# Installation/Operation/Maintenance Instructions Mat Lifter by Progressive

### A Caution

- ① This equipment should not be installed, operated or maintained by any person who has not read all the contents of these instructions. Failure to read and comply with the instructions or any one of the limitations noted herein can result in serious bodily injury or death, and/or property damage.
- Mat lifter and track must be installed level.
- ③ Unit must be positively and securely attached.
- ④ Operate while in full view of mat hoist.
- ⑤ Make sure area below mat lifter is clear before operating.
- Keys for switch should be retained at all times by authorized personnel. Do not leave keys unattended in key switch.
- 1 Mats must be rolled evenly and placed in the center of the mat hoist sling.

### Attaching Statonary Mat Lifter to Beams or Wall (Note: For Traveling Unit Installation, see page 3)

It is the installer's responsibility to ensure the Mat Lifter is positively and securely attached, and that attachment hardware and structures are strong enough to hold the unit.

Progressive Sports Construction Group provides threaded rods to attach Mat Lifter to beams or to optional beam clamp or wall bracket kits.



Optional Beam Clamp Kit— Standard Installation parallel to beam perpendicular to beam



# Hanging Sectional Model 502019 and Single Model 502020 (Note: For Traveling Unit Installation, see page 3)

- Remove the Mat Lifter covers (two sides and one cover strap) to facilitate hanger bracket location positioning and initial installation.
- If necessary, reposition hanger brackets to suit the hanging provisions of the building. See Fig. 1 for acceptable centered locations of brackets.



- ③ Assemble the load bar by sliding the match-marked ends into the splice sleeve and bolting the load bar assembly together (Model 502020 only).
- Mount Emergency Overtravel Limit Trip. The Emergency Overtravel Limit Trip is shipped loose to avoid shipping and handling damage (see Fig. 2) and must be installed properly before the Mat Lifter is placed in use.



Mount the Emergency Overtravel Trip Bar by removing the three ¼" hexhead capscrews and self-locking nuts that hold the guide bracket in place. Orient and install the Trip Bar behind the guide bracket, using the original capscrews and nuts (see Fig. 3).

Make sure the Trip Bar slides up and down freely inside the guide bracket.



As a final check, ensure that the magnet mounted to the end of the Trip Arm is aligned with, but does not rub against, the sensor protruding from the Geared Limit Switch Enclosure (see Fig. 4).



www.progressivescg.com Copyright ® 2014 Draper, Inc. Form PSCG\_MatLifter\_Inst14

411 S. Pearl St. Spiceland IN 47385 USA

If you encounter any difficulties installing or servicing your Mat Lifter, call your dealer or contact Progressive Sports Construction Group, (877) 413-0957 or fax 765-987-7142.

- ⑤ Mount the Mat Lifter to the building supports using four ¾" diameter highstrength steel hanger rods (provided).
- (i) Unwind enough of the wire ropes to be within about a foot of the floor. Straighten the remaining wraps of wire rope on the drums so the wraps are tight and crowding the attachment flange of each drum.

Please Note: The ropes must remain in a single layer. Do not allow ropes to "climb" and create more than one layer on the drum.

- ⑦ Remount the covers before attaching the load bar assembly.
- It a second the load bar assembly to the end fitting of each wire rope (see Fig. 5). Be sure an equal number of remaining wraps is on each drum to assure the load bar will be suspended horizontally. Also ensure the wire ropes are not unnaturally twisted before attaching.
- Install the controls and complete the necessary interconnecting wiring according to the instructions.



### Hanging Double Model 502021 (Note: For Traveling Unit Installation, see page 3)

1 Remove the Mat Lifter covers (two sides and one cover strap) to facilitate hanger bracket location positioning and initial installation.

③ If necessary, reposition hanger brackets to suit the hanging provisions of the building. See Fig. 1 for acceptable centered locations of the brackets. Please Note-Be sure the bracket attachment bolts are positioned with the nuts pointing to the outside of the unit, and with the heads pointing to the inside of the unit. This will prevent the swaged barrel on the end of the wire rope from contacting the shank of the bracket attachment bolt (see Fig. 2, page 1).



- ③ Assemble the load bar by sliding the match-marked ends into the splice sleeve and bolting the load bar assembly together.
- ④ Mount Emergency Overtravel Limit Trip. The Emergency Overtravel Limit Trip is shipped loose to avoid shipping and handling damage (see Fig. 2) and must be installed properly before the Mat Lifter is placed in use.



Mount the Emergency Overtravel Trip Bar by removing the three 1/4" hexhead capscrews and self-locking nuts that hold the guide bracket in place. Orient and install the Trip Bar behind the guide bracket, using the original capscrews and nuts (see Fig. 3). Make sure the Trip Bar slides up and down freely inside the guide bracket.



As a final check, ensure that the magnet mounted to the end of the Trip arm is aligned with, but does not rub against the sensor protruding from the Geared Limit Switch enclosure (see Fig. 4).



- ⑤ Mount the Mat Lifter to the building supports using four 3/4" diameter highstrength steel hanger rods. The unit must be level.
- ⑥ Remove shipping ties from the lower sheave block and rope drum. assemblies. Unwind enough of the wire ropes so that when the open swaged socket ends are attached on the Mat Lifter frame, the hanging wire rope loops will be within about a foot of the floor. Attach the open swaged socket ends of the wire ropes to the holes in the Mat Lifter frame using the existing clevis pins and cotter pins. Make sure the heads of the clevis pins are installed to the outside of the frame with a washer on each side of the frame (see Fig. 5). Put the cotter pins through the holes in the clevis pins



and bend over the protruding cotter pin legs. Thread the ropes through the slotted holes in the bottom of the Mat Lifter cover floors, and then the sheet metal covers can be remounted to the Mat Lifter frame.

⑦ Assemble the lower sheave brackets and attach the loadbar to the brackets (see Fig. 5). Straighten the remaining wraps of wire rope on the drum so the wraps are tight and crowding the attachment flange of each drum.



**Please Note:** The ropes must remain in a single layer. Do not allow ropes to "climb" and create more than one layer on the drum.

Install the controls and complete the necessary interconnecting wiring according to the instructions.

#### Testing Unit Operation

See the Limit Switch Adjustment instructions. Make initial adjustments to permit some movement of the unit.

With the key switch on the controls, briefly LOWER the unit. If the unit goes down, the phasing rotation is correct and no further power corrections must be made. If the unit goes up, shut off, lock out and tag out all power to the unit and rotate power wire phases to correct motor rotation. Restore power and verify motor direction and control direction are the same.

Make limit switch adjustments and verify correct operation throughout an entire up-and-down cycle.

#### Stationary Unit Limit Switch Adjustment

**Please Note**—Refer to diagram at right for the following procedures. The plastic gear nuts (10041) travel on the threaded shaft (10038) as it is rotated by the chain drive from the drum shaft. As a nut encounters a limit switch trip arm, the limit switch is tripped, and stops movement in that particular direction.

The proper stopping positions of the load bar are as follows:

**UP**—The load bar may be elevated as far as desired, but the load bar must not contact the trip bar of the emergency overtravel limit. Be sure the upper travel is set so that the emergency overtravel limit is not contacted during normal operation.

**DOWN**—The load bar may be lowered only as far as is required to facilitate attachment of the mat sling to the load bar. The load bar must never be permitted to be low enough to contact the mat, or to contact anything that may relieve the ropes of some tension. THIS IS VERY IMPORTANT. If the ropes are permitted to go slack, they may become loose on the drum and the loose wraps may intertwine with each other, or may spread apart. If the wraps spread apart sufficiently, the ropes may, during lifting, encounter the opposite drum flange and thus will climb and create a second rope layer. Either condition may cause severe rope damage and may create a hazardous condition.

### Adjust as follows-

THE GEARED LIMIT SWITCH MUST ALWAYS BE ADJUSTED! The plastic geared nut closest to the "LGLS" (lower geared limit switch) controls the lower elevation limit, and the other nut closest to the "UGLS" (upper geared limit switch) controls the upper elevation limit. By depressing the spring-loaded gear stop plate (10042), the plastic geared nuts become free

from restraint and may be rotated on the threaded shaft toward or away from their respective limit switch arms. Moving the nuts away from the limit switch arm increases the movement in that direction. Moving the nuts toward their respective limit switch decreases the movement in that direction. Adjust the nuts and check your progress by operating the Mat Lifter until the limit switches trip (see Fig. 6).



### Traveling Mat Lifter Installation

**Please Note:** This equipment should not be installed, operated or maintained by any person who has not read all the contents of these instructions. Failure to read and comply with the instructions or any one of the limitations noted herein can result in serious bodily injury or death, and/or property damage.

It may be necessary to remove the Mat Lifter Covers (two sides and one cover strap) to facilitate hanger mounting and initial installation.

- Assemble the load bar by sliding the ends into the splice sleeve and bolting the load bar assembly together.
- ② Install the trolley assembly and the Tractor/Trolley assembly onto the monorail. Check to insure proper spacing of Trolley wheels to the monorail beam (See Fig. 1). There should be no more than <sup>1</sup>/<sub>8</sub>" <sup>3</sup>/<sub>16</sub>" total gap between the flange of the wheels and the monorail beam, (<sup>1</sup>/<sub>16</sub>" <sup>3</sup>/<sub>32</sub>" per side). See separate Maintenance Instructions for Tractor information.



③ Mount the Mat Lifter to the Trolley assemblies using (4) ¾"-10 Hx. Hd. Cap screws Gr. 5 X 2" & (4) ¾"-10 Hx. Lock Nuts (See Fig. 2 for general arrangement). Be sure suitable End Stops are installed at both ends of the monorail.



- Install the flat cable festoon system according to the Duct-O-Wire installation instructions. Complete the necessary interconnecting wiring according to the instructions.
- ③ Complete installation by following step ① onward in applicable section for Sectional/Single or Double.

(877) 413-0957 PROGRESSIVE (877) 413-0957 SPORTS CONSTRUCTION GROUP

## Page 3 of 12

### Wiring Diagram—Stationary (230/460-3-60)



(877) 413-0957 PROGRESSIVE SPORTS CONSTRUCTION GROUP

(877) 413-0957

POWER FEED (BY OTHERS) (L1, L2, L3, GROUND)

LS-1 UPPER CONTACT PROXIMITY SWITCH 1 (EMERGENCY OVERTRAVEL)(TRIPPED IF LOADBAR IS TOO HIGH)

UGLS UPPER GEARED LIMIT SWITCH (TRIPPED WHEN LOADBAR IS AT DESIRED UP POSITION) LGLS LOWER GEARED LIMIT SWITCH (TRIPPED WHEN LOADBAR IS AT DESIRED LOWER POSITION)

-----FIELD WIRING PROVIDED BY OTHERS @ TERMINALS IN CONTROLS MOUNTED TO WALL

TERMINALS IN MAT LIFTER UNIT

Marning Before installing, removing, inspecting or performing any maintenance on this unit, the main switch shall be de-energized. Lock and tag the main switch in the deenergized position in accordance with ANSI Z244.1. This unit shall be installed and wired in accordance with ANSINFPA 70, National Electrical Code, and all applicable Federal, State and Local Codes.

Failure to read and comply with this and other warnings may result in serious bodily injury or death, and/or property damage.

Wiring Diagram—Stationary (208Y/120-3-60)



LGLS LOWER GEARED LIMIT SWITCH (TRIPPED WHEN LOADBAR IS AT DESIRED LOWER POSITION)

-----FIELD WIRING PROVIDED BY OTHERS @ TERMINALS IN CONTROLS MOUNTED TO WALL

**C-** TERMINALS IN MAT LIFTER UNIT



(877) 413-0957 PROGRESSIVE SPORTS CONSTRUCTION GROUP

(877) 413-0957

Matring
 All Warning
 Before installing, removing, inspecting or performing
 any maintenance on this unit, the main switch shall be
 de-energized. Lock and tag the main switch in the de energized position in accordance with ANSI Z244.1.

This unit shall be installed and wired in accordance with ANSI/NFPA 70, National Electrical Code, and all applicable Federal, State and Local Codes.

Failure to read and comply with this and other warnings may result in serious bodily injury or death, and/or





ANSI/NFPA 70, National Electrical Code, and all applicable This unit shall be installed and wired in accordance with Federal, State and Local Codes.

ė ò  $\supset$ -10 (ш Ē 20 110 V 8 40 50 \$ ¢ DOWN REV × Ц പ ļ 5 DOWN FWD L Ð REV UP X I ž ≥ WALL MOUNTED) TO BE IN SIGHT OF, AND WITHIN 50FT OF AND WITHIN 50FT OF CONDUIT OPENINGS BY OTHERS KEYSWITCH 1/2 CONDUIT BY OTHERS 6#14 (T1, T2, T3, 1T1, 1T2, 1T3) 6#16 (10, 12, 20, 22, 60, 61) MAT LIFTER CONTROL ENCLOSURE Q Q Q JUNCTION BOX WITH LIMIT SWITCHES ON MAT LIFTER FRAME NEXT TO MOTOR J-BOX (BY OTHERS) MOUNTED ON TOP OF MONORAIL 0 6 230/460-3-60 POWER BY OTHERS 1/2" CONDUIT/SEALTITE 3#14 (T1, T2, T3) 7#16 (10, 12, 20, 22, 60, 61, & GRD) POWER FEED (BY OTHERS) (L1, L2, L3, GROUND) Failure to read and comply with this and other warnings **IÐ IÐ** FUSED POWER SUPPLY (BY OTHERS) EDSE SIZE (DUAL-ELEMENT TIME-DELAY) 230-3-60 6 4 60-3-60 6 4 may result in serious bodily injury or death, and/or EINAL - CONNECTIONS (BY OTHERS) 8#14 FLAT CABLE θ YEL - SP BRN - 1T1 RED/BLK - 1T2 BLU/BLK - 1T3 BLK - T1 RED - T2 BLU - T2 DRG - GRD YEL - SP TRACTOR DRIVE - 8#16 FLAT CABLE - 8LK - 10 RED - 12 BLU - 20 ORG - 22 YEL - 60 BRN - 61 RENBLK - SP CON 4#14 SO CABLE BLK - 1T1 RED - 1T2 WHI - 1T3 GRN - GRD 0 0\_\_0 0\_\_0 0\_\_0 property damage. (877) 413-0957 PROGRESSIVE (877) 413-0957

Page 6 of 12

□- TERMINALS IN MAT LIFTER UNIT

Before installing, removing, inspecting or performing any maintenance on this unit, the main switch shall be

🕂 Warning

de-energized. Lock and tag the main switch in the de-

Wiring Diagram—Traveling (208Y-120-3-60)



Page 7 of 12

### Danger:

### \*Wiring Notes

Before installing, removing, inspecting, or performing any maintenance on this unit, the main switch shall be de-energized. Lock and tag the main switch in the de-energized position in accordance with ANSI Z244.1.

This unit shall be installed and wired in accordance with ANSI/NFPA 70, National Electrical Code, and all applicable Federal, State, and Local Codes. Failure to read and comply with this and other warnings may result in serious bodily injury or death and/or property damage.





(877) 413-0957 **PROGRESSIVE** (877) 413-0957 SPORTS CONSTRUCTION GROUP

## Mat Lifter by Progressive Sports Construction Group 502019 Sectional Mat Lifter—Stationary



### 502019 Sectional Mat Lifter—End First Traveling Kit





### 502020 Single Mat Lifter—End First Traveling Kit



502020 Single Mat Lifter—End Views



-Lifting & lowering speed approx. 10 FPM

- -Suitable for 45 X 45 Mat, 1.0 LB/FT
- -Upper & Lower Geared Limit switches
- -Dual Braking Action Motor Brake Plus self-locking
- behavior of Worm Gears
- -Controls in Wall-Mount Enclosure shipped loose -Approx. unit weight is 2,000 Lb.



# Mat Lifter by Progressive Sports Construction Group 502021 Double Mat Lifter—Stationary



### 502021 Double Mat Lifter—End First Traveling Kit



502021 Double Mat Lifter—End Views



-Lifting & lowering speed approx. 10 FPM -Suitable for 45 X 45 Mat, 1.0 LB/FT -Upper & Lower Geared Limit switches -Two Upper Limit Contact Limit Switches -Dual Braking Action - Motor Brake Plus self-locking behavior of Worm Gears -Controls in Wall-Mount Enclosure shipped loose -Approx. unit weight is 2,300 Lb.

Note: Mat Sling is designed for 2'-8" dia. Mat maximum



### Mat Lifter Operating Instructions

- \*\* Please read all instructions before attempting any operations.
- Use Mat Lifter ONLY for handling athletic mats rolled up for storage. Do not allow anyone to ride on the unit.
- Do not attempt to lift mats heavier than rated capacity of the Mat Lifter.
- Mat Lifter must be in full view of operator.
- Only authorized personnel are to operate the Mat Lifter.

Always make sure that the area below the Mat Lifter is clear and safe. Don't allow anyone to stand or walk beneath Mat Lifter or mat while unit is in motion. To Operate Mat Lifter-

Place the key in the key switch. By rotating and holding the key in the desired position, the Mat Lifter can be raised or lowered. Key is to be retained by a designated authorized person. <u>NEVER</u> leave key in key switch unattended.

### To Store the Mat-

Lower the Mat Lifter until the empty mat sling has contacted the floor. When lowering, <u>NEVER</u> allow the ropes to go slack by permitting the load bar to contact the mat or any other object (See Fig. 1).



Unhook the sling rings from one side of the load bar. Spread out the sling and straps on the floor making sure that there are NO twists, wrinkles, or any overlapping material.

For proper mat storage, the mat must be rolled evenly and snugly. Make sure that the mat is approximately the same diameter at both ends.

Roll the mat onto the sling. The mat must be centered on, evenly spaced, and square to the sling (See Fig. 2).



Attach all sling rings to their corresponding hooks on the load bar. **Please Note:** Do <u>NOT</u> allow the sling straps to be twisted when attaching. Carefully raise the Mat Lifter so that the mat is just clear of the floor. Check that all sling rings are properly attached and that there are NO twisted sling

*Please Note:* Do <u>NOT</u> continue raising without this inspection. If necessary, perform any corrective action required by lowering the mat to the floor, correcting the problem, and re-inspecting before raising again. Do <u>NOT</u> raise the suspended load if it is swinging! Wait until the load stops swinging before raising. Do <u>NOT</u> with the support of the problem of the support of the problem of the support of the problem. push the mat to cause swinging, during either raising or lowering. Raise the Mat Lifter while watching for any problems. The Mat Lifter is

designed to stop automatically when it has reached the full up position. To Remove Mat-

# ower the Mat Lifter until the mat has contacted the floor. When lowering, NEVER allow the ropes to go slack by permitting the load bar to rest upon the mat or any other object (See Fig. 1).

Unhook the sling rings from one side of the load bar. Spread out the sling and straps making sure that there are <u>NO</u> twists, wrinkles, or any overlapping material.

Roll the mat off of the sling. Reattach all sling rings to their corresponding hooks on the load bar. Be sure the load bar is stationary and not swinging before raising, raise

Mat Lifter to full up position.

Please Note: When not in use, remove key from key switch and store the key in a secure area. Key must <u>NOT</u> be available to unauthorized personnel.

#### Sectional Mat Lifter Instructions

The standard Sectional Mat Lifter is designed to accept three mat sections that are 15 feet long, that when laid side-by-side will comprise a 45 feet long mat. The loadbar for a Sectional Mat Lifter is one-piece, and is 20 feet long. There are two slings for a Sectional Mat Lifter. One sling has shorter straps (9 feet long), and will accept one rolled section. The other sling has longer straps (18'-3" long)

and wider fabric, and will accept two rolled sections side-by-side. WARNING! BE SURE TO READ AND FOLLOW ALL SAFETY INSTRUCTIONS IN THE MAIN INSTALLATION/OPERATION/MAINTENANCE INSTRUCTION BOOKLET FURNISHED WITH THE UNIT!

### Loading sequence:

Load and pick up one mat section using the sling with short straps, as shown in step one above. Follow the standard instructions in the main manual.

- 2 Raise that mat section so it clears the floor by 3-4 feet. Then, spread the sling with long straps on the floor, centered under the suspended single mat section. Roll the two remaining mat sections onto the spread-out sling. Lower the suspended mat section to facilitate hooking the slings to the second sets of hooks furnished on the loadbar. (Again, make sure all mats are properly centered
- within their slings in accordance with the instructions in the main manual.) IMPORTANT! DO NOT PLACE TWO STRAPS IN ONE HOOK! EACH HOOK MUST HAVE ONLY ONE STRAP! Carefully raise the mats and check for proper arrangement (mats, slings, and straps must be centered and symmetrically arranged - see the main manual). Lower mats and make adjustments if the arrangements are not correct and properly suspended.



### Mat Lifter Maintenance Instructions

For continued safe, reliable operation of the Mat Lifter, it is important that the following maintenance and inspections occur on an annual basis. Inspect the sling carefully for the following items:

Inspect the mat sling for signs of tearing, wear, or loosening seams. If such deterioration or damage exists, replace the sling assembly.

### Inspect the wire ropes carefully for the following items:

Rope distortion such as kinking, crushing, unstranding, birdcaging, main strand displacement, or core protrusion.

General corrosion.

Broken or cut strands. Any visible broken or cut wires.

Reduction in rope diameter due to loss of core support, internal or external corrosion, or wear of outer wires. (The greatest diameter of the rope must not be less than 0.27"

Damage from heat.

Corroded or broken wires at end connections.

Corroded, cracked, bent, worn, damaged or improperly applied end connections.

# Inspect rest of unit carefully for the following items: The wraps on the drums should be tight against each other. Gaps between wraps indicate the load was swinging as it was being raised, or that slack ropes were permitted during operation. Lower the mat to the floor and remove most of the load from the ropes, then manually slide the wraps together. Grease shaft bearings with minimum amount of bearing grease. The gearbox is factory filled with gear lube sufficient for the life of the unit.

Check for any leaks that may have developed. Check overall operation of the Mat Lifter. Ensure that both the upper and lower geared limit switches function correctly. Check the secondary upper limit trip arm for proper function. Ensure the Mat Lifter's direction of movement corresponds to the direction of the key switch control. Listen for unusual sounds or noises and investigate the source for possible problems. Check for any loose hardware or components. Especially check the setscrews attaching the pillow block bearing collars and wire rope drums to the main hoisting shafts. Tighten loose or improperly secured fasteners. Check for any missing or illegible WARNING labels or control device markings

and replace them as required.

#### For End-Traveling models—

(877) 413-0957 **PROGRESSIVE** (877) 413-0957 ORTS CONSTRUCTION

Inspect the trolleys for proper wheel purchase upon the beam flange. There should be no more than  $\frac{1}{6}$  to  $\frac{3}{16}$  maximum gap total between the insides of trolley wheel flanges and the monorail beam.

The upper cross-bolt nuts attaching the trolley sideplates to the suspension links should be tightened to provide a snug fit of the sideplates to aspersion suspension links, and towbar bracket. The cross-bolt should be just tight enough to eliminate all play and clearance, but not so tight as to prevent some movement of the trolley components. Check to ensure there is a snug condition of the cross-bolt by visual inspection and by attempting to move some of the spacer washers.

It is recommended that the drive tire force adjusting spring be tightened just enough to prevent excessive tire slippage. Some slippage is desirable to minimize excessive acceleration, but excessive slippage will cause undue wear to the drive tire, and may even cause a "stuck" unit which cannot travel because the tire is too loose to generate traction. Because Traveling Mat Lifters are exposed to more vibration and possible shock

loads than stationary units, be sure to check all fasteners to ensure they are tight, especially those associated with suspension of the unit.

