the Mat Mover®

by porter

MODEL NO.'S

91101-300 END FIRST TRAVEL
FOR UP TO ONE 45' x 45' MAT

91103-300 END FIRST TRAVEL
FOR UP TO ONE 14' x 42' MAT

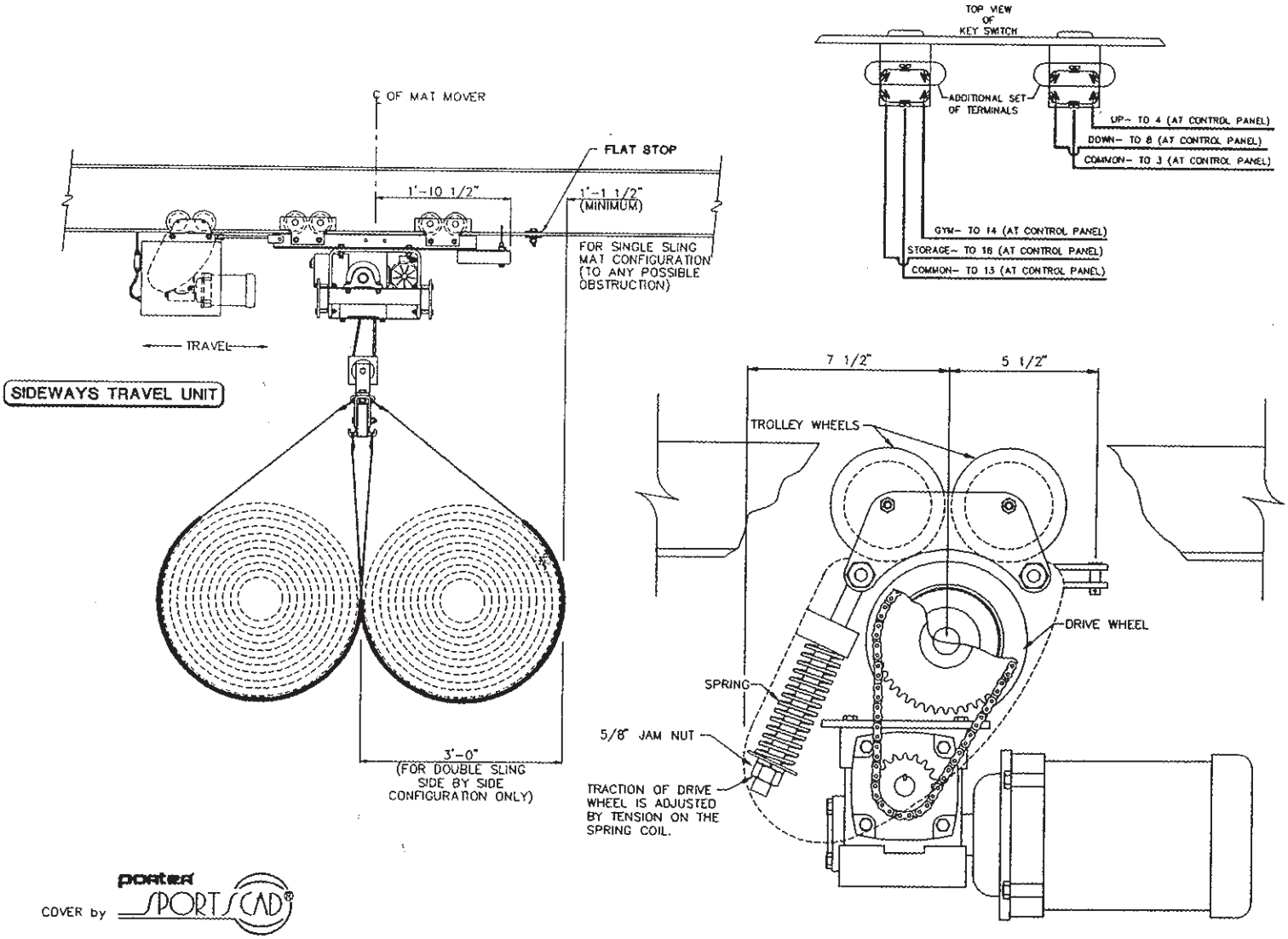
91104-300 END FIRST TRAVEL
FOR UP TO THREE 14' x 42' MATS

91101-400 SIDEWAYS TRAVEL
FOR UP TO ONE 45' x 45' MAT

91103-400 SIDEWAYS TRAVEL
FOR UP TO ONE 14' x 42' MAT

91104-400 SIDEWAYS TRAVEL
FOR UP TO THREE 14' x 42' MATS

- *INSTALLATION*
- *OPERATION*
- *MAINTENANCE*



COVER by porter SPORTSCAD®

porter®

It's What the Pros Play On!®

INSTRUCTIONS: Dealer and/or Installation Supervisor
Please give this book to the Owner/Customer

GUARANTEE

All materials and workmanship of basic materials are guaranteed to be free and clear of defects. Defective material will be repaired or replaced, at our option, subsequent to complete information being received by us concerning the nature of the defect for a period of one year from the date established by the certificate of occupancy or certificate of substantial completion, whichever shall occur first or otherwise documented and signed by an officer of Porter Athletic Equipment Company.

NAME OF PROJECT:	

NAME OF DEALER:	NAME OF INSTALLATION COMPANY:
PHONE #:	PHONE #:

Porter Order Number _____

Date of Scheduled Shipment _____

Date of Substantial Completion _____

The gymnasium equipment for this project has been custom fabricated according to the Owner's/Architect's specification. Care has been taken to fabricate and install this equipment to provide years of safe, satisfactory use and trouble free service.

The key to satisfactory service is proper operation and care. Should any malfunctions occur, please notify your supervisor and call your local Porter Dealer or Representative.

the Mat Mover by porter

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

TABLE OF CONTENTS

the Mat Mover
by porter

WARNING! DO NOT ATTEMPT TO OPERATE THIS UNIT WITHOUT REVIEWING THE OPERATIONAL INSTRUCTIONS.

This manual has been prepared to assist you with the installation, operation and maintenance of the *Mat Mover®*.

Enclosed in this manual is an inspection list for your equipment, including operational information.

We recommend that you read this manual to become familiar with the style and operation of the *Mat Mover®* unit you have, and then assign it to the person responsible for the maintenance and inspection program. If you need additional copies of this manual, please let us know.

The safest equipment can be damaged when used by the untrained. We suggest that all utilized equipment be supervised by qualified personnel.

For ease of administering this maintenance program, we suggest that your equipment be numbered and a file maintained of its location, name of manufacturer, original item number, date of purchase, and maintenance performed. This will be useful when ordering replacement parts and keeping track of maintenance. Defective equipment should be marked "**DO NOT USE**" until replacement or repairs are completed.

Inspections should be performed periodically, depending upon the nature of the equipment and its use. When the equipment is exposed to heavy use, special inspections should be made in addition to the normal maintenance program. At minimum, a yearly inspection of the system is recommended.

Any structural deviation from Porter installation drawings and/or wiring of the unit by anyone other than a qualified electrician without written authorization, will void all warranties.

porter®
It's What the Pros Play On!™
WORLD LEADER
IN QUALITY SPORTS EQUIPMENT
2500 S. 25th AVENUE, P.O. BOX 2500
BROADVIEW, ILLINOIS 60153-2500
PHONE - (708) 338-2000
FAX - (708) 338-2060

the Mat Mover by porter

OPERATIONAL INSTRUCTIONS
WARNING!

The *Mat Mover*® is powered by two (2) electric motors, which develop tremendous forces. This equipment is to only be operated by qualified personnel to avoid structural damage or possible injury to the operator and other individuals in the gymnasium.

Caution should be exerted at all times for safety reasons, keeping the following guide lines in mind:

1. **ONLY** authorized, **TRAINED** personnel are to operate the *Mat Mover*®. Authorized personnel is defined as an individual (or individuals) who is at least 21 years of age, has witnessed the proper operation of the unit, and is sanctioned by the facility as being responsible for the operation of the *Mat Mover*®.

2. The key switch, which controls the *Mat Mover*®, must be flush mounted on the wall of a location which is in full view of the operator, and not directly beneath the equipment.

3. Always make sure the area below the *Mat Mover*®, and in the path of travel, is clear of all individuals when raising or lowering the unit.

4. The *Mat Mover*® may be raised or lowered by placing the "UP" or "DOWN" key into the key switch and turning as indicated on the switch cover plate.

   The unit will travel horizontally by placing the "UP" or "DOWN" key into the key switch and turning as indicated on the switch cover plate. Note, however, the unit will not travel horizontally in the "DOWN" position. The upper limit switch must be engaged (unit in the complete "UP" position) before activating horizontal travel. This is a built-in safety relay to prevent personal injury or property damage by inadvertently engaging horizontal travel in a down position.

   Note, the key switch must be labeled with the following operational instructions, as shown. If your key switch is not labeled properly, contact your Porter dealer immediately.

⚠ WARNING — the Mat Mover by porter — ⚠ WARNING

THIS EQUIPMENT IS TO BE OPERATED BY AUTHORIZED PERSONNEL ONLY!

CAUTION
Before operating this equipment, clear the floor areas around and beneath the equipment as personal injuries are possible due to entrapment or equipment failure.

OPERATOR NOTE
This unit will not travel horizontally in the down position. Raise unit up completely before engaging horizontal travel. This equipment must be in full view of the operator during the entire operation cycle.

VERTICAL TRAVEL

UP (Up Key) — OFF — DOWN (Down Key)

HORIZONTAL TRAVEL

TO GYM (Up Key) — OFF — TO STORAGE (Down Key)

LABL 00482 000

The keys that operate the unit should be retained at all times by a designated authorized person, or be kept in a lock box. **Make sure that the key is never left in the key switch unattended.**

5. Proper storage requires the mat(s) must be rolled **square** and placed in the **center,** or **evenly** distributed across the *Mat Mover®* sling.

6. To remove mat from the sling, unhook the straps from the load bar on one side of the sling, allowing the sling to lay flat on the surface, and roll the mat away and into position. To return the mat to the sling, unhook the straps as previously described, roll the mat onto the sling and attach the sling straps to the load bar hooks.

7. After the mat has been properly placed into the sling for storage, raise the *Mat Mover®* one foot off the surface. Check to make sure that all straps have been attached to the load bar correctly, while ensuring that the mat(s) is centered within the sling. Now, raise the unit to the storage position.

8. It is critical that the operator visually monitor the carriage and sling through the entire raising/lowering and horizontal travel cycles. Pay particular attention to the unit as it nears a limit switch cut-off juncture. For example, make certain the upper actuator bars (on the "UP" cycle) are sliding up smoothly, and releasing (sliding down) on the start of the sling lowering cycle. Even though one upper actuator bar is actually a "redundant" control, it is important that the load bar contact both bars, ensuring the load is level. If the load bar is not level, contact your Porter dealer immediately. This may be an indicator of an uneven cable wind.

9. Make certain the audible motion alarm (beeper) and flashing strobe light operate any time the *Mat Mover®* system is engaged. If either system is not working, contact Porter or your Porter dealer immediately.

This system has been designed to provide a safe, effective means of transporting mats. Never attempt to store or move anything other than mats in this system.

Again, the safest equipment can be damaged when used by the untrained. It is imperative the procedures set forth in this manual are strictly adhered to.

the Mat Mover by porter

STEEL SUBCONTRACTOR REQUIREMENTS FOR THE

TRAVELING *MAT MOVER*® by PORTER

The *Mat Mover*® requires a runway beam **not** included with the unit. The runway beam is to comply with the building design, specified by the architect or structural engineer, and installed by an appropriate contractor.

IMPORTANT! **An architect or structural engineer must give final written approval for the installation site and any structural modifications, including the steel specifications, before the unit may be installed.**

Note: The sideways travel unit will require two (2) runway beams on the centers indicated per the Porter shop drawings specific to your given project. The end travel unit will require only one (1) runway beam.

The **recommended style of beam** to be utilized for the runway is a "S" beam, with a minimum depth of six inches (S6 beam). The six-inch depth is for trolley wheel clearance only, and in **no way implies adequate integrity** for the length of beam or support spacing required on any given project. The project specific shop drawing by Porter contains the design load requirement. Any splicing of the beam is to be kept at a minimum, as splices may impede drive tractor performance.

It is also the responsibility of the contractor to **positively connect end stops** at each end of the runway beam(s). Ideally, angle stops are bolted through the web of the runway beam with a minimum of two (2) 5/8" dia. machine bolts. This would enable the *Mat Mover*® installer to temporarily remove the end stops and roll the drive tractor and trolleys onto the beam flange. Note: Either welding or thru-bolting is acceptable to prevent trolleys from rolling off the beam.

INSTALLATION INSTRUCTIONS

The *Mat Mover®* is shipped with almost every item preassembled, and each unit is factory tested to ensure the unit is correctly wired to the integral control panel. Please take time to read the entire manual before commencing with installation. The *Mat Mover®* has been designed to provide the ultimate in safety and years of trouble-free operation when installed properly.

1. STRUCTURAL REQUIREMENT

The most critical part of the installation is the pre-existing structural support members. The structural supports are to comply with the building design, located per the architecturals, designed and specified by the architect or structural engineer, and installed by an appropriate contractor. If the support members are not in place, notify the architect and/or owner at once.

IMPORTANT: An architect or structural engineer must give final written approval for the installation site and any structural modifications, including the steel specifications, before the unit may be installed.

2. DRIVE TRACTOR INSTALLATION

The drive tractor comes completely assembled from the factory. A separate installation and maintenance manual is included with the drive tractor unit.

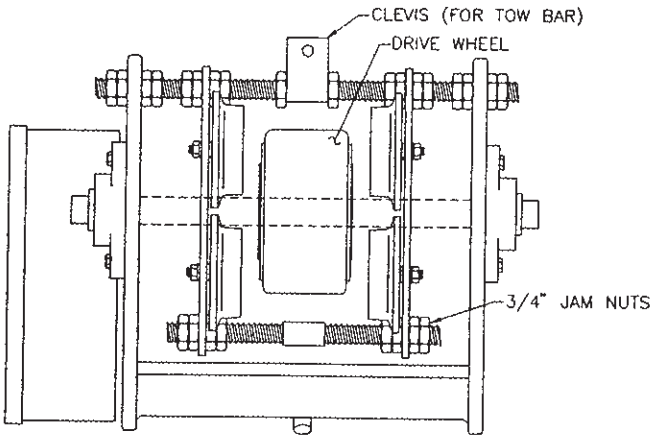
Location of the drive tractor (two for the side travel unit, one for the end-first unit) is between the hoist carriage frame and the junction box (power source) at the wall. Be sure to orient the tractor so the draw bar clevis will face the hoist carriage. If safety stops have not been positioned at the ends of the runway beam, the trolley wheel spacing can be adjusted before hoisting the tractor(s) into position. The tractor(s) can then be mounted on the runway beam by manually rolling the unit on at the end of the beam. If stops are in place, the trolleys must be adjusted wider than the beam flange, hoisted into position, and then tightened to the appropriate width. At this point, the limit switch trip/safety stop nearest the power source is to be installed (see Step 4).

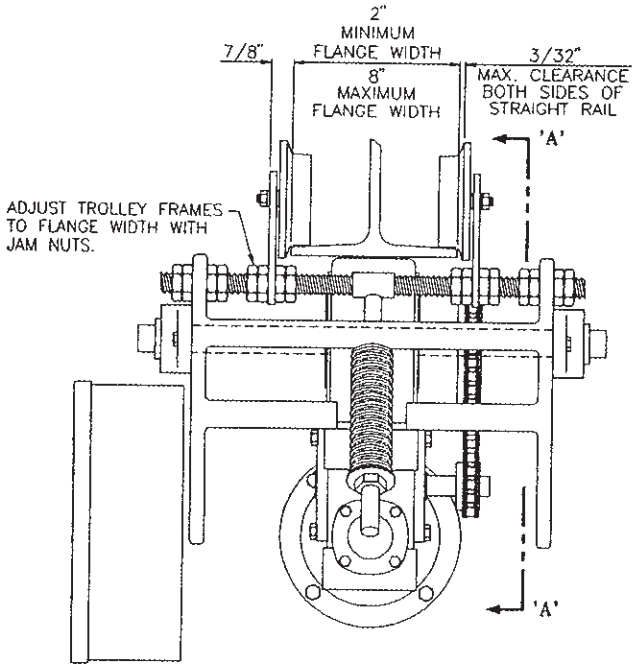
To adjust the trolley wheel spacing, loosen the 3/4" jam nuts located on either side of the trolley wheel frame (see ***Figure A***). Space the trolley wheels according to the flange width, providing a maximum clearance of .09" (approximately 3/32") on both sides of the wheel for a straight runway beam, and .12" (approximately 1/8") for a curved runway beam. **BE SURE TO TIGHTEN 3/4" JAM NUTS** once the proper width has been set.

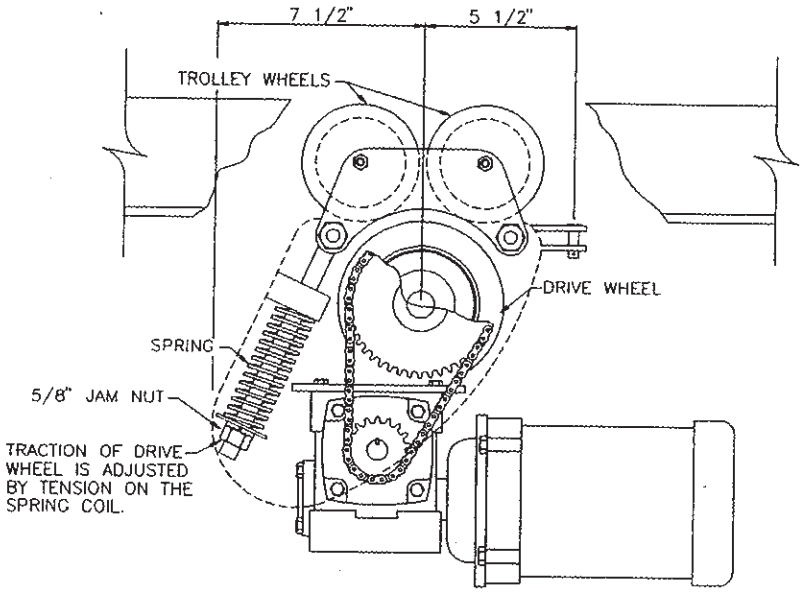
The pressure between the rubber drive wheel and runway is easily adjusted by turning the 5/8" jam nut below the coil spring, increasing or decreasing tension on the spring. At this point, the drive wheel should be set to easily roll on the runway beam. Final tension is to be adjusted under full load of pushing or pulling the hoist carriage frame.

FIGURE A

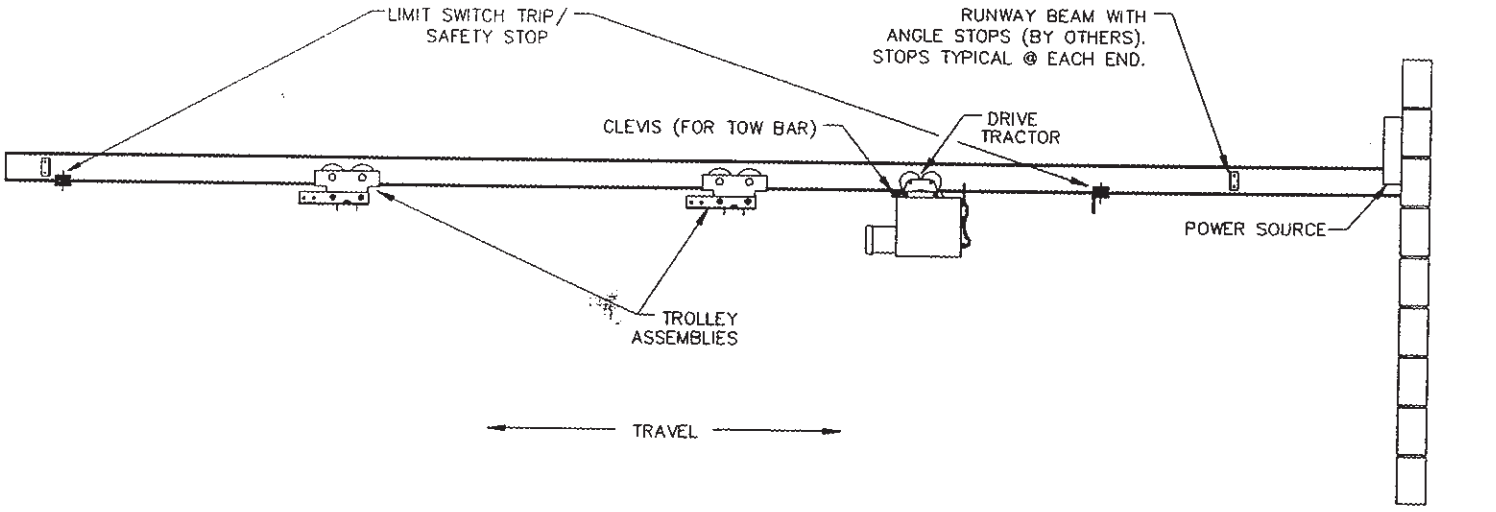
DRIVE TRACTOR INSTALLATION AND ORIENTATION ON THE RUNWAY BEAM







SECTION A–A



3. TROLLEY SUPPORT ASSEMBLY

Ideally, the trolleys should be pre-assembled with the proper number of shim washers in place before attachment to the beam is made. Again, if stops are not permanently in place at each end of the runway beam, the trolleys can slide onto the end of the beam and roll toward the middle of the beam. If stops are in place the trolleys must be adjusted wider than the beam flange, hoisted into position and then tightened to the appropriate width. To assemble and adjust the trolley-carriage hanger assembly, refer to ***Figure B*** for an end-first travel unit, or ***Figure C*** for a side travel unit. Space the trolley wheels according to the flange width, providing a maximum clearance of 3/32" on each side of the wheel, as illustrated. **DO NOT SUBSTITUTE** the 5/8" diameter rod supplied, unless the substitution meets or exceeds the load rating of this unit, as specified by Porter. **BE SURE TO TIGHTEN** the 5/8" locknuts (utilizing 5/8" lockwashers as an added safety measure) provided for the axle rod. After completion of the entire hoist system, it is recommended the axle rod threads be peened as a safety precaution, ensuring the trolley assembly cannot become loose.

Now insert the four (4) 3/4" x 2" long grade eight bolts through the four (4) holes in each trolley assembly (***Figures B and C***). These bolts will secure the hoist carriage assembly to the two (2) trolley assemblies in Step 5.

4. LIMIT SWITCH TRIP/SUPPLEMENTAL SAFETY STOP

With the drive tractor and trolleys in place, **DO NOT PROCEED UNTIL STOPS ARE INSTALLED AT EACH END OF THE RUNWAY BEAM.** Although the carriage system is of considerable weight, it could conceivably roll off the end of the runway during installation. This unit can be manually pushed along the runway beam **before** the unit is connected to the power source.

Before installing the limit switch trip safety stops, note an angle will be utilized at the drive tractor side, and a flat will be used on the opposite end. (Refer to ***Figure D***.) Clamp the angle stop to the bottom flange of the runway beam with the flat clamps, as detailed. Position the angle stop to ensure the rolled wrestling mat has a minimum clearance of 1'-6" from any obstacle in the extreme fore/aft position of travel. If the initial installation does not include wiring or setting of the limits, it is **imperative** the angle stops are positioned to account for the cantilevered distance of the rolled wrestling mat and/or sling from the "whisker" limit switches located on each end of the hoist/tractor assembly for an end-first unit. On side travel units, the rolled width of the wrestling mat must be accounted for in providing adequate clearance from any obstacle. Refer to dimension "X" in ***Figure D*** for minimum clearance requirements.

5. HOISTING THE CARRIAGE ASSEMBLY

Before proceeding, **IT IS CRITICAL** to note the hoist carriage assembly can weigh in excess of 1,100 lbs., depending upon the style unit selected. Great care and caution must be exercised in hoisting this unit in place.

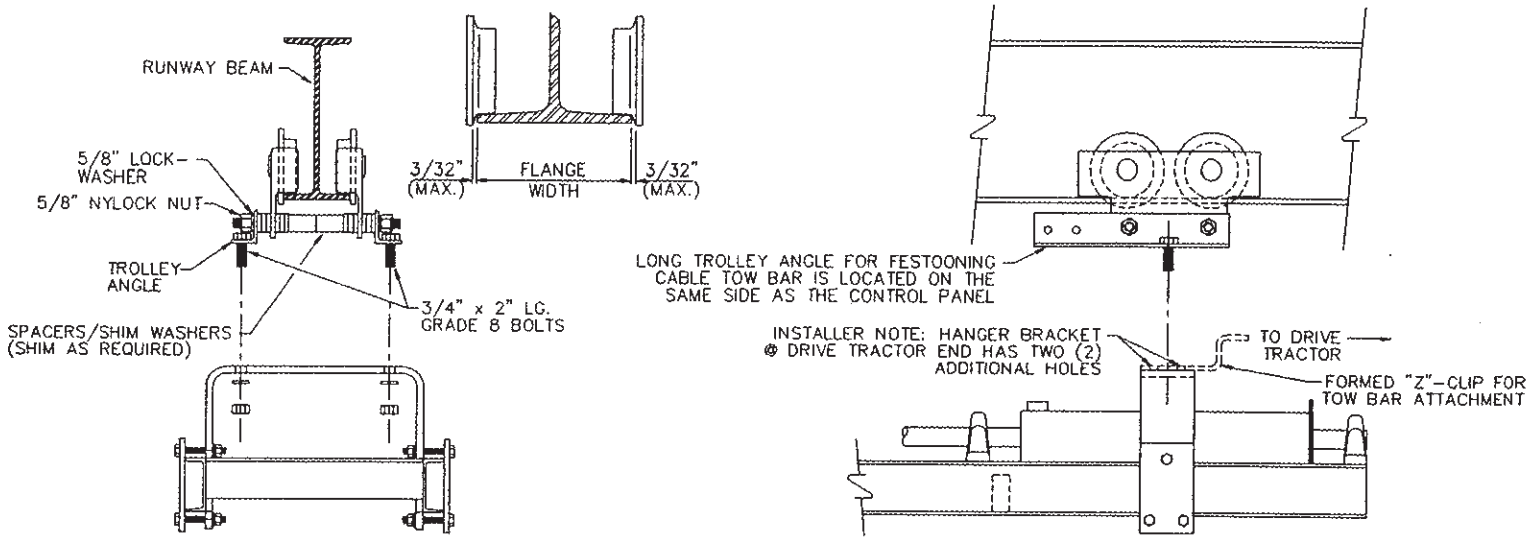


FIGURE B

END FIRST TRAVEL TROLLEY ASSEMBLY
MODEL NO.'S 91101-300, 91103-300 AND 91104-300

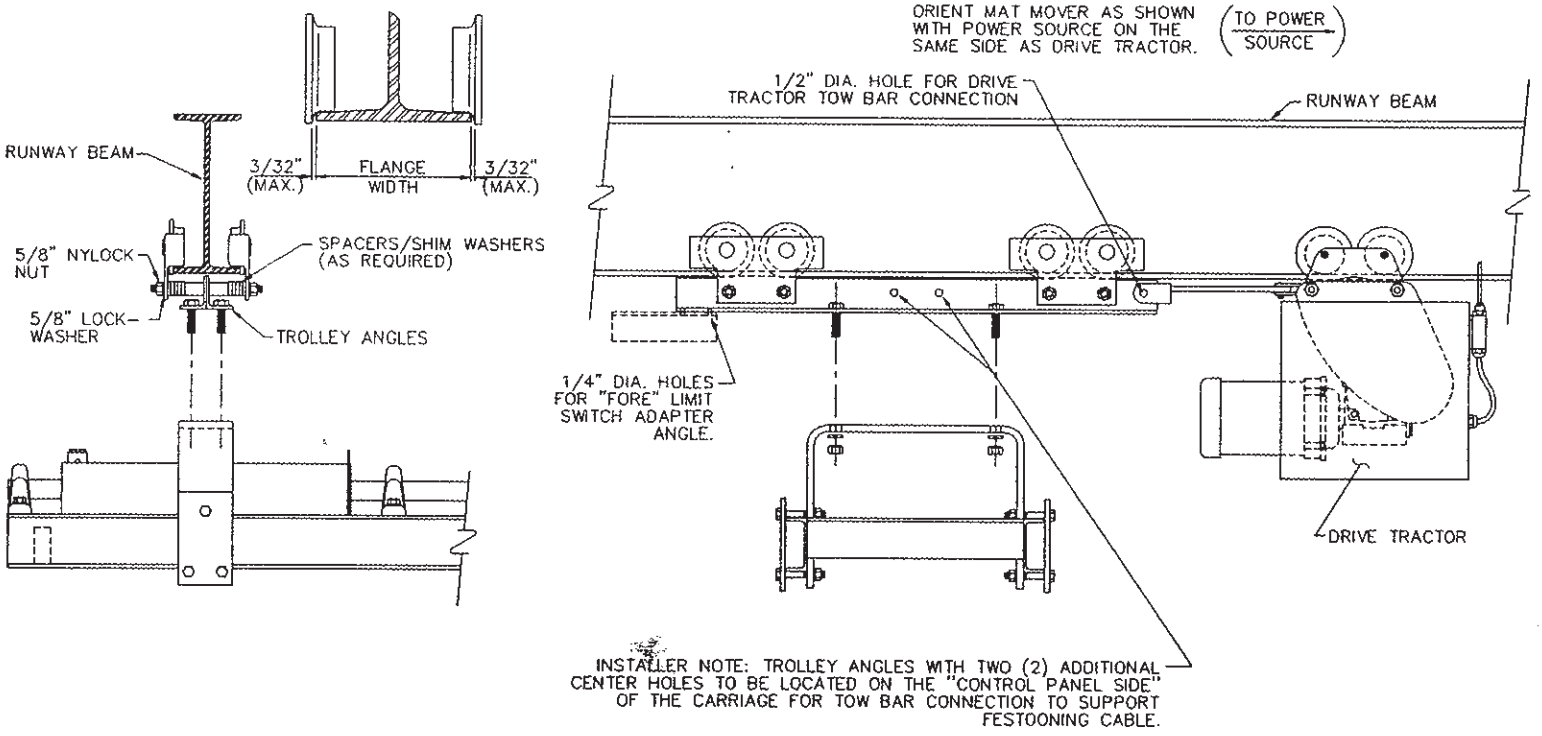


FIGURE C

SIDE TRAVEL TROLLEY ASSEMBLY
MODEL NO.'S 91101-400, 91103-400 AND 91104-400

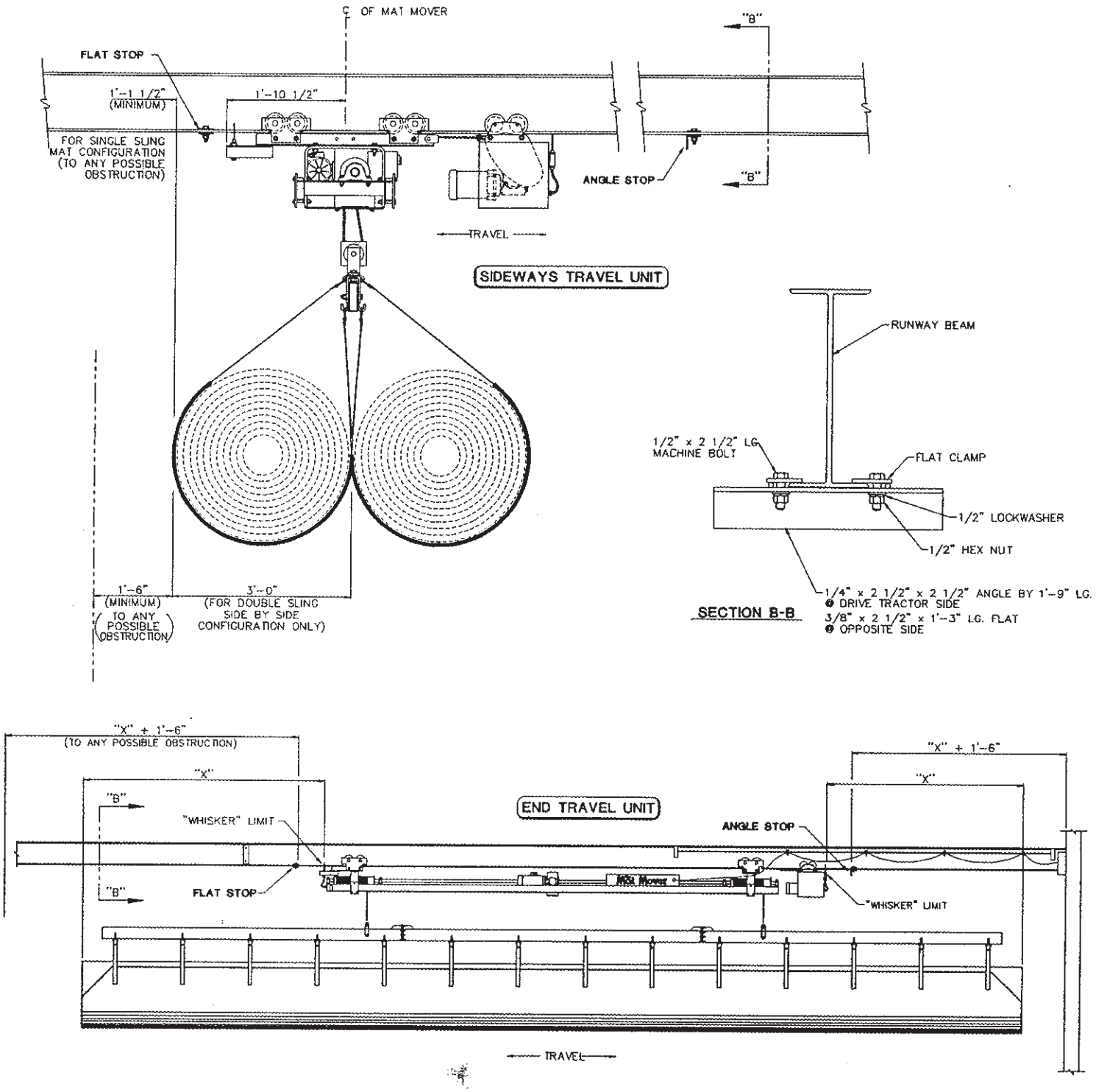


FIGURE D

LIMIT SWITCH TRIP/ SUPPLEMENTAL SAFETY STOPS

5A. BLOCK AND TACKLE METHOD

This unit may be hoisted in place by block and tackle, **PROVIDED** all rigging is rated for the load of the carriage assembly as specified by Porter.

A minimum of two (2) block and tackle assemblies are required. Locate two (2) (approved by structural engineer) anchor points at a designated hoisting location. The anchor points should be approximately 15'-0" on center for a full size carriage (20' long), and 10'-0" on center for a "mini" carriage (10' long).

Wrap the chain to the carriage assembly with the block and tackle pull-up chain at center line of frame. Perform the same procedure at other end of carriage assembly, ensuring carriage load will be balanced during hoisting operation.

With a person at each block and tackle assembly, raise the carriage assembly up to the runway beam. Ensure that the carriage assembly top is parallel to the floor.

Attach the trolley assemblies to the carriage assembly hanger brackets, utilizing the proper size machine bolts:

Four (4) 3/4" x 2" lg. machine bolt grade 8 -- end first
Eight (8) 5/8" x 2" lg. machine bolt grade 8 -- side first

Remove the block and tackle assemblies from the anchor points and the carriage assembly.

Disable the rotary counting "DOWN" limit switch, as instructed in the next section **before** proceeding to Step No. 6.

5B. SELF-HOISTING METHOD

The carriage system is also capable of hoisting itself into place, provided three-phase power, with the proper voltage as indicated on the unit's control panel, is available. Inexperienced personnel attempting the "temporary" wiring of this unit must note that, improperly done, it is **DANGEROUS**, and could result in damage to the equipment and/or **SERIOUS INJURY** or **DEATH**. If you are not qualified, **DO NOT** attempt the electrical wiring.

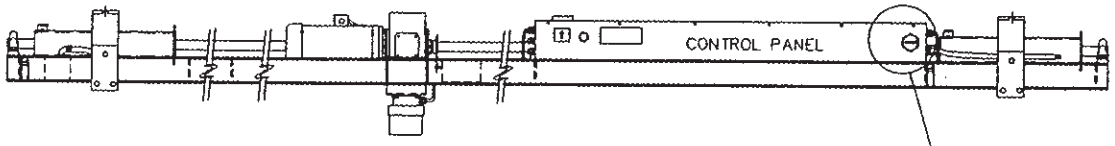
To temporarily power the unit, a three-phase power cord rated for voltage as indicated on the control panel will be required, along with an up/down switch with a three wire (for 110v) cord. Make certain both the control panel and power source are switched "**OFF**" before making any wire connections.

Referring to ***Figure E*** for the End-First *Mat Mover®*, and to ***Figure F*** for the Side-First *Mat Mover®*, provide power to the control panel at terminals L1A, L2A, L3A, and ground, utilizing the three-phase power cord rated for the proper voltage. Now, connect the temporary up/down switch wires to the control panel terminal block. Refer to the legend on either ***Figure E*** or ***Figure F***, according to unit type.

The dual key switch can be utilized for this operation, provided it is secured to an enclosed four-gang box, and a properly rated cord is utilized to extend to the control panel.

FIGURE E

END FIRST WIRING LEGEND

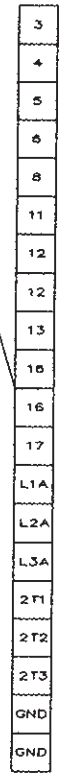


TRAVELING END FIRST MAT MOVER FRAME ASSEMBLY

FESTOONING CABLE WIRE DESIGNATION LEGEND

WIRE COLOR		TERMINAL		FUNCTION
BLACK	=	L1A	=	CONTROL PANEL POWER
RED	=	L2A	=	CONTROL PANEL POWER
BLUE	=	L3A	=	CONTROL PANEL POWER
ORANGE	=	3	=	COMMON (UP/DOWN)
YELLOW	=	4	=	KEYSWITCH (UP)
BROWN	=	8	=	KEYSWITCH (DOWN)
RED/BLACK	=	12	=	COMMON (GYM/STORAGE KEYSWITCH)
BLUE/BLACK	=	13	=	KEYSWITCH (GYM)
ORANGE/BLACK	=	16	=	KEYSWITCH (STORAGE)
YELLOW/BLACK	=	GND	=	GROUND
BROWN/BLACK	=	N/A	=	SPARE WIRE
BLACK/BROWN	=	N/A	=	SPARE WIRE

* GND TERMINAL SLOTS MAY BE MARKED BY GREEN STRIPED TERMINAL BLOCK HOUSING

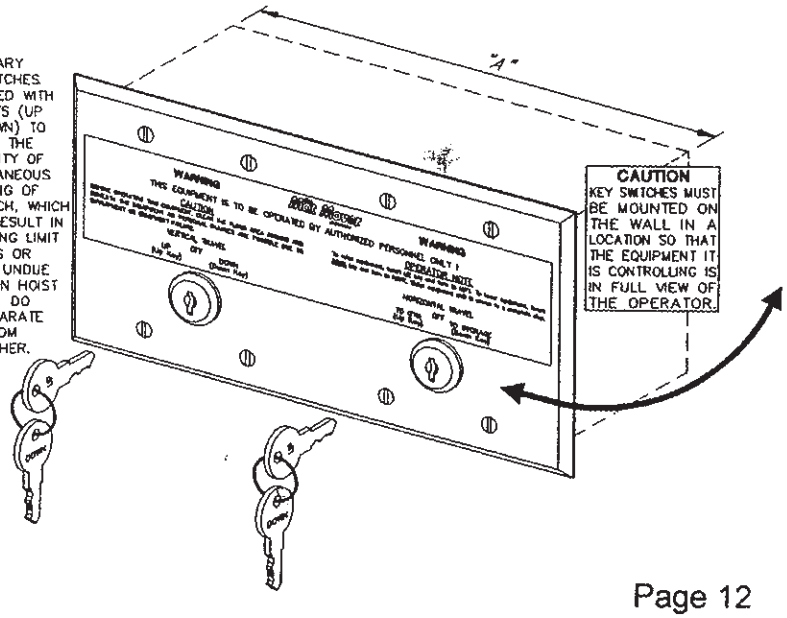


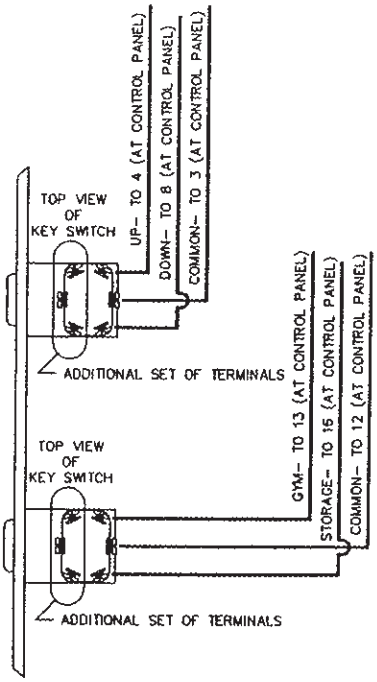
NOTE: ONLY TEN (10) FESTOONING CABLE WIRES ARE USED. THE REMAINING TWO (2) WIRES ARE SPARE/NOT USED. ALL RIGHT HAND SIDE TERMINAL BLOCK SLOTS ARE SHOWN FOR REFERENCE. HOWEVER, NOT ALL TERMINAL SLOTS ARE UTILIZED BY THE FESTOONING CABLE.

RIGHT HAND SIDE
CONTROL PANEL TERMINAL STRIP

DUAL KEY SWITCH FACE PLATE MOUNTED IN A STANDARD 4 1/2" x 8 3/16" FLUSH MOUNTED STAINLESS STEEL COVER PLATE FOR MOUNTING IN A 3 3/4" x 7 3/8" x 3-1/2" DEEP MASONRY BOX (BY ELECTRICAL CONTRACTOR).

MOMENTARY KEY SWITCHES FURNISHED WITH TWO KEYS (UP AND DOWN) TO PREVENT THE POSSIBILITY OF INSTANTANEOUS REVERSING OF THE WINCH, WHICH COULD RESULT IN OVERRIDING LIMIT SWITCHES OR PLACING UNDUE STRESS IN HOIST SYSTEM. DO NOT SEPARATE KEYS FROM EACH OTHER.

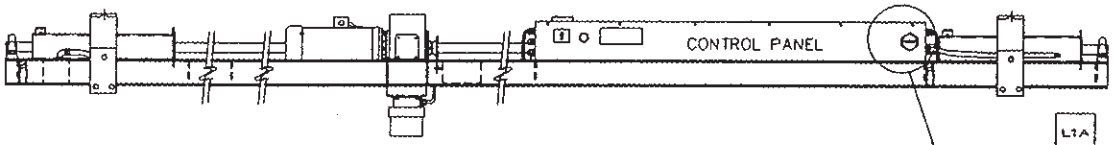




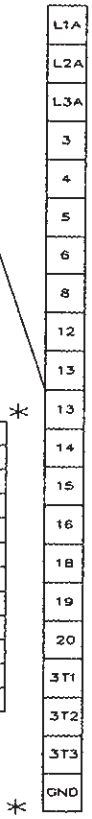
WIRING AT WALL MOUNTED KEY SWITCH

FIGURE F

SIDEWAYS TRAVEL WIRING LEGEND



TRAVELING SIDE FIRST MAT MOVER FRAME ASSEMBLY



FESTOONING CABLE WIRE DESIGNATION LEGEND

WIRE COLOR		TERMINAL		FUNCTION
BLACK	=	L1A	=	CONTROL PANEL POWER
RED	=	L2A	=	CONTROL PANEL POWER
BLUE	=	L3A	=	CONTROL PANEL POWER
ORANGE	=	3	=	COMMON (UP/DOWN)
YELLOW	=	4	=	KEYSWITCH (UP)
BROWN	=	8	=	KEYSWITCH (DOWN)
RED/BLACK	=	13	=	COMMON (GYM/STORAGE KEYSWITCH)
BLUE/BLACK	=	14	=	KEYSWITCH (GYM)
ORANGE/BLACK	=	18	=	KEYSWITCH (STORAGE)
YELLOW/BLACK	=	GND	=	GROUND
BROWN/BLACK	=	N/A	=	SPARE WIRE
BLACK/BROWN	=	N/A	=	SPARE WIRE

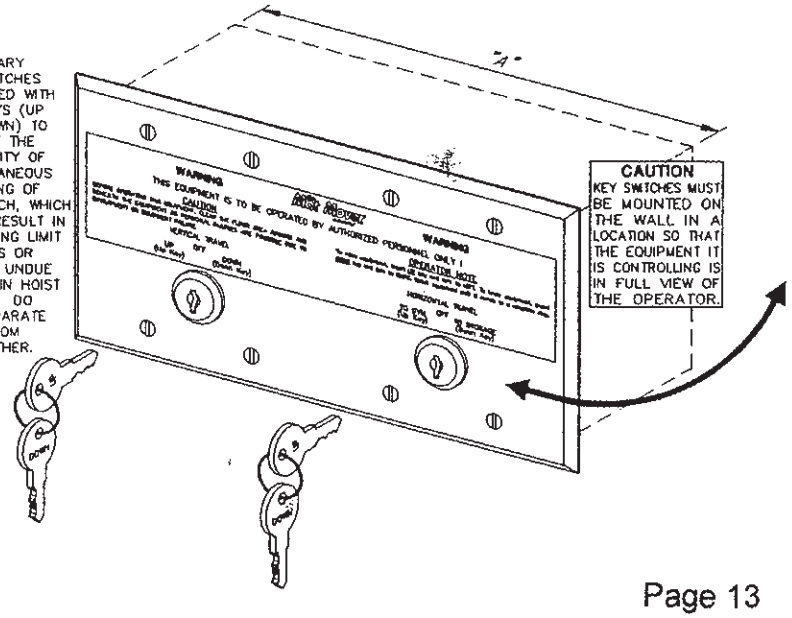
* GND AND #13 MAY BE TAGGED WIRES CONNECTED TO BY USING A WIRE NUT

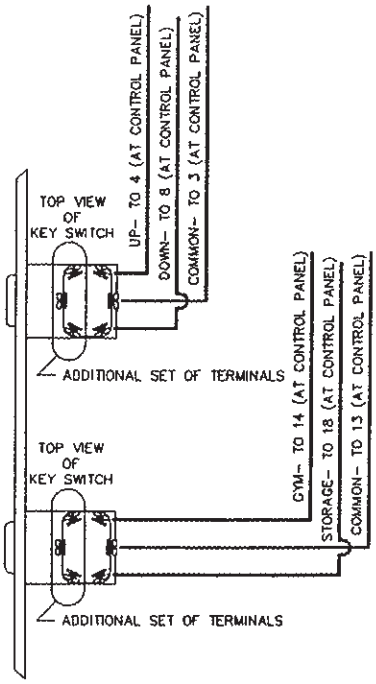
NOTE: ONLY TEN (10) FESTOONING CABLE WIRES ARE USED. THE REMAINING TWO (2) WIRES ARE SPARE/NOT USED. ALL RIGHT HAND SIDE TERMINAL BLOCK SLOTS ARE SHOWN FOR REFERENCE. HOWEVER, NOT ALL TERMINAL SLOTS ARE UTILIZED BY THE FESTOONING CABLE.

RIGHT HAND SIDE
CONTROL PANEL TERMINAL STRIP

DUAL KEY SWITCH FACE PLATE MOUNTED IN A STANDARD 4 1/2" x 8 3/16" FLUSH MOUNTED STAINLESS STEEL COVER PLATE FOR MOUNTING IN A 3 3/4" x 7 3/8" x 3-1/2" DEEP MASONRY BOX (BY ELECTRICAL CONTRACTOR).

MOMENTARY KEY SWITCHES FURNISHED WITH TWO KEYS (UP AND DOWN) TO PREVENT THE POSSIBILITY OF INSTANTANEOUS REVERSING OF THE WINCH, WHICH COULD RESULT IN OVERRIDING LIMIT SWITCHES OR PLACING UNDUE STRESS IN HOIST SYSTEM. DO NOT SEPARATE KEYS FROM EACH OTHER.

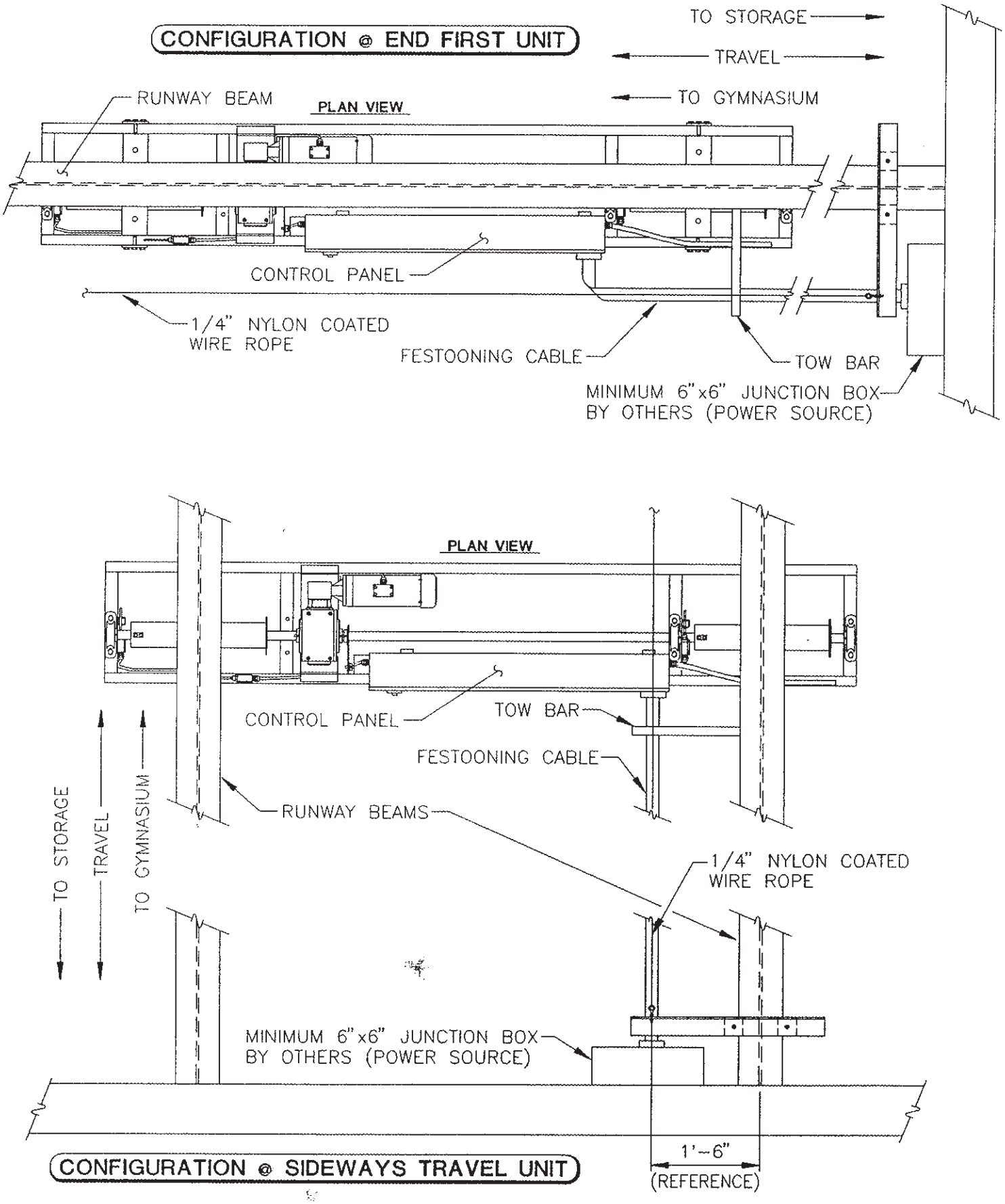




WIRING AT WALL MOUNTED KEY SWITCH

FIGURE G

ORIENTATION OF HOIST CARRIAGE TO RUNWAY BEAM(S)

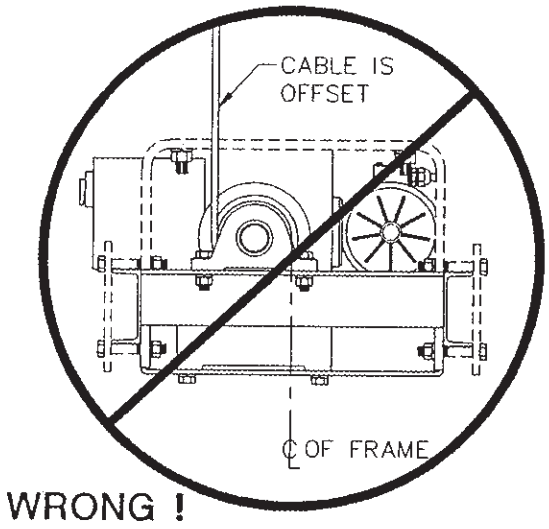


Orient the hoist carriage assembly beneath the runway beam, with the control panel on the same side as the festooning cable (power source) is to be permanently located (refer to illustrations in ***Figure G***).

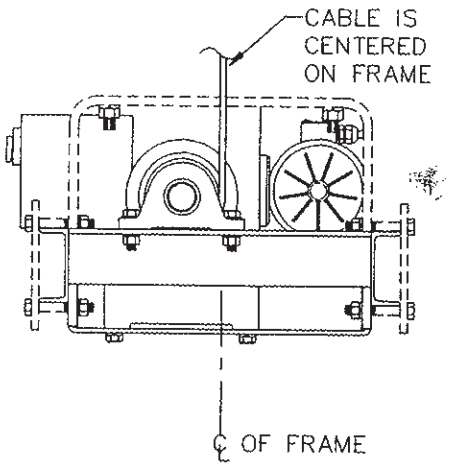
The 5/16" cable must now be secured to each drum by means of the cable block and two (2) 5/16" x 1-3/4" long machine bolts provided for each drum. Referring to ***Figure H***, note the barrel end of the cable terminates at the drum, and should actually be installed in the reverse direction for the initial hoisting of the carriage frame. This will eliminate the need to reverse the attachment once the unit is secured to the runway beam.

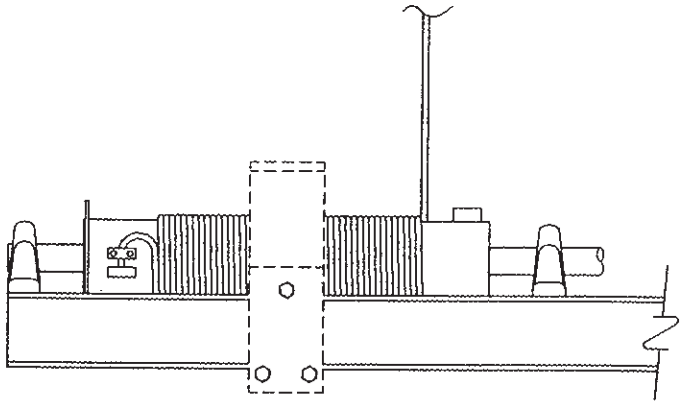
FIGURE H

CABLE TIE-OFF FOR UNIT, TO HOIST UNDER ITS' OWN POWER



WRONG !

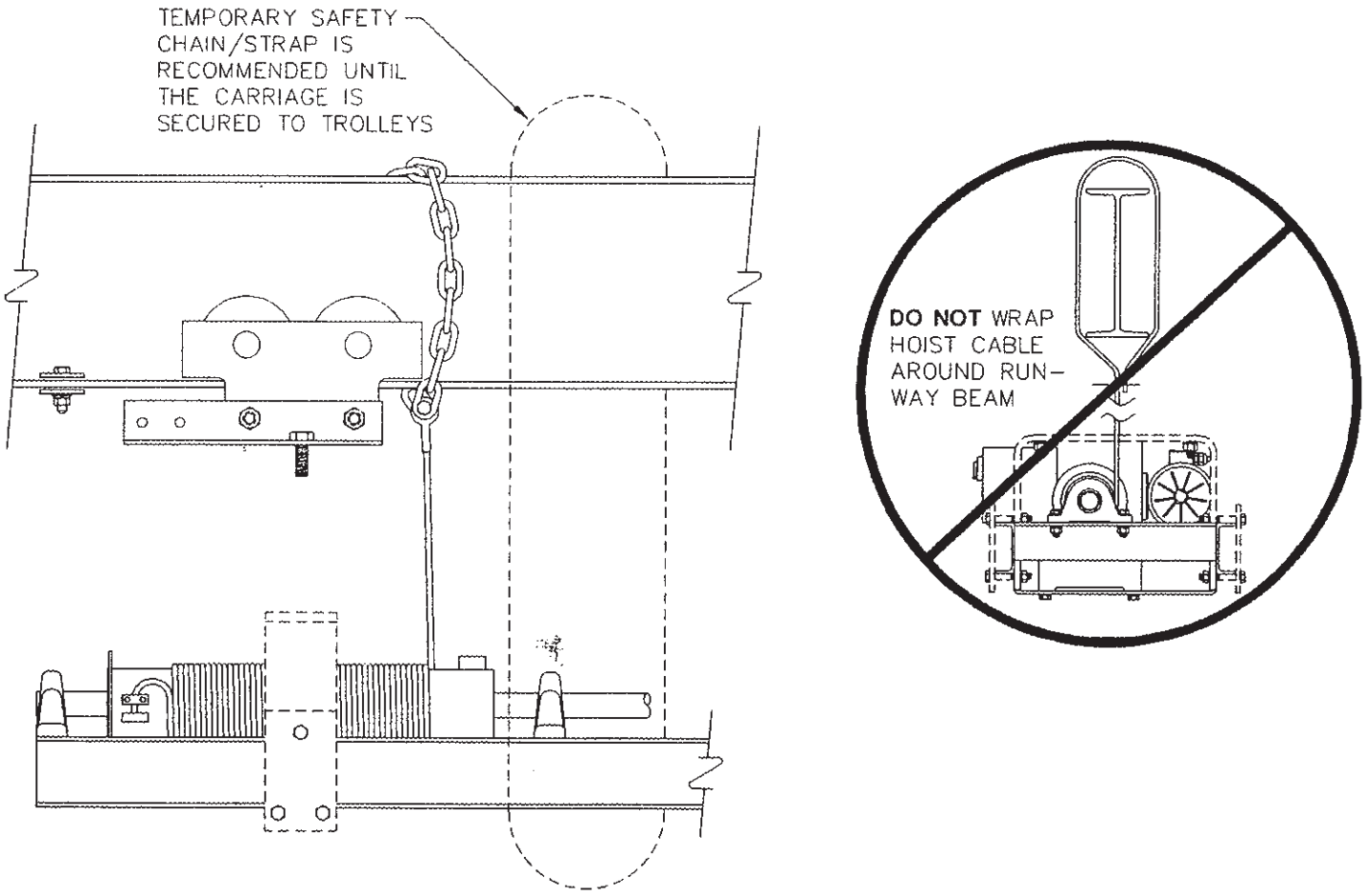




At the opposite end of each 5/16" cable is a swaged fitting which will be fastened to either the load bar, or routed through a pulley block at the load bar and secured on the carriage frame assembly. At this point, however, the cable is to be secured to the runway beam. Do not attempt to wrap the 5/16" cable around the runway beam. The weight of the carriage will permanently kink the hoist cable and damage the wire strands. A minimum size of ½" grade 80 **welded link chain** (not included) or greater can be utilized to secure the 5/16" hoist cable to the runway beam as illustrated in ***Figure I***. Loop the welded link chain around the runway beam, and secure to the swaged end fitting of the 5/16" cable with a ½" grade 5 bolt and flatwashers.

FIGURE I

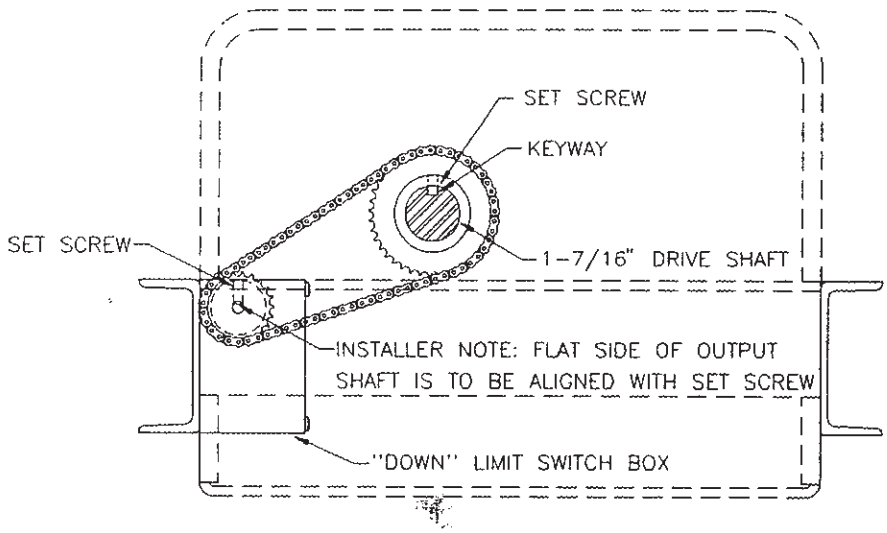
SECURING CARRIAGE TO RUNWAY BEAM



It is critical at this point to disable the rotary counting "Down" limit switch, only if the unit is to be hoisted under its own power. Failure to do so may cause the traveling nut (see ***Figure V***) to exceed the limit, causing possible damage to the limit switch box. Referring to ***Figure J***, loosen the 1/4" set screw on the down limit switch shaft sprocket. (Note that the set screw is positioned over the flat section of the limit switch shaft.) Remove the sprocket from the limit switch shaft. The chain should now be "slack." Remove the chain from both sprockets' teeth. Wrap the chain around the line shaft by folding it onto the line shaft symmetrically. Tape the chain to the line shaft to hold it in place temporarily. Visually inspect that the taped chain will not contact nearby components when the line shaft rotates. For installation, reverse removal procedures.

FIGURE J

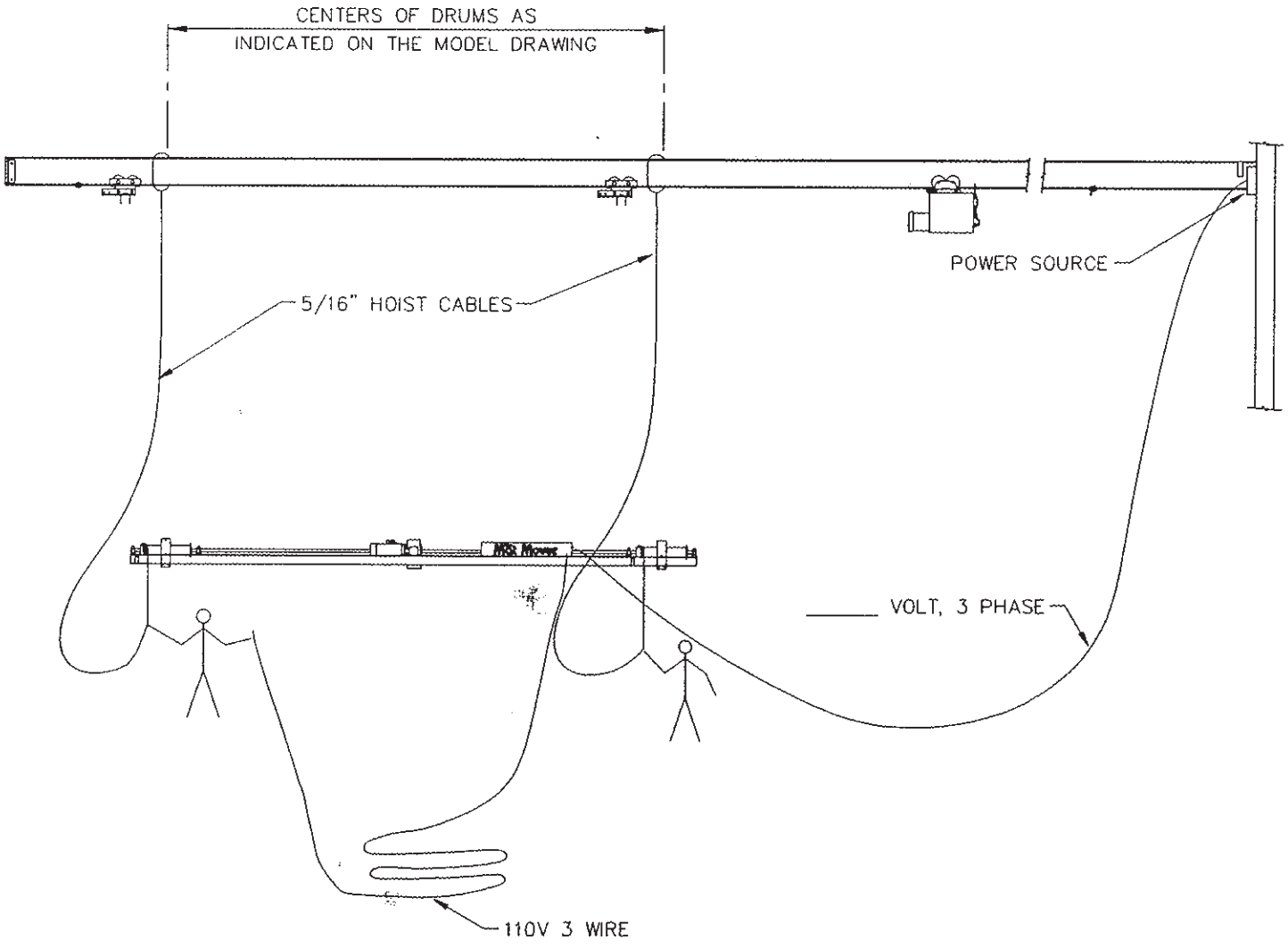
DISENGAGING THE "DOWN" LIMIT



Switch the power source and control panel to "ON." Provided all electrical wiring connections were made properly, the "DOWN" switch will actually wind the cable and, subsequently, hoist the unit in the "UP" direction. Remember, the cable was secured to the drum in the "reverse" direction to keep the cable centered on the frame. Begin winding the cable on the drum, keeping slight tension on the cable to ensure a uniform cable wind (see ***Figure K***). Once the cable is under tension between the runway beam and the carriage, switch the power off. Inspect the cable connection at the runway beam to ensure there is no slippage. It is strongly recommended to provide a safety chain or strap around both the carriage frame and runway beam once it is in the hoisted position (see ***Figure I***). Resume hoisting the carriage frame until the hanger brackets are within close proximity to the 3/4" x 2" long bolts suspended from each trolley assembly. Secure the frame at each end with a safety chain or strap. Utilizing a chain hoist or "come-along," hoist each end of the unit (one end at a time) the remaining 6" to 12" until the hanger brackets can be secured with the 3/4" nylock nuts provided. The safety chain/strap can now be removed.

FIGURE K

HOISTING CARRIAGE UNDER IT' OWN POWER



6. CONNECTING THE FESTOONING CABLE

The *Mat Mover®* is supplied power via the yellow PVC jacketed flat (festooning) cable. Each system is supplied complete with a support trolley system and flat cable for the working travel of the *Mat Mover®*. The setup of the festooning cable is easily accomplished by the installer. Note, however, only qualified electrical personnel should connect the flat cable to either the power source junction box, or the *Mat Mover®'s* control panel.

Referring to ***Figure L***, connect the 1/4" wire rope angle supports to the top of the runway beam, as detailed. Be sure to allow for adequate travel of the trolleys, ensuring the flat cable is never put into tension. Secure the 3/8" eyebolt to each angle, allowing maximum thread to provide tension on the trolley support 1/4" nylon coated wire rope. Next, attach the 1/4" wire rope to each eyebolt with the 1/4" cable thimble and two (2) cable "U" clamps at each end. Additional tensioning can now be obtained by tightening the 3/8" eyebolts at either end.

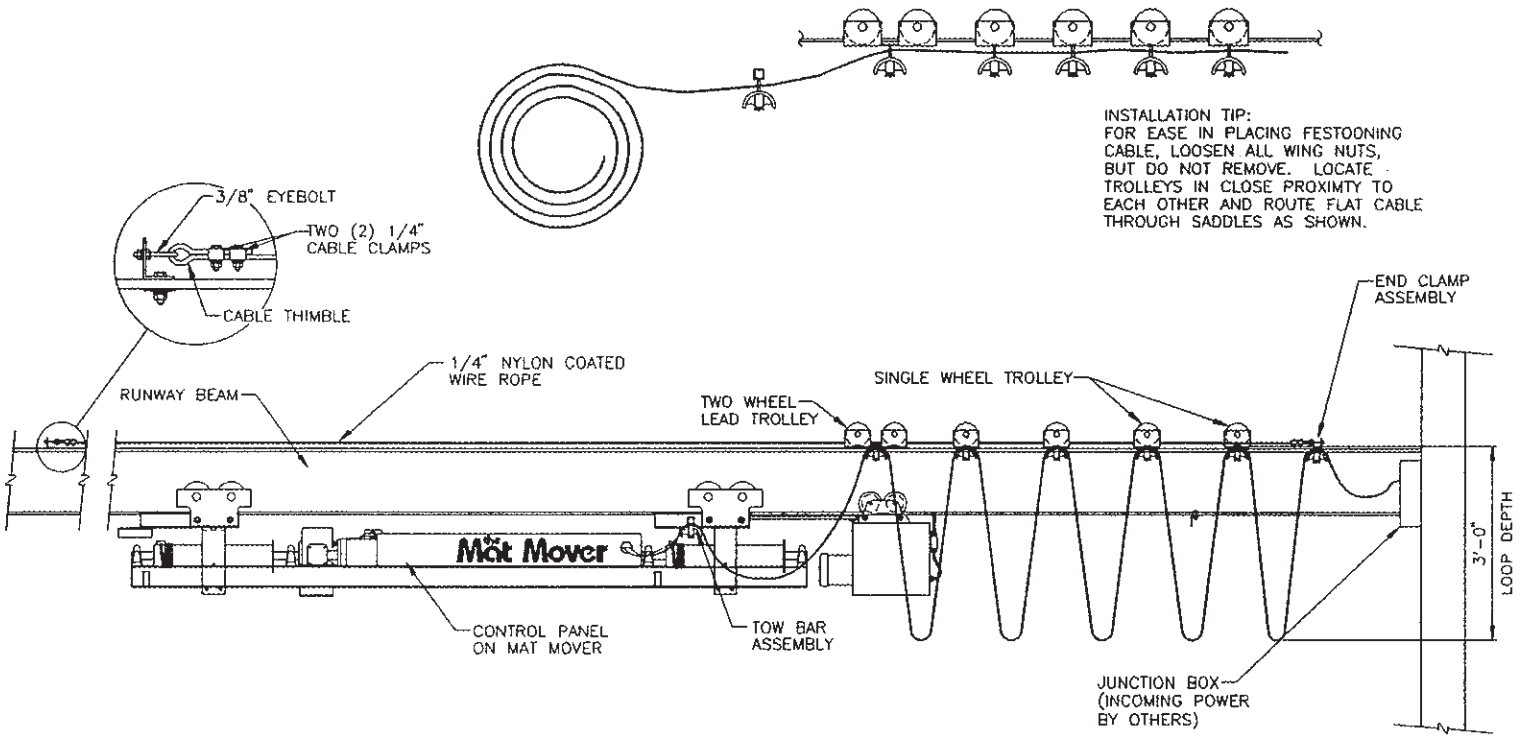
The tow bar assembly, which will pull and push the festooning cable, is now attached to the *Mat Mover®* hanger support angle. The two-wheel lead trolley is now attached to the 1/4" wire rope nearest the tow bar, followed by the single wheel trolleys. The number of trolleys is governed by the travel distance of the unit. Finally, the end clamp assembly is secured to the angle support nearest the power source (furthest from the *Mat Mover®* carriage).

The festooning cable can now be secured to the tow bar, trolleys and end support by loosening each saddle and placing the flat cable across the top of the saddle. Before festooning the cable from trolley to trolley, make sure adequate flat cable is provided between the tow bar/control panel connection and the end clamp/power source connection. A qualified electrician will be required to connect each end of the festooning cable to the power source and control panel.

For cable connection to the trolleys, it is best to have the *Mat Mover®* system in the "stored" position. Drape the cable across each trolley saddle, providing a three-foot loop of cable between each trolley. Tighten all saddle connections.

FIGURE L

FESTOONING CABLE ATTACHMENT



ELECTRICIAN ONLY: ALSO REFER TO INSTRUCTION 14B

- Open *Mat Mover®* control panel, slide 15" of festooning cable through the connector fitting located on the face of the control panel. Tighten connector to hold cable.
- Strip 9" of festooning cable jacket from end of cable. Pulling the two (2) small cords molded into jacket will facilitate stripping the jacket.
- Strip 3/8" of insulation from each wire -- except two (2) wires: brown/black, black/brown.
- Connect wires to terminal block terminals at connector side of panel. Refer to ***Figures E and F***, and Instruction 14 for complete wiring directions.
- Cut festooning cable to length (plus length required inside junction box) at junction box location.
- Strip wires as required. Connect festooning cable wires with corresponding wire function at junction box. Refer to ***Figures E and F*** for festooning cable wire identification.

INSTALLER ONLY

- Loosen the wing nuts on the festooning cable trolley clamp screws to allow the cable to easily slide through the cable saddle and cable pad. Ensure that dual wheel lead trolley is at control panel end of cable.
- Attach festooning cable tow bar to trolley support angle. Slide festooning cable between cable saddle and cable pad on the tow bar. Allow enough cable slack between tow bar and control panel so that the control panel door can be fully opened.
- Space trolleys 5' to 6' apart. Allow a total of 10% cable slack in length of trolley/*Mat Mover®* travel. Cable must not be tight or stretched at *Mat Mover®'s* furthermost point of travel.

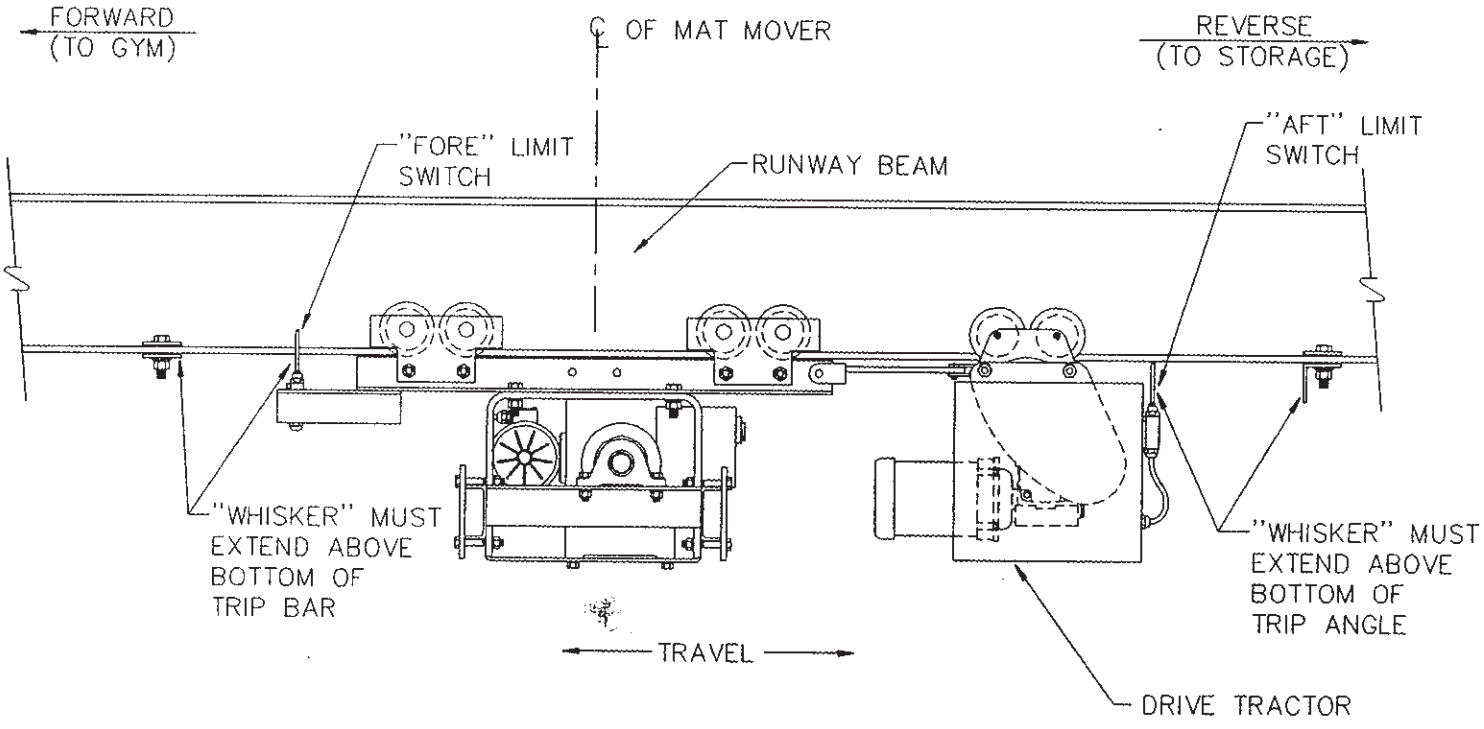
7. "FORE" AND "AFT" LIMIT SWITCH CONNECTIONS

Attachment of the "Fore" limit switch to govern the maximum horizontal travel of the *Mat Mover®*, a "Fore" limit switch is to be mounted to the unit's hanger support angle as detailed in ***Figure M***. The switch is pre-wired to the control panel. The "whisker" limit prong must extend above the trip bar installed in Step 4.

The "Aft" limit switch is located on the drive tractor unit's junction box. Check to make sure the "Aft" limit switch prong extends above the trip angle mounted on the runway beam.

FIGURE M

FORE/AFT LIMIT SWITCH CONNECTIONS



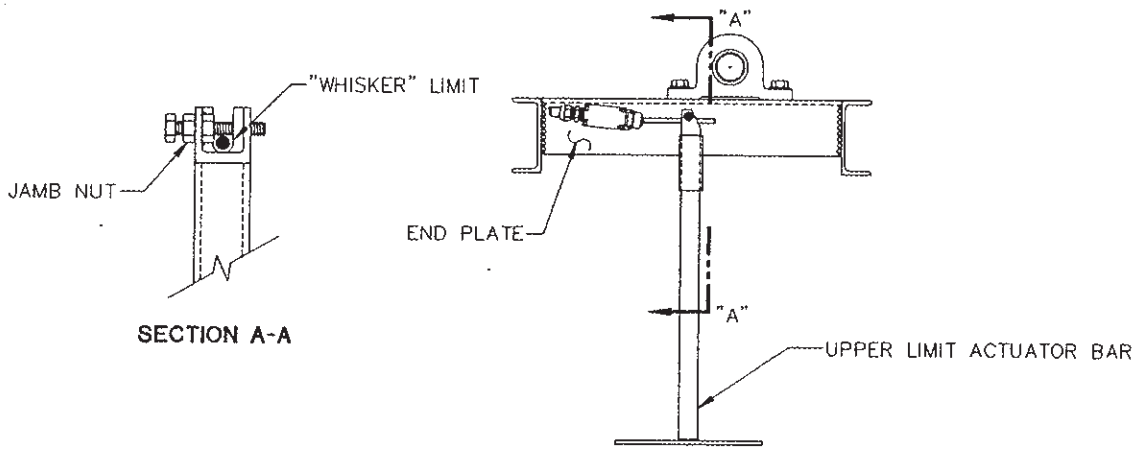
SIDEWAYS TRAVEL UNIT SHOWN,
END TRAVEL UNIT IS SIMILAR.

8. UPPER LIMIT ACTUATOR SETTING

The upper limit switches of the *Mat Mover®* is actuated by the load bar pushing up the actuator bar, in turn, activating the limit switch. To install the two (2) upper limit actuator bars, apply a small amount of grease to the top 4" of the bar. Slide the actuator bar through the tube located on the angle frame near the end of each drum. Place the "whisker" spring of the limit switch through the opening of the top portion of the actuator bar (see ***Figure N***). Secure the assembly with a 1/4" x 1-1/4" full thread bolt, making sure the bolt goes through both walls of the actuator bar. It is **imperative** the jamb nut be set tight against the bar to keep the bolt in place. Repeat for the second actuator bar. Check actuator bar for freedom of movement in guide tube.

FIGURE N

UPPER LIMIT ACTUATOR



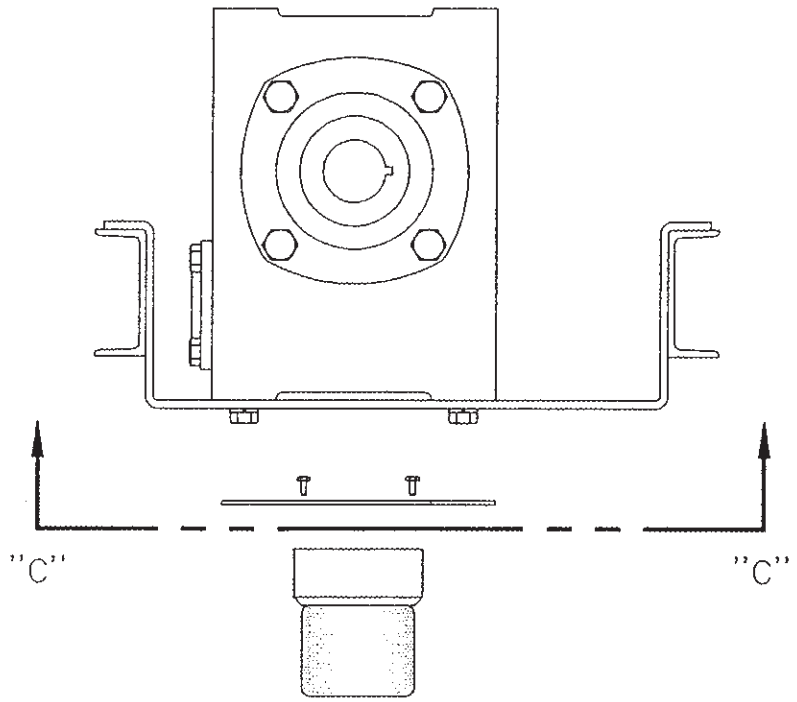
9. SAFETY STROBE LIGHT INSTALLATION

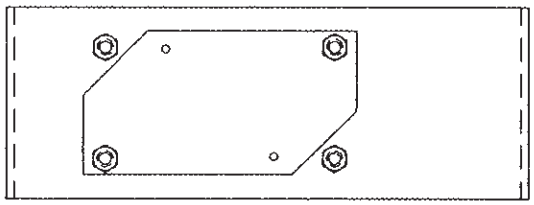
Referring to ***Figure O***, note the hole pattern and connector location on the strobe light assembly. Remove the two (2) mounting bolts on the gear box support plate, which allows the optimum cable route to the control panel. Do not remove all four (4) gear box mount bolts. Doing so can cause the gear box to shift, making reinstallation of the bolts difficult. Fasten the strobe light adapter plate to the gearbox support plate with the existing gearbox mounting bolts.

Route the strobe light two wire SJO cord to the control panel. Do not route the cable where it may come into contact with moving parts. Insert end of cord through the empty connector on the control panel. Ensuring all power is off, connect wires to the terminals as indicated in Instruction No. 14.

FIGURE O

STROBE LIGHT INSTALLATION





SECTION C–C

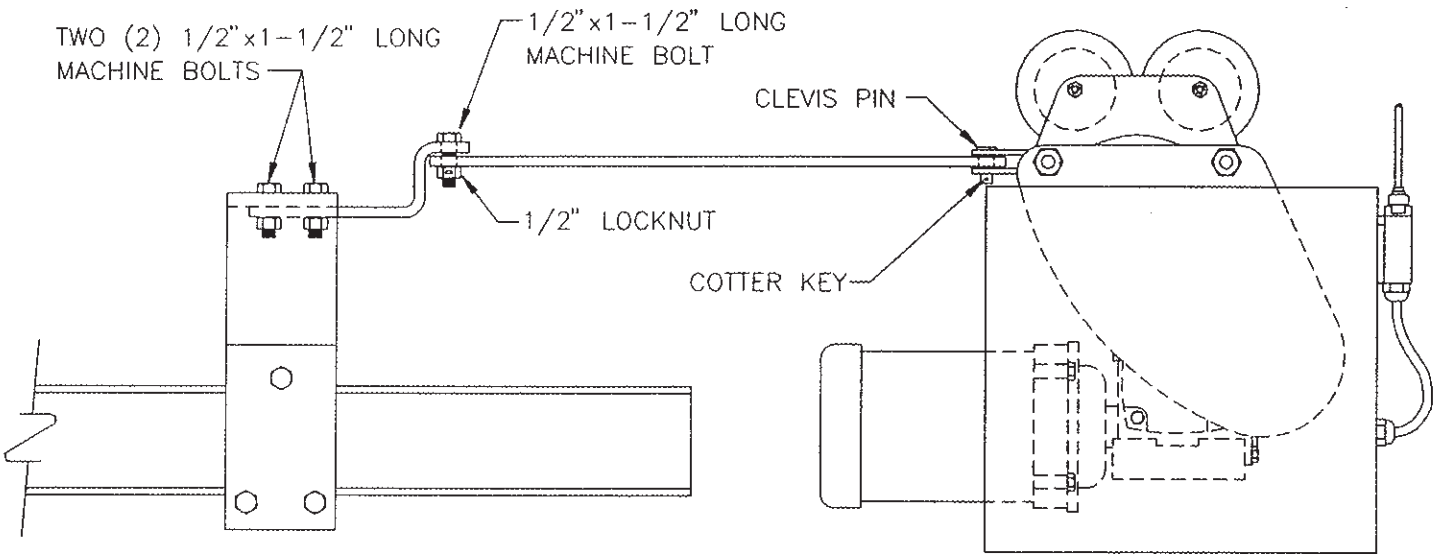
10. TOW BAR HOOK-UP TO FORMED HANGER BRACKET (END FIRST UNIT)

Refer to ***Figure P*** for the following procedures. Attach the drive tractor tow bar of frame adapter to the center of the formed hanger bracket with two (2) 1/2" x 1-1/2" long machine bolts, lock washers and hex nuts. Do not tighten bolts at this time. Install the tow bar to the underside of the forward section of the frame adapter using a 1/2"" x 1-1/2" diameter machine bolt and lock nut. The bolt head should be in the up position (between the runway beam and the frame adapter). Do not fully tighten the lock nut. Allow approximately 1/8" - 1/4" free play. At this time, fully tighten the two (2) bolts securing the frame adapter to the formed hanger bracket.

Remove both clevis pin and cotter key from the drive tractor clevis. Roll the drive tractor until the clevis hole aligns with the tow bar hole. Insert the clevis pin through the holes. Secure the clevis pin with the cotter key. Lock the drive tractor clevis in place by tightening the jamb nuts against each side of the clevis. Note, the tow bar should be near parallel to the runway beam after the drive tractor clevis is tightened.

FIGURE P

END FIRST DRIVE TRACTOR TOW BAR ASSEMBLY



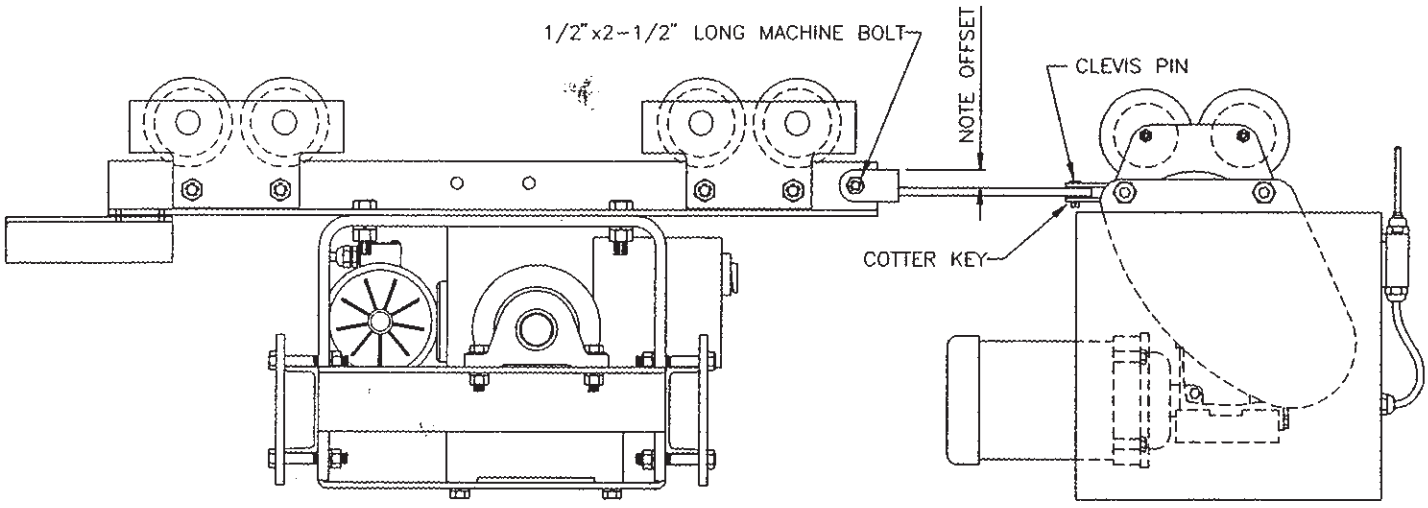
11. TOW BAR TO ANGLE HOOK-UP (SIDE FIRST)

Refer to ***Figure Q*** for the following procedures. Attach the hinge end of the tow bar weldment to the trolley attachment angles with a ½" x 2-1/2" long machine bolt and lock nut. Ensure the tow bar offset is positioned such that the bar portion of the weldment is closest to the runway beam.

Remove both the clevis pin and cotter key from the drive tractor clevis. Roll the drive tractor until the clevis hole aligns with the tow bar hole. Insert the clevis pin through the holes. Secure the clevis pin with the cotter key. Lock the drive tractor clevis in place by tightening the jamb nuts against each side of the clevis. Note, the tow bar weldment should be near parallel to the runway beam after the drive tractor clevis is tightened. Repeat procedure for the second drive tractor.

FIGURE Q

SIDE FIRST DRIVE TRACTOR TOW BAR ASSEMBLY



12. ASSEMBLING THE LOAD BAR (FULL SIZE UNITS)

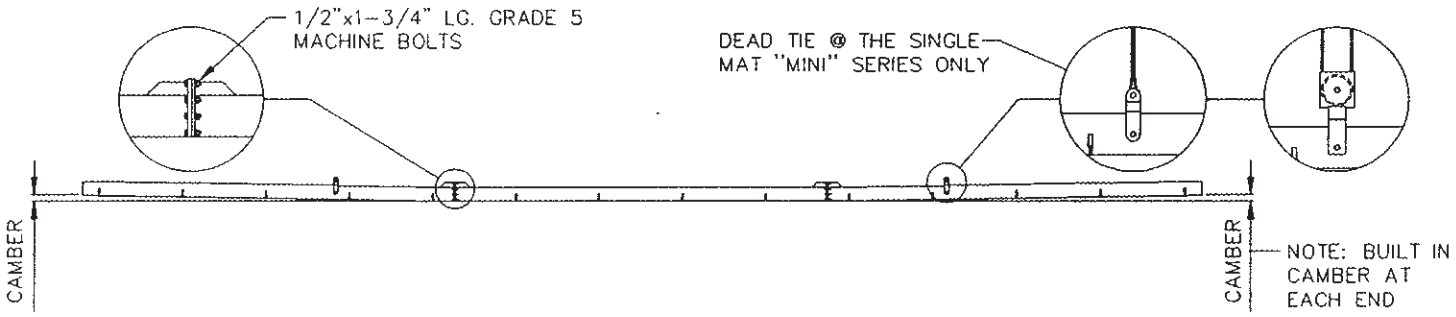
Load bars less than 24'-0" in length are shipped in one piece, and do not require assembly. For load bars greater than 24'-0" long, the following assembly procedure is to be followed.

The load bar is to be assembled in place, directly below the runway beam(s) at a location accessible by the Traveling *Mat Mover*®. **DO NOT** attempt to assemble in another area and then "carry" into place. The load bar, when assembled, is approximately 450 lbs.

Having appropriate protection for the floor in place, lay the center and the two end sections in line, with flange gussets up, butt flanges together. Using the sixteen (16) 1/2" x 1-3/4" long grade 5 machine bolts provided, fasten together, utilizing lock washers and hex nuts, (see ***Figure R***).

FIGURE R

LOAD BAR ASSEMBLY



13. CABLE ATTACHMENT TO LOAD BAR

Depending on whether or not the *Mat Mover*® system will be wired immediately, it may be best to delay attachment to the load bar. If unit is temporarily wired, the load bar attachment can proceed. Review the phasing note in instruction 14D before operating, however. For full size Traveling *Mat Movers*, two (2) swivel pulleys are provided for attachment to the load bar. **Do not substitute** the factory provided hardware. Grade 8 bolts (and a nylock nut at the sheave) are shipped assembled. It is necessary to disassemble the pulley, however, to route the cable down from the hoist, around the sheave and back up to the frame assembly anchor point. See ***Figure R***.

For single mat (14' x 42') Mini Traveling *Mat Movers*, the cable is attached directly to the load bar clamp. Grade 8 bolts are used for this connection.

14. WIRING THE COMPLETE *MAT MOVER®* SYSTEM

It is imperative the power supply is disconnected before installing, repairing or working in the proximity of the *Mat Mover®*. **Only** qualified electrical personnel should connect or repair this product. Inexperienced personnel attempting the wiring of this unit must note that, improperly done, it is **dangerous**, and could result in damage to the equipment and/or **serious injury** or **death**. If you are not qualified, **do not** attempt the electrical wiring.

14A. OVERVIEW/REQUIREMENTS

The key to a safe and trouble-free installation is to follow the instructions precisely. The integral control panel has been pre-wired at the factory, requiring field wiring of the drive tractor, festooning cable and key switches.. Although only ***Figure E*** and ***Figure F*** are required for field wiring, note a complete terminal block legend for your particular *Mat Mover®* series is provided in the back of this manual.

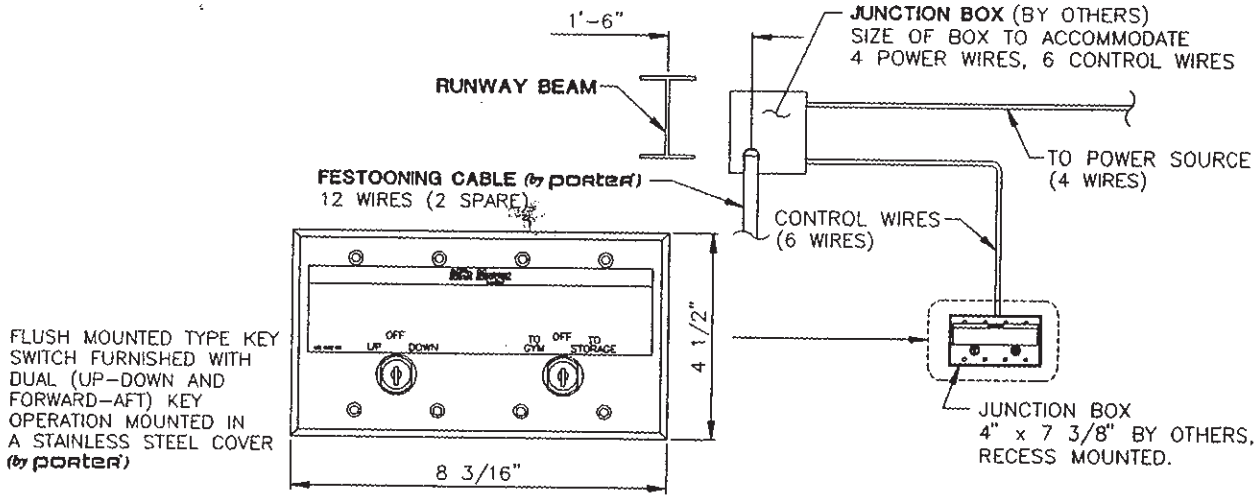
A minimum 6" x 6" junction box is required (by others) to accommodate a total of ten (10) wires:

- Four (4) wires from the power source (3-phase plus ground).
- Six (6) wires from the key switches (three (3) from each key switch).
- Festooning cable will terminate at the junction box (twelve (12) wire, of which two (2) are spares).
- A 2-1/2" knock-out is required at the junction box to accept the festooning cable connector (connector by Porter).

Refer to ***Figure G*** and ***Figure S*** for junction box and key switch locations.

FIGURE S

JUNCTION BOX/KEY SWITCH LOCATIONS



14B. WIRING

Referring to ***Figure E*** for the End First *Mat Mover®* and ***Figure F*** for the Side First *Mat Mover®*, provide power to the control panel via the festooning cable at terminals L1A, L2A, L3A, and ground. Reference ***Figure K*** for festooning cable connection. The remaining six (6) wires are for the key switch operations, as depicted on the legend in either ***Figure E*** or ***Figure F***. Remember, the two (2) remaining wires on the festooning cable are spares. Note there are two (2) small cords molded into the yellow PVC jacket of the festooning cable, which will facilitate stripping the jacket.

If the red strobe light is not yet wired to the control panel, do so now. The end first unit strobe is wired to terminals 2 and 19 on the left side terminal strip, and the side first unit strobe is wired to terminals 2 and 22 on the left side terminal strip. To alleviate any confusion, refer to the terminal block legend for your particular *Mat Mover®* series in the back of this instruction manual.

14C. DRIVE TRACTOR WIRING HOOK-UP

Referring to ***Figure T***, insert the six (6) wires in the Liquid-Tite cable(s) coming from the control panel/junction box through the 90° connector(s) on the drive tractor junction box. Tighten the connector(s). Now connect the four (4) wires from the drive tractor motor to four (4) of the wires from the control panel, following the schematic in ***Figure S***. Finally, connect the remaining two (2) wires from the control panel to the limit switch wires from the SJO cord.

14D. OPERATIONAL/ TEST CHECK

Before proceeding with the operational check of the *Mat Mover®*, it is **imperative** that the entire assembly is inspected for proper installation.

It is also important to understand this unit operates with three-phase power, and how incorrect phasing adversely affects the operation of the *Mat Mover®*. Review the phasing notes as listed before proceeding with the operational check list.

PHASING NOTE

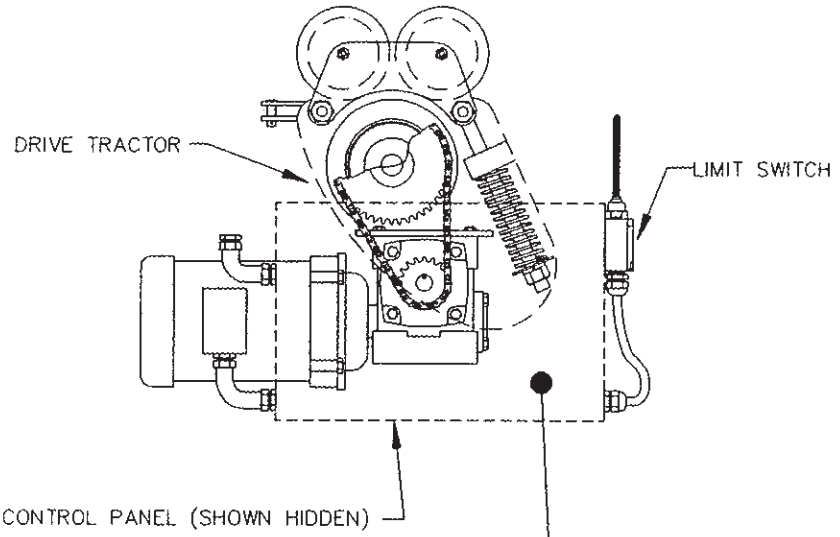
Do not confuse crossed keyswitch direction of travel with improper phasing, or improper phasing with crossed keyswitch direction of travel.

Motor phasing must be corrected before any changes are made at the keyswitch terminal. Proper motor phasing can be identified by matching motor direction of travel with the limit switch operation for that direction of travel. For example, if the motor is turning the cable drum in the "UP" direction, and the "UP" limit stops that direction of travel, the motor is phased properly. The same logic applies to the horizontal direction of travel.

The phasing check of the Traveling *Mat Mover®* should be performed before the cable and load bar are installed. Failure to confirm proper phasing may result in load bar overriding the upper limit switch, causing structural **damage** to the *Mat Mover®*, building structure, or both!

FIGURE T

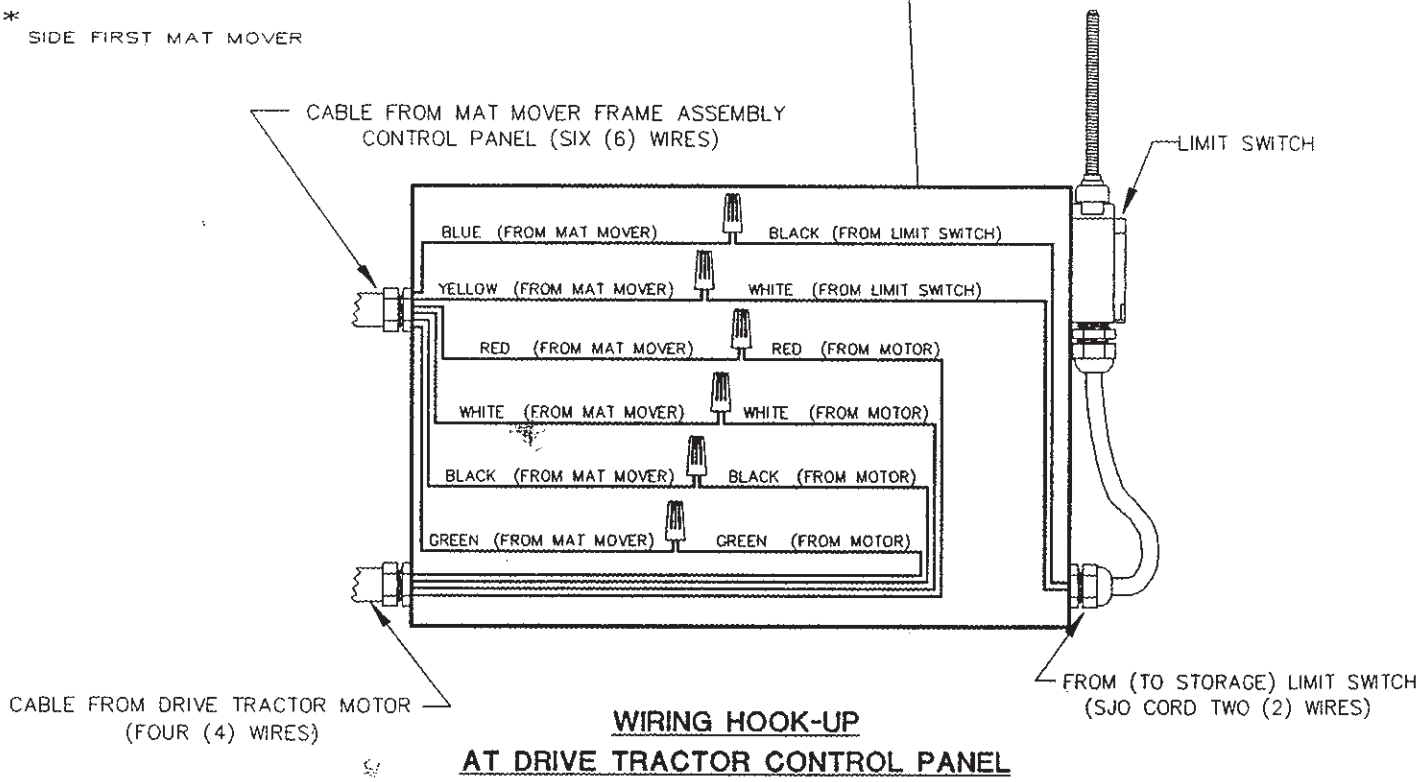
DRIVE TRACTOR CONTROL PANEL



WIRE DESIGNATION LEGEND
(FROM MAT MOVER CONTROL PANEL)

WIRE COLOR		TERMINAL		FUNCTION
BLACK	=	2T1 OR 3T1 *	=	DRIVE TRACTOR POWER
WHITE	=	2T2 OR 3T2 *	=	DRIVE TRACTOR POWER
RED	=	2T3 OR 3T3 *	=	DRIVE TRACTOR POWER
GREEN	=	GROUND	=	GROUND
BLUE	=	13, 14 OR 15 *	=	LIMIT SWITCH (TO STORAGE)
YELLOW	=	14, 15 OR 16 *	=	LIMIT SWITCH (TO STORAGE)

* SIDE FIRST MAT MOVER



WIRING HOOK-UP
AT DRIVE TRACTOR CONTROL PANEL

OPERATIONAL CHECK PROCEDURE

1) Ensure motor overload relays in the control panel are in the "ON" position.

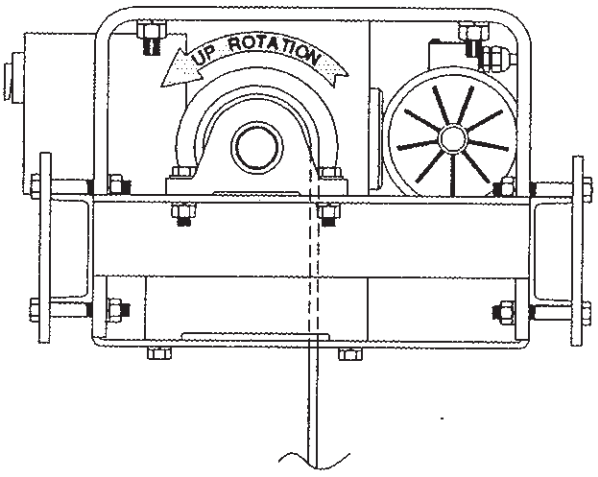
2) Turn *Mat Mover*® control panel switch to the "ON" position.

3) Turn power "ON" at power source.

4) Operate unit briefly in the "UP" direction to check for proper motor phasing (see phasing note). Disregard the keyswitch face plate for direction of travel identification at this time. Instead, observe the cable drum rotation to identify the travel direction. See ***Figure U*** for travel direction identification.

FIGURE U

CABLE DRUM ROTATION



4a) During the check procedure, all references made to actuating a limit switch is to be done manually to ensure the unit is phased properly, **preventing** all limits from being put in an override situation and causing **personal injury** and/or **structural damage**. Manually actuate all limits with a broom stick or other similar extension, taking **precaution** that hands, limbs, hair, and clothing are not in the line of travel of the carriage assembly or near the rotating drums.

With cable drum turning in the "UP" direction, actuate either the left or right "UP limit switch. If cable drum stops, the vertical direction of travel is phased properly ("IN PHASE"). If cable drum continues to operate while the "UP" limit switch is actuated, the vertical direction of travel is not phased correctly.

If vertical travel is "IN PHASE," proceed to Step 5. If vertical travel is not phased correctly, proceed to the next step.

4b) Disconnect power at power source and at control panel. To correct motor phase, switch wires L1 and L2 at control panel or junction box. After switching wires, turn power "ON" at both the power source and control panel, and repeat Step 4a.

5) Raise the load bar to the "UP" position. If the load bar is not in place, proceed to Step 6. The load bar should contact both limit actuator bars, when it is in the fully "UP" position. If not, adjust the cable at the end not contacting the limit actuator bar. Proceed to Step 6a.

6) Temporarily tie left or right "UP" limit switch "whisker spring" so that switch is actuated. Note: For the horizontal travel check, either "UP" limit switch must be actuated. A safety interlock prevents lateral operation of the unit unless the "UP" limit switch is actuated.

6a) Operate unit briefly in the "TO STORAGE" direction to check for proper drive tractor phasing. Disregard the keyswitch face plate direction of travel identification at this time. Instead, observe the drive tractor direction of travel.

6b) With the drive tractor moving in the "TO STORAGE" direction, actuate the "TO STORAGE" limit switch (located on the drive tractor). If the drive tractor operation stops, the phasing is correct ("IN PHASE"). If the drive tractor continues to operate in the "TO STORAGE" direction while the "TO STORAGE" limit switch is actuated, the phasing is incorrect.

If horizontal travel is "IN PHASE," the phase check is complete; proceed to Step 8. If horizontal travel is "NOT IN PHASE," proceed to next step.

6c) Shut power "OFF" at the *Mat Mover®* control panel and power source. Open the drive tractor junction box. To change phasing, switch wires T1 and T2 connections in the drive tractor junction box. Close the drive tractor junction box. Turn power "ON" at both the power source and control panel, and repeat Step 6b.

7) Ensure the keyswitch face plate direction of travel identification matches actual direction of travel.

8) Now release the "UP" limit switch that was tied in Step 5 if the load bar was not attached.

9) If the installer is not on site at this time, switch the circuit breakers off, and leave the keys with the appropriate personnel, informing same the unit cannot be operated until the limit switches are set. Mark the unit "**Do Not Use**."

15. SETTING THE LIMIT SWITCHES

FORE/AFT LIMIT SWITCHES

With the load bar in the "UP" position, operate the unit in the horizontal "TO STORAGE" direction. As the drive tractor approaches the trip angle, carefully observe that the trip angle will intersect the path of the limit switch whisker. When the limit switch is actuated, the unit will stop operating in that direction.

Repeat the horizontal travel check, but in the opposite direction.

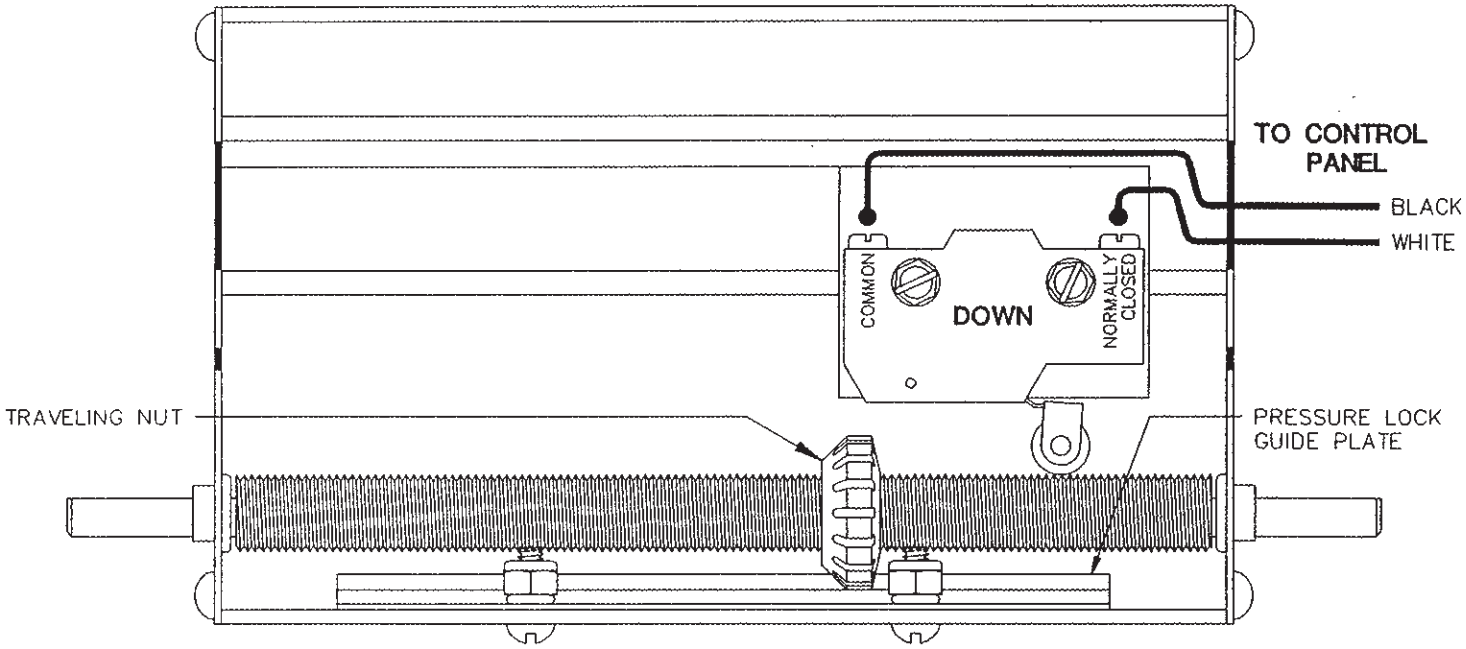
ENABLING AND SETTING THE DOWN LIMIT SWITCH

Position the *Mat Mover®* in a location where the load bar can be lowered to the down position. Lower the load bar.

Re-install chain loop over large sprocket teeth. Position small sprocket teeth in chain loop, with the sprocket hub facing the limit switch box housing and the set screw location in line with the limit switch shaft. Now, slide the sprocket on the limit switch shaft until the sprocket is in line with the large sprocket. Tighten the small sprocket set screw. Set the down limit according to the down limit switch instructions. (Refer to ***Figure V***.)

FIGURE V

ROTARY COUNTING "DOWN" LIMIT SWITCH ASSEMBLY



1. With the *Mat Mover*® load bar in the down position, double check the following:

   A. Cable is wrapped neatly on cable drum in proper direction, per installation instructions.

   B. Minimum of five (5) wraps of cable on each cable drum.

   C. Load bar down height is based on sling type(s)/configuration. For single or side-by-side mats, the underside of the load bar should stop approximately 3'-6" above the finished floor.

2. Depress the pressure lock guide plate down (use screwdriver if necessary) and turn the traveling nut until the "DOWN" limit switch engages (listen for the click). Check to ensure that the tab on the lock guide plate engages a notch in the traveling nut (see ***Figure W***).

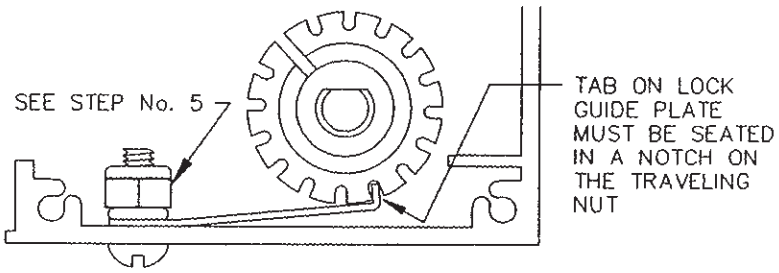
3. Operate the unit up and down several times to adjust and fine tune the down limit switch until the limit is adjusted correctly. ***CAUTION!*** **Do not allow load bar to come into contact with the floor, or rest on mat(s) in the down position, as this will affect the accuracy of the limit switch**.

4. After all adjustments are made, once again check to ensure that the traveling nut is seated properly on the tab of the lock guide plate (see ***Figure W***).

5. Check that the two (2) pressure lock guide plate bolts are tightened securely.

FIGURE W

PRESSURE LOCK GUIDE PLATE



UPPER LIMIT SWITCHES

The upper limit switches are mechanically actuated, and should require no adjustment. Refer to Instruction No. 8, ***Figure N*** for installation. Check actuator bar for freedom of movement in the guide tube, and that the top 4" of the bar have been greased to ensure proper operation.

16. DEMONSTRATION

Demonstrate the operation of this unit to an individual at the site who is responsible for the safe operation and maintenance of this equipment. Point out safety concerns and the necessity of using a Porter key switch in the event that same has not been installed. Go over each operational instruction in this manual, ensuring the individual is clear in understanding the tremendous forces developed by the *Mat Mover*® system, and the necessity of having only trained, authorized personnel operate this equipment.

the Mat Mover by porter MAINTENANCE CHECK LIST

The *Mat Mover®* is designed to operate for many years without any significant service performed. Depending upon the usage of the unit, it is recommended that at least an annual inspection be made, at which time the following steps should be taken:

1. **GENERAL**

   Make certain the Porter key switch was not substituted, and is located within full view (but not beneath) the *Mat Mover®*. Check the walls in close proximity to the *Mat Mover®* for any type of protrusions that may interfere with the raising or lowering of the unit (ie., new scoreboard, chinning bars, etc.).

2. **LOAD BAR**

   Check the two (2) flange connections for any type of separation. Tighten or replace bolts as required, using a grade 5 or better bolt. Inspect all hooks for fatigue and alignment. If hooks are bent or missing, they must be replaced.

   The most critical connection to be inspected is the cable attachment at the load bar (or pulley). These connections must be made with grade 8 bolts and nylock nuts (a lock nut may be substituted).

3. **PULLEY AT LOAD BAR (IF APPLICABLE)**

   It is advisable to disassemble the pulley, check the sheave bearing and shaft for excessive wear, and replace with a factory-replacement pulley, if necessary. There is a grease fitting on the sheave. Use a standard high temperature wheel bearing grease for the sheave.

4. **INSPECT HOISTING CABLE**

   Check cable for kinking and fraying. The best method is to take an oily or grease-filled rag and rub along the cable. The rag may hit broken strands of cable and snag. If the snags appear approximately ten times in a ten (10) foot length of cable, the cable should be replaced. This procedure not only checks the cable, but lubricates it for longer wear.

5. **HOISTING WINCH**

   The bearing blocks supporting the drum shaft are lubricated for life. Although a Zirk fitting is located at each bearing, relubrication may actually harm the bearing by damaging the seal. If the bearing should, for any reason, require relubrication, consult the factory.

   Run the units and visually inspect the drum for concentricity. If the drum rotates with a cam effect (wobble), consult the factory.

   The gear box is factory filled with oil and should be sufficient for the life of the unit. It is important that the units are inspected to ensure no leaks have developed. Check C-face connections for any looseness.

   The cable clamps are to be inspected on the drum, ensuring each bolt is tight.

   Make certain the basic operation of the *Mat Mover®* functions properly, with the limit switches shutting off correctly.

The upper limit actuator bars are to be lightly greased in the telescopic portion.

For units with cable tie-off at frame, check 3/4" bolt for tightness, and visually inspect welds and connection of cable at the frame (support angles and "C" channel) for fatigue. Contact factory if there is any question of structural integrity.

6. TROLLEYS

Inspect trolleys at both the carriage location and drive tractor, along with the drive tractor wheel. Check for any sign of wear on each trolley. Also, check for an uneven distribution of load from one side of the trolley to the other. If there is any indication of wear or uneven distribution, contact Porter or your Porter dealer immediately.

Referring to installation instructions 2 and 3, ***Figures A, B and C,*** measure clearance between runway beam flange and trolley side wheel. Adjust as required to meet specifications indicated. If nylock nuts are backed off, replace!

7. SLING

The mat sling is to be checked for signs of tearing or loosening at the seams. Check stitching on all straps. The sling may be cleaned with a mild solution of a soap cleaner and water, or Power Foam sold by Rigmar Industries of Elk Grove Village, Illinois (1-800-323-0779).

8. CONTRACT MAINTENANCE ALTERNATE

In many facilities, it is possible that the maintenance personnel either do not have the ability or the scaffold to work at the heights required to perform the inspection and maintenance program outlined in this manual. Should your maintenance program be so limited that this program cannot be properly performed, it is highly recommended that a contract type inspection/maintenance service program be initiated with a qualified and trained establishment in this type of equipment.

TROUBLE SHOOTING GUIDE

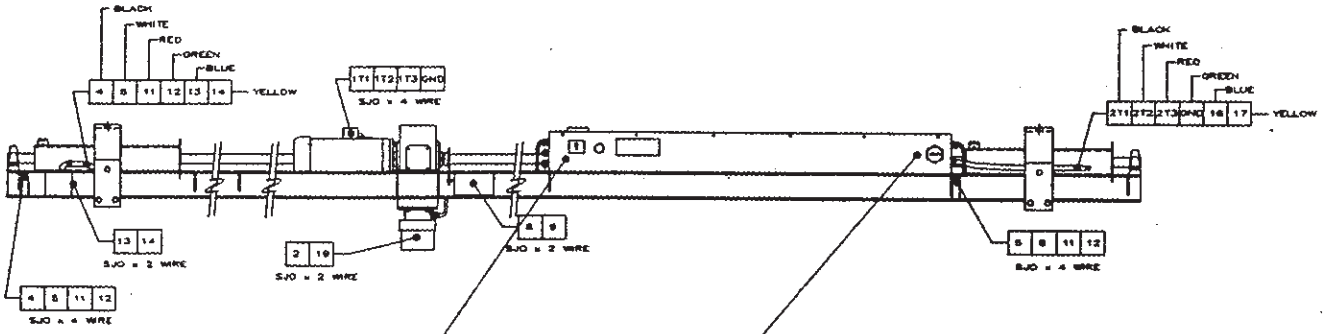
Caution! ***Make certain the power supply at both the power source and Mat Mover® control panel are disconnected before repairing or working in the proximity of this unit. Only qualified electrical personnel should connect or repair this product.***

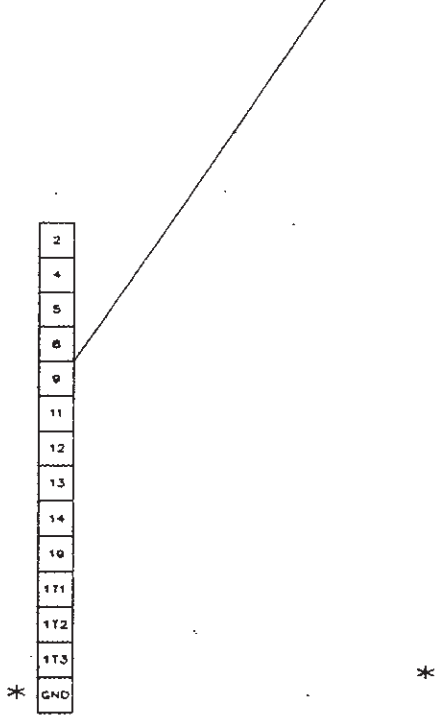
PROBLEM	CAUSE	REMEDY
1. Unit Does Not Operate	Circuit breaker(s) at main power source panel is off.	Switch circuit breaker(s) to on.
	Main disconnect switch on control panel is off.	Switch to on. (Note switch is cover mounted.)
	Control panel motor overload relays are tripped.	Switch toggle switch(es) inside control panel to on.
	Fuse is blown.	Usually an indicator of an external wiring problem. Consult electrician or factory.
	Festooning cable is damaged.	Replace entire cable.
2. Unit Operates In Opposite Direction of What It Should (Up Is Down and/or Fore Is Aft)	Incorrect phasing.	Phasing is incorrect for the drive tractor and/or hoist motor: Refer to installation Instruction No. 14D.
		Key switch wires are crossed. Refer to ***Figure E*** or ***Figure F***.
3. Unit Will Not Go Up	Misaligned actuator bar.	One or both upper limit actuator bars are lodged in the "UP" position. Pull bar in "DOWN" position, which will release the limit switch. Lubricate the bar section at guide tube. Refer to ***Figure N***.
4. Unit Will Not Travel Horizontally	Unit is not in the full "UP" position.	Refer to **operational** instruction No. 4.
	Drive tractor wheel slips.	Drive wheel traction requires adjustment. See installation Instruction No. 2, ***Figure A***.
	Horizontal limit switch wire is cut.	Disconnect power. Mark key switch **"Do Not Use,"** and confiscate operation keys. Determine the source of the cut and remedy. Replace wire.
	On side travel unit, drive tractors travel in opposite direction of each other.	Phasing is incorrect for one of the drive tractors. Refer to Instruction 14D for proper phasing.

PROBLEM	CAUSE	REMEDY
5. Side Travel Tractors Do Not Operate Evenly (In Tandem)	Traction is not even; one unit slips.	Drive wheel traction requires adjustment. See installation Instruction No. 2, ***Figure A***.
6. Unit Does Not Automatically Stop In the Horizontal Direction	Limit switches (fore/aft) do not intersect trip bar/angle.	Realign trip bar/angle. See installation Instruction No. 4, ***Figure D***.
	Incorrect phasing.	Refer to installation Instruction No. 14D.
7. Load Bar Is Not Level	Cable is not winding properly on the take-up drums.	Initial adjustment of cable may not be level. Call your Porter dealer or the factory.
8. Unit Does Not Stop At the Proper Elevation Above Floor (In the "DOWN" Position)	Down limit switch not adjusted properly.	Refer to installation Instruction No. 15, ***Figure V*** and ***Figure W***.
9. Motor Overload Relay In *Mat Mover*® Control Panel Keeps Tripping	Incorrect voltage.	Contact the electrician or consult the factory.
10. Pulleys At Load Bar Are Squeaking	Pulleys require lubrication.	Contact your Porter dealer. The load bar will need to be supported or lowered to the floor, pulley housings disassembled and sheave to be lubricated via the grease fitting.

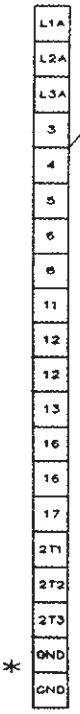
TRAVELING END FIRST MAT MOVER FRAME ASSEMBLY (20' CARRIAGE)

ELECTRICAL INFORMATION





LEFT HAND CONTROL PANEL TERMINAL STRIP



RIGHT HAND CONTROL PANEL TERMINAL STRIP

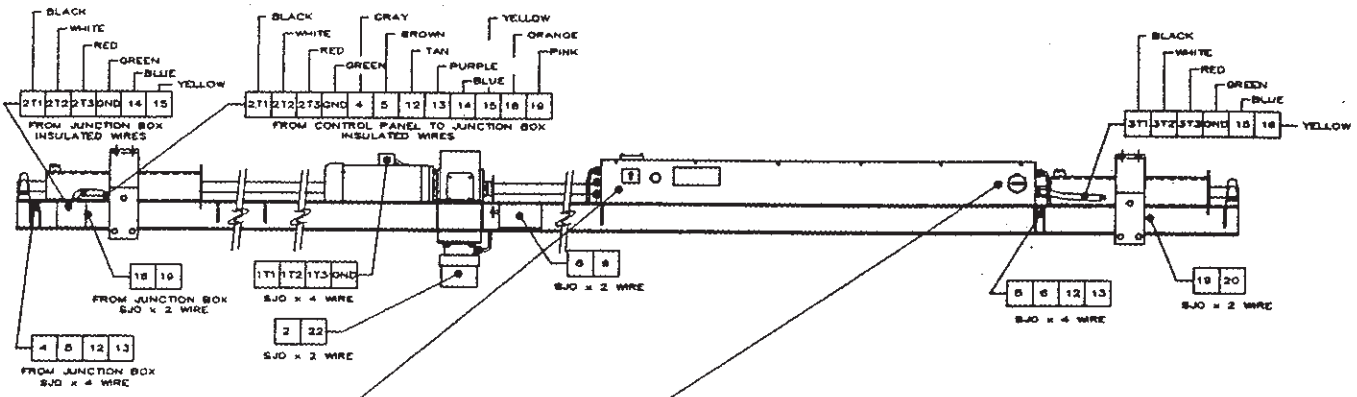
TERMINAL BLOCK LEGEND

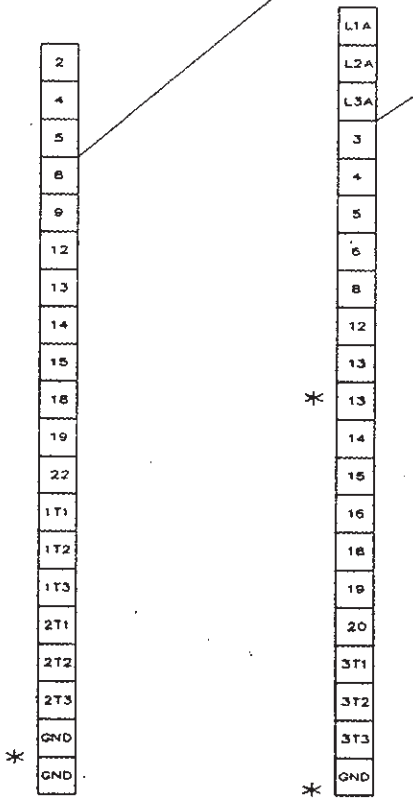
TERMINAL		FUNCTION
L1A	=	CONTROL PANEL POWER
L2A	=	CONTROL PANEL POWER
L3A	=	CONTROL PANEL POWER
2	=	COMMON FLASHING STROBE LIGHT
3	=	TO COMMON KEYSWITCH (UP/DOWN)
4	=	TO KEYSWITCH (UP)
4	=	TO HOIST LEFT UP LIMIT SWITCH
5	=	TO HOIST RIGHT UP LIMIT SWITCH
6	=	FROM HOIST RIGHT UP LIMIT SWITCH
8	=	TO KEYSWITCH (DOWN)
8	=	TO HOIST DOWN LIMIT SWITCH
9	=	FROM HOIST DOWN LIMIT SWITCH
11	=	TO SECOND CONTACT LEFT UP LIMIT SWITCH
11	=	TO SECOND CONTACT RIGHT UP LIMIT SWITCH
12	=	FROM SECOND CONTACT LEFT & RIGHT UP LIMIT SWITCHES
12	=	TO COMMON KEYSWITCH (HORIZONTAL TRAVEL TO GYM/TO STORAGE)
13	=	TO KEYSWITCH (HORIZONTAL TRAVEL TO GYM)
13	=	TO DRIVE TRACTOR (HORIZONTAL TRAVEL TO GYM) LIMIT SWITCH
14	=	FROM DRIVE TRACTOR (HORIZONTAL TRAVEL TO GYM) LIMIT SWITCH
16	=	TO KEYSWITCH (HORIZONTAL TRAVEL TO STORAGE)
16	=	TO DRIVE TRACTOR (HORIZONTAL TRAVEL TO STORAGE) LIMIT SWITCH
17	=	FROM DRIVE TRACTOR (HORIZONTAL TRAVEL TO STORAGE) LIMIT SWITCH
19	=	TO FLASHING STROBE LIGHT (INPUT)
1T1	=	HOIST MOTOR POWER
1T2	=	HOIST MOTOR POWER
1T3	=	HOIST MOTOR POWER
2T1	=	DRIVE TRACTOR POWER
2T2	=	DRIVE TRACTOR POWER
2T3	=	DRIVE TRACTOR POWER
GND	=	GROUND

* GND TERMINAL SLOTS MAY BE MARKED BY GREEN STRIPED TERMINAL BLOCK HOUSING

TRAVELING SIDE FIRST MAT MOVER FRAME ASSEMBLY (20' CARRIAGE)

ELECTRICAL INFORMATION





LEFT HAND CONTROL PANEL TERMINAL STRIP

RIGHT HAND CONTROL PANEL TERMINAL STRIP

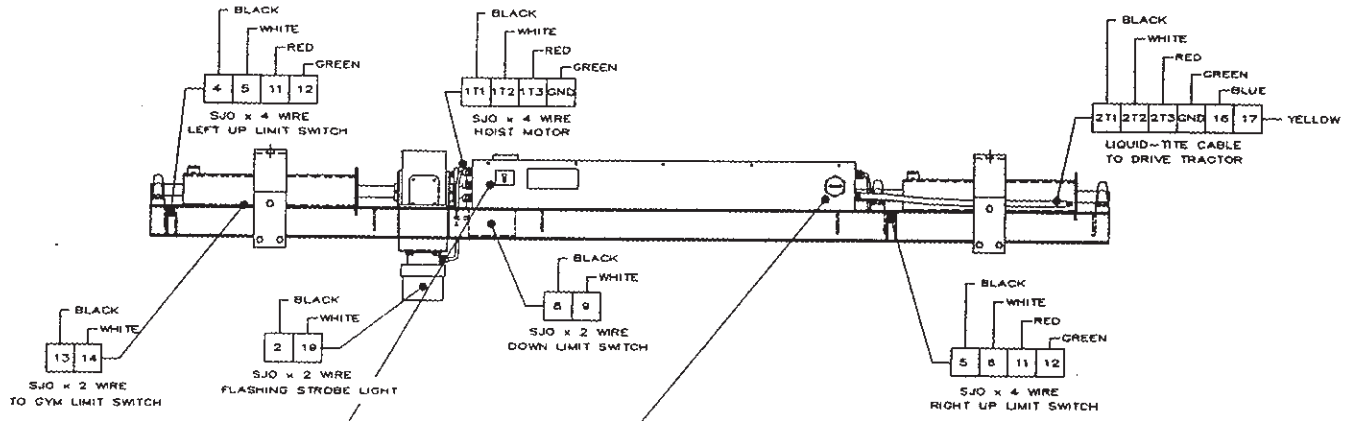
TERMINAL BLOCK LEGEND

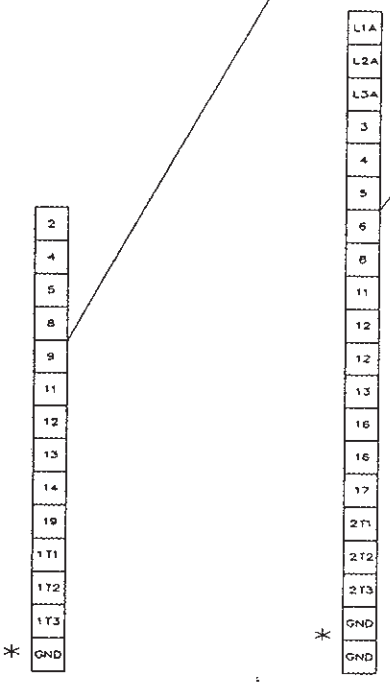
TERMINAL		FUNCTION
L1A	=	CONTROL PANEL POWER
L2A	=	CONTROL PANEL POWER
L3A	=	CONTROL PANEL POWER
2	=	COMMON FLASHING STROBE LIGHT
3	=	TO COMMON KEYSWITCH (UP/DOWN)
4	=	TO KEYSWITCH (UP)
4	=	TO HOIST LEFT UP LIMIT SWITCH
5	=	FROM HOIST LEFT UP LIMIT SWITCH
5	=	TO HOIST RIGHT UP LIMIT SWITCH
6	=	FROM HOIST RIGHT UP LIMIT SWITCH
8	=	TO KEYSWITCH (DOWN)
8	=	TO HOIST DOWN LIMIT SWITCH
9	=	FROM HOIST DOWN LIMIT SWITCH
12	=	TO SECOND CONTACT LEFT & RIGHT UP LIMIT SWITCHES
13	=	TO COMMON KEYSWITCH (HORIZONTAL TRAVEL TO GYM/TO STORAGE)
13	=	FROM SECOND CONTACT LEFT & RIGHT UP LIMIT SWITCHES
14	=	TO KEYSWITCH (HORIZONTAL TRAVEL TO STORAGE)
14	=	TO LEFT DRIVE TRACTOR (HORIZONTAL TRAVEL TO STORAGE) LIMIT SWITCH
15	=	FROM LEFT DRIVE TRACTOR (HORIZONTAL TRAVEL TO STORAGE) LIMIT SWITCH
15	=	TO RIGHT DRIVE TRACTOR (HORIZONTAL TRAVEL TO STORAGE) LIMIT SWITCH
16	=	FROM RIGHT DRIVE TRACTOR (HORIZONTAL TRAVEL TO STORAGE) LIMIT SWITCH
18	=	TO KEYSWITCH (HORIZONTAL TRAVEL TO GYM)
18	=	TO LEFT DRIVE TRACTOR (HORIZONTAL TRAVEL TO GYM) LIMIT SWITCH
19	=	FROM LEFT DRIVE TRACTOR (HORIZONTAL TRAVEL TO GYM) LIMIT SWITCH
19	=	TO RIGHT DRIVE TRACTOR (HORIZONTAL TRAVEL TO GYM) LIMIT SWITCH
20	=	FROM RIGHT DRIVE TRACTOR (HORIZONTAL TRAVEL TO GYM) LIMIT SWITCH
22	=	TO FLASHING STROBE LIGHT (INPUT)
1T1	=	HOIST MOTOR POWER
1T2	=	HOIST MOTOR POWER
1T3	=	HOIST MOTOR POWER
2T1	=	LEFT DRIVE TRACTOR POWER
2T2	=	LEFT DRIVE TRACTOR POWER
2T3	=	LEFT DRIVE TRACTOR POWER
3T1	=	RIGHT DRIVE TRACTOR POWER
3T2	=	RIGHT DRIVE TRACTOR POWER
3T3	=	RIGHT DRIVE TRACTOR POWER
GND	=	GROUND

* GND AND #13 MAY BE TAGGED WIRES CONNECTED TO BY USING A WIRE NUT

TRAVELING MINI END FIRST MAT MOVER FRAME ASSEMBLY

ELECTRICAL INFORMATION





LEFT HAND CONTROL PANEL TERMINAL STRIP

RIGHT HAND CONTROL PANEL TERMINAL STRIP

TERMINAL BLOCK LEGEND

TERMINAL		FUNCTION
L1A	=	CONTROL PANEL POWER
L2A	=	CONTROL PANEL POWER
L3A	=	CONTROL PANEL POWER
2	=	COMMON FLASHING STROBE LIGHT
3	=	TO COMMON KEYSWITCH (UP/DOWN)
4	=	TO KEYSWITCH (UP)
4	=	TO HOIST LEFT UP LIMIT SWITCH
5	=	TO HOIST RIGHT UP LIMIT SWITCH
6	=	FROM HOIST RIGHT UP LIMIT SWITCH
8	=	TO KEYSWITCH (DOWN)
8	=	TO HOIST DOWN LIMIT SWITCH
9	=	FROM HOIST DOWN LIMIT SWITCH
11	=	TO SECOND CONTACT LEFT UP LIMIT SWITCH
11	=	TO SECOND CONTACT RIGHT UP LIMIT SWITCH
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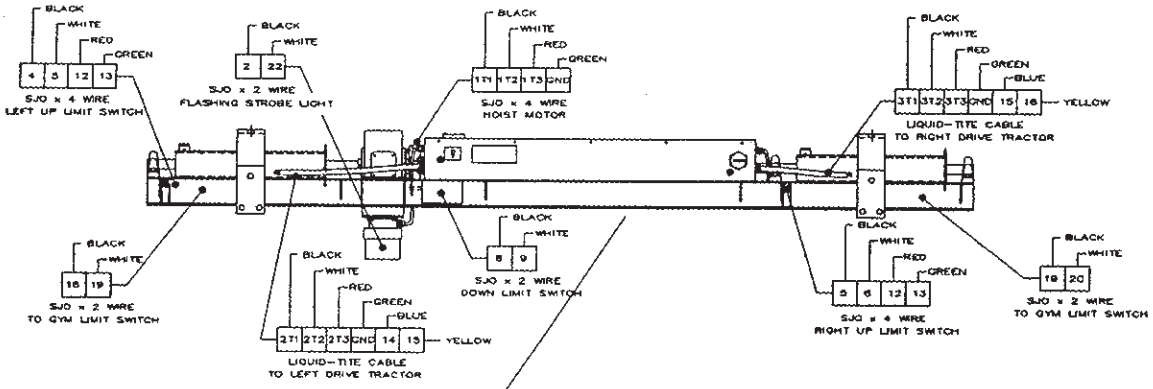
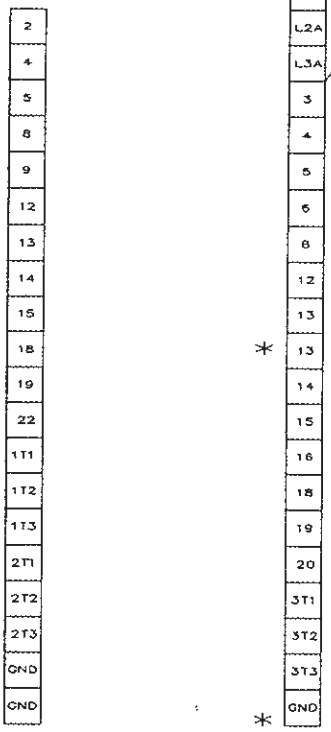
19	=	TO FLASHING STROBE LIGHT (INPUT)
1T1	=	HOIST MOTOR POWER
1T2	=	HOIST MOTOR POWER
1T3	=	HOIST MOTOR POWER
2T1	=	DRIVE TRACTOR POWER
2T2	=	DRIVE TRACTOR POWER
2T3	=	DRIVE TRACTOR POWER
GND	=	GROUND

* GND TERMINAL SLOTS MAY BE MARKED BY GREEN STRIPED TERMINAL BLOCK HOUSING

TRAVELING MINI SIDE FIRST MAT MOVER FRAME ASSEMBLY

ELECTRICAL INFORMATION





LEFT HAND CONTROL PANEL TERMINAL STRIP

RIGHT HAND CONTROL PANEL TERMINAL STRIP

TERMINAL BLOCK LEGEND

TERMINAL		FUNCTION
L1A	=	CONTROL PANEL POWER
L2A	=	CONTROL PANEL POWER
L3A	=	CONTROL PANEL POWER
2	=	COMMON FLASHING STROBE LIGHT
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1T3	=	HOIST MOTOR POWER
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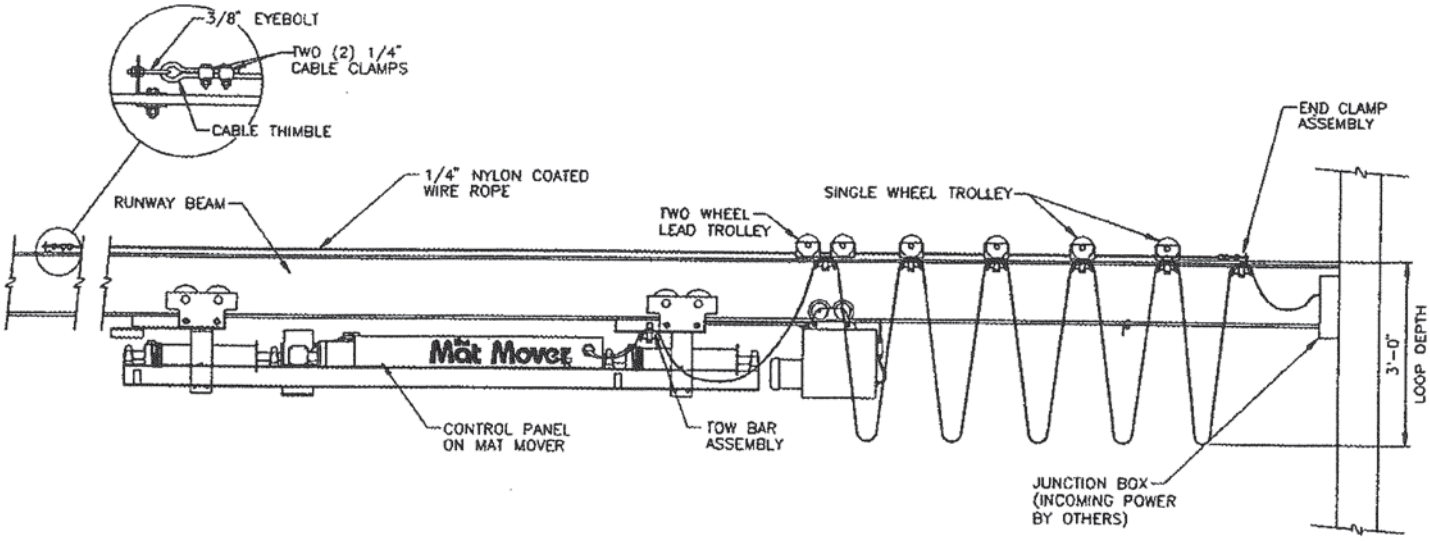
2T2	=	LEFT DRIVE TRACTOR POWER
2T3	=	LEFT DRIVE TRACTOR POWER
3T1	=	RIGHT DRIVE TRACTOR POWER
3T2	=	RIGHT DRIVE TRACTOR POWER
3T3	=	RIGHT DRIVE TRACTOR POWER
GND	=	GROUND

* GND AND #13 MAY BE TAGGED WIRES CONNECTED TO BY USING A WIRE NUT

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE



the Mat Mover®

by porter

⚠ **WARNING**: This product can expose you to Titanium Dioxide, which is known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov.

E

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