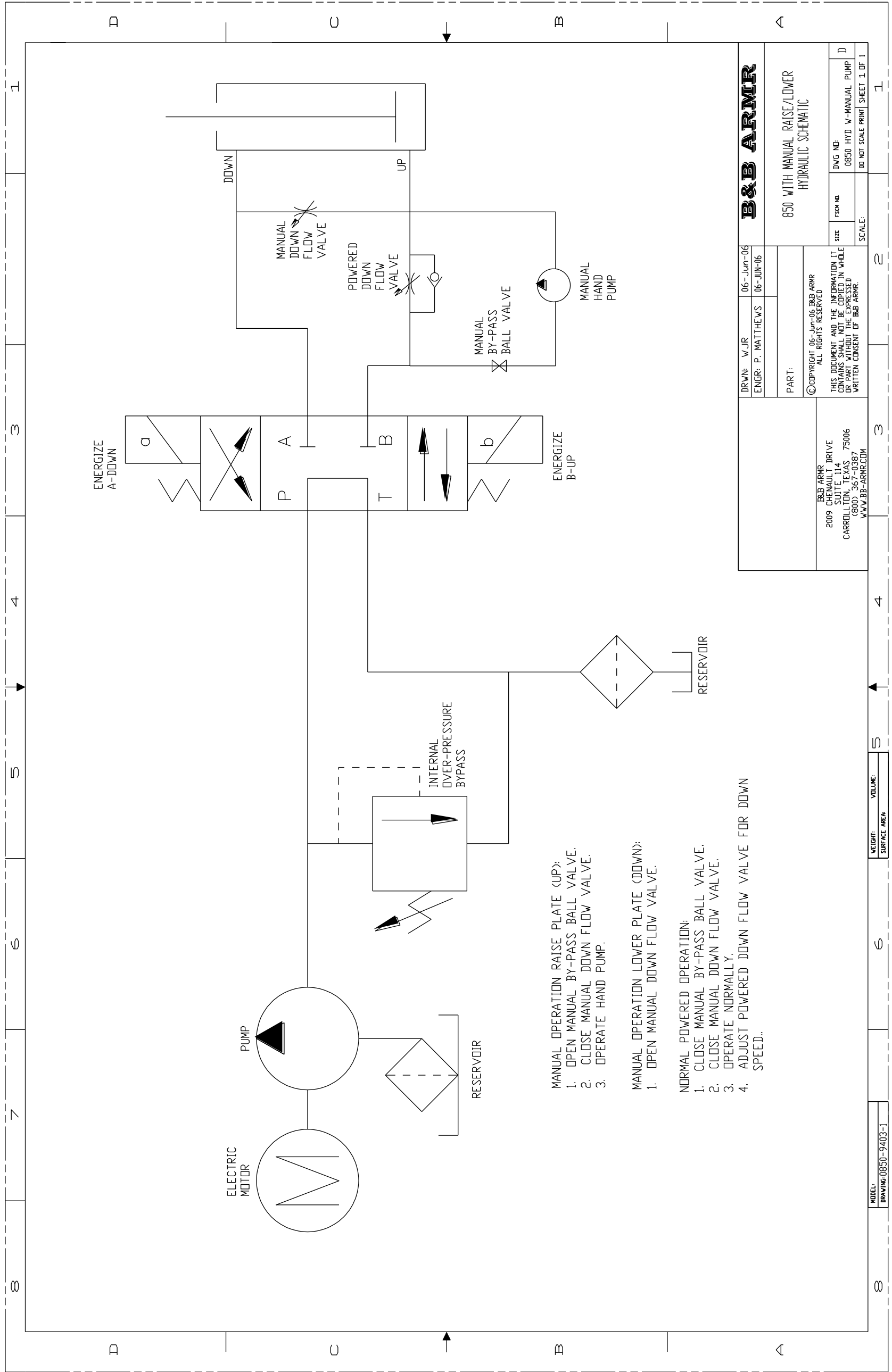
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5.2 Control Station Wiring



5.3 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		