



**Models: 4090 and 4091**  
**Wrestling Mat Storage System**  
**Installation Instructions**



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**Please read and understand all instructions before  
attempting to install the Wrestling Mat Storage System**

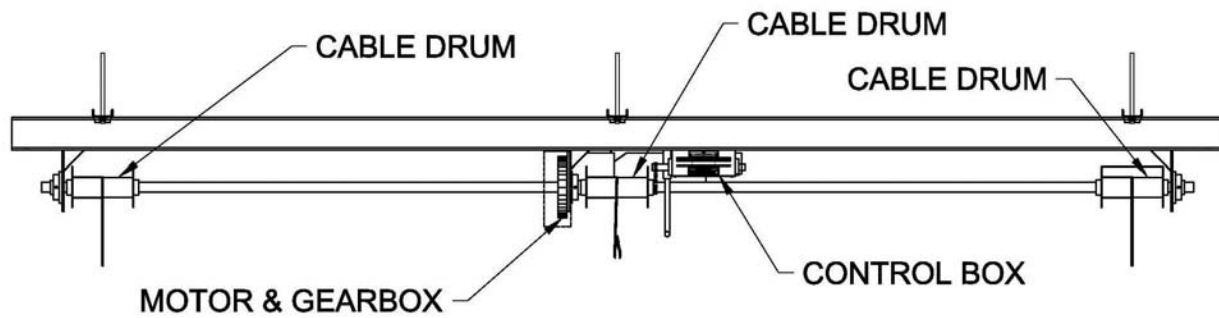
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**PUBLICATION No.**  
**8 0 1 7 5 3 9 4 4**

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## Wrestling Mat Storage System Installation Guide

### **NOTICE TO INSTALLERS**

This guide is intended to assist you with the installation and operation of the Model 4040 Wrestling Mat Storage System. Jobsite conditions will be different for each project, and conditions may change during the project. Any suggestions or tips contained herein are for general information, and may not apply to your particular installation.

Please contact Performance Sports Systems for additional information if you are unsure how to proceed with the installation at any time, or if jobsite or building conditions change before or during this installation, thus affecting the correct installation of this curtain.

It is imperative to inspect all material being used in this installation BEFORE you begin. Confirm that materials and parts received correspond to those listed on the packing list and production drawings. If any materials or parts have been damaged during shipping or are missing as a result of shipping, you must file a freight claim with the delivering freight company. (Missing or damaged material must also be noted on the Bill of Lading at the time of delivery.)

If materials or parts are determined to be missing due to factory error or oversight, contact Performance Sports Systems immediately at 800-848-8034.

Follow all local safety codes and OSHA regulations. Performance Sports Systems will not be held liable, in any way, for improper installation or faulty workmanship at the jobsite.

#### **IMPORTANT NOTES:**

**The correct operation of a Wrestling Mat Storage System is dependent on the quality of the installation. It is imperative that all supporting structure is installed correctly.**

**It is the responsibility of the PSS Dealer/Installer to set the limit switches after electrical connections are made and make sure they are working correctly. It is also the responsibility of the Dealer/Installer to coordinate with the Electrical contractor to make sure the rotation of the hoist is correct and the proper limit switches are working for the direction being tested. Refer to page 7 for limit switch and rotation test procedure.**

This guide will provide information on the proper installation methods of the wrestling mat storage system. Please note that a Bill of Materials is provided on the installation drawings supplied with the product. Please check that all of the parts called out on the Bill of Materials are present prior to beginning assembly. Please do not substitute for factory parts. If any parts are missing, do not substitute non-factory parts. Please contact the Performance Sports Systems customer service department and allow them to determine if substitute parts are acceptable.

#### **Important Notice:**

**Performance Sports Systems assumes no responsibility for the building structure to support our products. We believe it is the responsibility of the building designers to determine the correct structure size to support our products. We will provide your structural engineers with all required weight and loading information as required for the project in order for them to calculate the appropriate structure.**



## Wrestling Mat Storage System Installation Guide

### *Cautions and Warnings*

#### **CAUTION**

THIS DEVICE WEIGHS APPROXIMATELY 1660 LBS. USE EXTREME CARE WHEN MOVING AND LIFTING THE DEVICE INTO ITS FINAL POSITION. MAKE SURE ALL LIFTING DEVICES USED DURING THE INSTALLATION ARE RATED FOR AT LEAST 2000 LBS CAPACITY. MAKE SURE PERSONNEL REMAIN CLEAR OF AREA BELOW DEVICE DURING INSTALLATION.

#### **NOTICE**

THIS EQUIPMENT HAS BEEN MANUFACTURED TO OPERATE ON THE SPECIFIC VOLTAGE AND PHASE SPECIFIED FOR THE BUILDING WHERE IT WILL BE INSTALLED. IT HAS BEEN TESTED AT THE FACTORY FOR PROPER ROTATION AND LIMIT SWITCH OPERATION WHEN CONNECTED TO THE SPECIFIED VOLTAGE AND PHASE. WHEN THIS DEVICE IS INSTALLED AND OPERATED BY A 3 PHASE POWER SUPPLY, THE ROTATION AND LIMIT SWITCH TRAVEL MUST BE CHECKED AFTER INITIAL POWER CONNECTIONS. REFER TO THE ELECTRICAL SECTION OF THIS MANUAL FOR INSTRUCTIONS ON PROPER ROTATION AND LIMIT SWITCH OPERATION.

#### **WARNING**

LIMIT ACTUATOR ROD MUST MOVE TOWARD THE CORRECT LIMIT SWITCH DURING OPERATION. CHECK DRUM ROTATION ARROW AND MAKE SURE THE LIMIT ACTUATOR ROD IS MOVING TOWARD THE CORRECT LIMIT SWITCH. INCORRECT MOVEMENT OF ACTUATOR ROD COULD RESULT IN SEVERE DAMAGE TO EQUIPMENT AND/OR SERIOUS PERSONAL INJURY.

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## Wrestling Mat Storage System Installation Guide

### Tools Required

The following tools are needed to help you efficiently install the Model 4040 Wrestling Mat Storage System:

Hammer

3/8" Ratchet Wrench with 7/16" and 1/2" Sockets

1/2" Ratchet Wrench with 3/4", 1-1/8" and 1-1/4" Sockets

Wrenches – 7/16", 1/2", 9/16", 3/4", 1-1/8" and 1-1/4"

#2 Phillips Screwdriver

Pliers, Vice Grips, and Channel Locks are also suggested.

25' Tape Measure

Cable Cutters

Lifting Rigging (Rated for minimum 2000 Lbs). Suggested methods are chain hoist or come-along. At least two are required, one near each end of the mat storage I-beam.

### Parts List

Item	Quantity	Part Number	Description
1	1	805652159	Mat Storage Hoist Assembly
2	1	See Note 1	Load Bar
3	1	155652162	Load Bar Hardware Kit (See note 2)
4	3	4665-27-08	Mat hoist Clamp Assembly
5	3	803852158	Adjustable Mat Hoist I-Beam Clamp Assembly
6	3	4603-27-00	5/16" x 40' Cable Assembly
7	3	155652168	3/4-10 Threaded Rod Kit (includes nuts and lock washers)
8	See Note 3	4606-27-00	Custom Vinyl Sling
9	1	1195-01-00	Key Switch on Cover (See Note 4)
10	1	1519-01-00	4" Square Cover for Twist-Lock Receptacle (See Note 5)

Notes:

1. Part Number varies based on length of load bar and number of slings.
2. Load bar hardware kit NOT required for 20' load bar assemblies.
3. Quantity varies based on order. Refer to packing slip for quantity received.
4. Key switch NOT supplied when system is used with TSC1000 control.
5. Receptacle for power cord and plug for switching cord NOT supplied.



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### IMPORTANT:

**A minimum of three people is recommended to be available to assist with the installation.**

### **Installation Instructions for Model 4090 Wrestling Mat Storage System**

**Important:** Locate, identify and count all parts before starting the installation to ensure that all are correct and correspond to the packing list/production drawings. Also review production drawings to ensure that building conditions have not changed since the initial field check. Verify overall height and width noted on drawings.

1. Unpack all parts. Remove packing material from the Mat Storage Assembly and set load bar aside for later assembly.
2. Position the mat storage assembly in the room centered under the roof truss or beam it will be connected to when installed.
3. Assemble the Mat Hoist Clamp Assemblies (Item 4) to the Mat Storage Assembly as shown in Figure 1. Each of the 3 clamps should be located directly above the center of a cable drum. Refer to the installation drawings sent with the shipment for further detail.

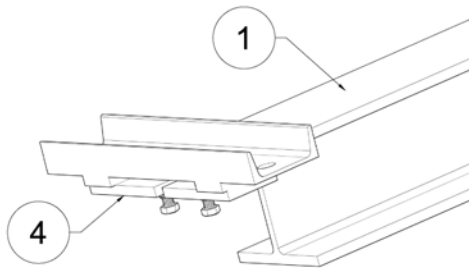


Figure 1

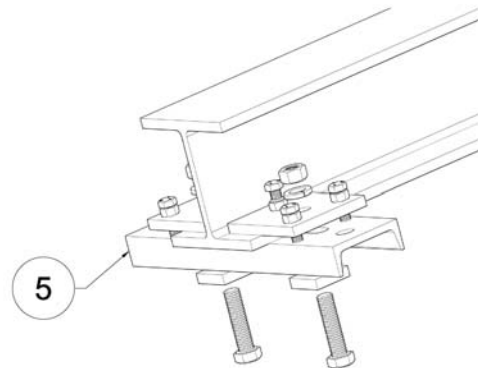


Figure 2

4. Once the clamps are in the proper position on the Mat Storage Assembly, tighten the two 1/2" locking bolts on each clamp securely. Then tighten the locking nuts on each bolt.
5. Measure the distance between clamps on the Mat Storage System and note this for the adjustable clamps to be installed on the overhead structure. Take the 3 adjustable clamps (Item 5) and using a lift or scaffolding go up to the overhead supporting beam or truss where the Mat Storage System will be attached.
6. Find the center location (center of Mat Storage System when installed) on the supporting beam and install one of the adjustable clamps as shown in Figure 2. Adjust the two 1/2" clamp plate bolts to contact the clamp channel so that the clamp plate is level when resting on the flange of the beam or truss. Do not tighten any bolts at this time. Snug the 3/4" bolts to keep the clamp from moving on the truss. These bolts will be tightened when the Mat Storage System is in place and supported by the threaded rod attachments.
7. Using the measurements from step 4, locate the adjustable clamp on either side of the center clamp and install per the instructions in step 6.



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8. Rig the Mat Storage Assembly for lifting into position.

### IMPORTANT:

Make sure all rigging is secure and supported properly for the weight to be lifted. Make sure all personnel not involved with the lift are clear of the area around and under the Mat Storage Assembly.

9. Raise the Mat Storage Assembly into position just below the supporting truss or I-Beam.
10. Install the  $\frac{3}{4}$ " threaded rods into the clamps on the assembly and the adjustable clamps on the supporting beam or truss as shown in figure 3. Adjust the position of the adjustable clamps as required to align the treaded rods with the clamps on the Mat Storage Assembly. Install nuts and washers on the threaded rods.

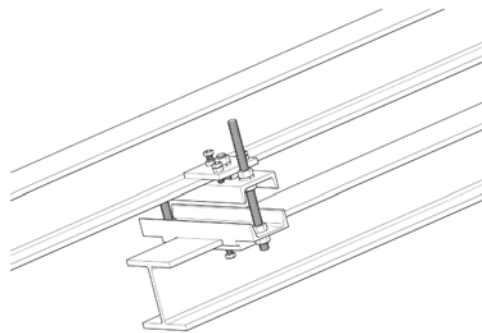


Figure 3

11. Tighten the  $\frac{3}{4}$ " bolts on all adjustable beam clamps. Using the threaded rods, adjust the Mat Storage Assembly to level and tighten all nuts on the  $\frac{3}{4}$ " threaded rods.
12. Position the load bar on the floor underneath the Mat Storage Assembly. When a 40' load bar is used, position the two load bar halves end to end with the connecting plates in the center. Bolt the two halves together using the  $\frac{1}{2}$ " bolts nuts and lock washers supplied in the Load Bar Hardware Kit (Item 3). Tighten the bolts securely.
13. Attach the cable assemblies to the load bar as shown in the installation drawing supplied with the shipment.
14. Wrap the loose end of each cable over the cable drum. Make sure there is at least two full wraps on the drum before making the connection to the cable drum. Make sure the cables are wrapped in the up direction as shown on the cable drum label.



15. Run the loose end of the cable through the cable clamp on the side of the cable drum and secure the cable clamp. Trim any excess cable with cable cutter.

The Mat Storage System is now ready for electrical connections.



## Wrestling Mat Storage System Installation Guide

### Electrical System and Wiring Instructions

#### 1. Power Supply

The Mat Storage System is capable of operating on the following power supply voltages:

208 VAC Single Phase

220 VAC Single Phase

208 VAC 3 Phase

220 VAC 3 Phase

480 VAC 3 Phase

The system is configured at the factory for the specific building power supply circuit provided at time of order.

The power supply configuration is located on the cover plate of the motor control.

#### **Important:**

**Check the label on the control box and verify the voltage and phase is correct for the building power supply. If voltage and phase does not match building power supply, contact the Factory before proceeding with the electrical connections.**

- Refer to the general electrical schematic on page 10 or 11 for system electrical configuration. The Mat Storage System is supplied with a Twist Lock plug on the power supply cord and a twist lock receptacle on the switch control cord as shown in the chart.

System Voltage	Power Plug	Switch Receptacle
208 VAC Single Phase	HBL2411 (20A 125/250V)	HBL2413 (20A 125/250V)
220 VAC Single Phase	HBL2411 (20A 125/250V)	HBL2413 (20A 125/250V)
208 VAC 3 Phase	HBL2421 (20A 3Ø 250VAC)	HBL2413 (20A 125/250V)
220 VAC 3 Phase	HBL2421 (20A 3Ø 250VAC)	HBL2413 (20A 125/250V)
480 VAC 3 Phase	HBL2431 (20A 3Ø 480VAC)	HBL2413 (20A 125/250V)

**Note: Mating connectors to the above power cord and switch cord are not supplied by Performance Sports Systems and must be provided by others.**

- When local electric codes require a fused disconnect (Supplied by others), remove the twist lock plug from the power cord and make connections directly in the fused disconnect box.
- Connect the switch wiring per local electric codes.
- Test the system for rotation and limit switch rod movement.

#### **Important:**

**When making connections to a 3 Ø circuit, it is critical to check motor rotation. Refer to the rotation and limit switch test procedure on page 6 for proper method to check rotation and limit switch operation.**

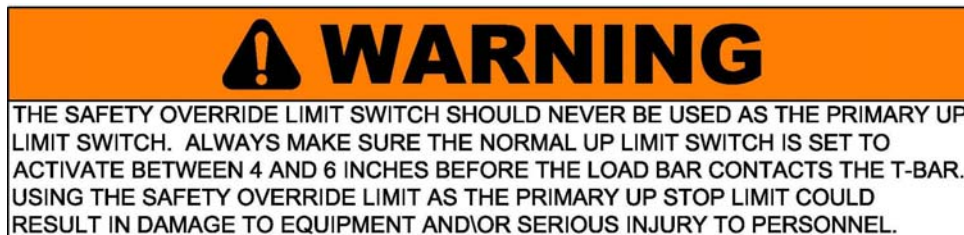


## Wrestling Mat Storage System Installation Guide

### Limit Switch Information and Operation

#### a. Limit Switch Information

The Mat Storage System is equipped with three limit switches. Two of the limit switches are used to control the normal up and down stop positions of the load bar. The third limit is a safety override for up travel. The safety override switch is activated by a T-bar in the event the normal up switch fails.



#### b. Limit Switch Operation

##### Note:

**It is the responsibility Dealer/Installer to coordinate with the Electrical Contractor to insure the drum rotation is correct and the Limit Switch Actuator Rod is moving toward the correct limit switch after initial power connections are made. It is the responsibility of the Dealer/Installer to set the limit switches for proper up and down settings and to verify the limit switch rod is moving toward the correct limit.**

**Refer to the rotation label on the cable drum and the limit switch rod label on the control box for proper rod movement during operation.**

#### Rotation and Limit Switch Test Procedure

After electrical connections have been made, the rotation and limit switches should be tested as follows:

- a. Turn the key switch to the “up” position (key rotated clockwise) and check the rotation of the drum. The drum should be rotating in the direction of the up arrows on each drum. If the drum is not rotating in the up direction, turn the key switch to the down position. The drum should now be rotating up.
- b. With the drum rotating in the up direction, push up on the T-bar safety limit actuator. The safety limit should turn off the motor.
- c. When the key switch is in the “up” position and the drum rotates toward the up arrow and the T-bar limit switch shuts off the motor when activated, proceed to the section on setting limit switches. If the drum does not rotate toward the up arrow or the T-bar limit actuator does not shut off the motor, go to the troubleshooting procedures on page 9 to determine the proper corrective action.

**DO NOT Proceed to setting limit switches if the motor rotation is not correct or if the T-bar limit actuator does not turn off the motor when the drum is rotating toward the up arrow.**



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After the rotation and limit switch test has been completed and proper rotation and limit switch operation has been confirmed, the limit switches should be adjusted as follows:

- a. Using the key switch, raise the load bar to 36” – 48” off the floor. At the control box, use a Phillips Screwdriver to loosen the Down Limit Switch screws and slide the limit switch in the slots until the switch bar contacts the activation rod and you hear the limit switch click. Tighten the limit switch screws
- b. Again using the key switch, raise the load bar about 2 feet then lower the load bar until the limit switch activates to verify the down setting is correct.
- c. Raise the load bar until it is 4”- 6” below the T-Bar safety switch actuator. At the control box, use a Phillips Screwdriver to loosen the Up Limit Switch screws and slide the limit switch in the slots until the switch bar contacts the activation rod and you hear the limit switch click. Tighten the limit switch screws
- d. Again using the key switch, lower the load bar about 2 feet then raise the load bar until the up limit switch activates to verify the “Up” setting is correct. If the load bar contacts the T-bar before the Up limit switch activates, adjust the Up limit switch setting to contact before the load bar hits the T-bar. Tighten the limit switch screws.

The limits are now set and the unit is ready for normal operation.



## Wrestling Mat Storage System Installation Guide

### Troubleshooting Guide

#### 3 Phase Power Troubleshooting Chart

Problem	Corrective Action
Key switch in the up position. Motor rotates down. Limit bar travelling toward down limit. T-bar safety switch stops motor when activated.	Change two legs of power either at the breaker panel or by reversing the black and white wire locations in the power plug.
Key switch in the up position. Motor rotates down. Limit bar travelling toward down limit. T-bar safety switch DOES NOT stop motor when activated.	Reverse the “X” and “Y” wire positions in the switch cord receptacle. These are the red and black wires.
Key switch in the up position. Motor rotates up. Limit bar travelling toward up limit. T-bar safety switch DOES NOT stop motor when activated.	Reverse the “X” and “Y” wire positions in the switch cord receptacle. Then reverse wires 1T1 and 1T3 in the motor junction box.

#### Single Phase Power Troubleshooting Chart

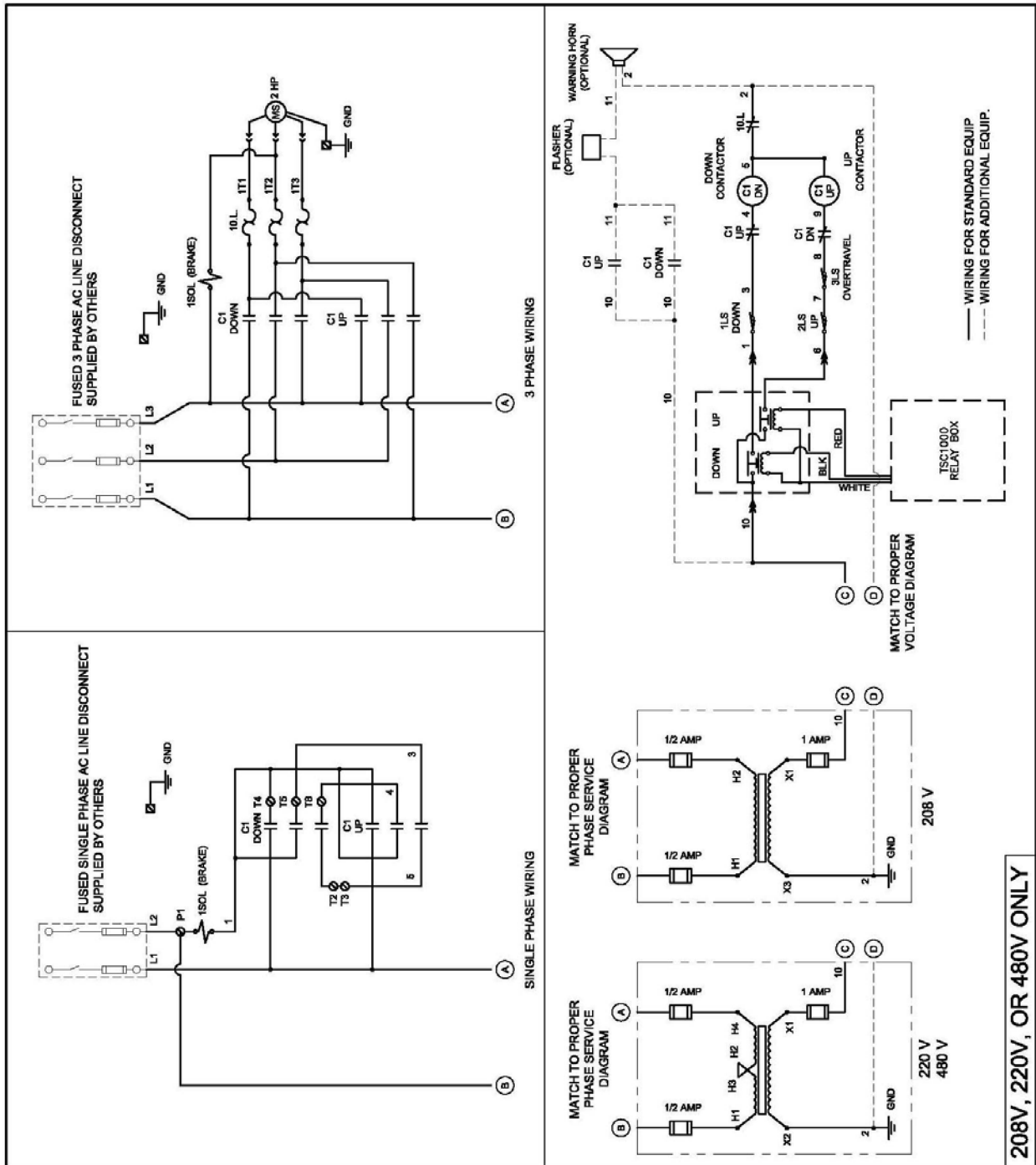
Problem	Corrective Action
Key switch in the up position. Motor rotates down. Limit bar travelling toward down limit. T-bar safety switch DOES NOT stop motor when activated.	Reverse the “X” and “Y” wire positions in the switch cord receptacle. These are the red and black wires.

#### Troubleshooting Chart All Voltages and All Phases

Problem	Corrective Action
Brake chatters when mat hoist is operated.	Caused by low voltage to the mat hoist control box. 208 V System – Minimum Voltage is 197 V 220 V System – Minimum Voltage is 207 V 480 V System – Minimum Voltage is 456 V Voltage is measured at the hoist motor.

If any conditions other than those shown in the above tables occur, contact the factory for assistance. 800-848-8034





Electrical Diagram for TSC1000 Operation