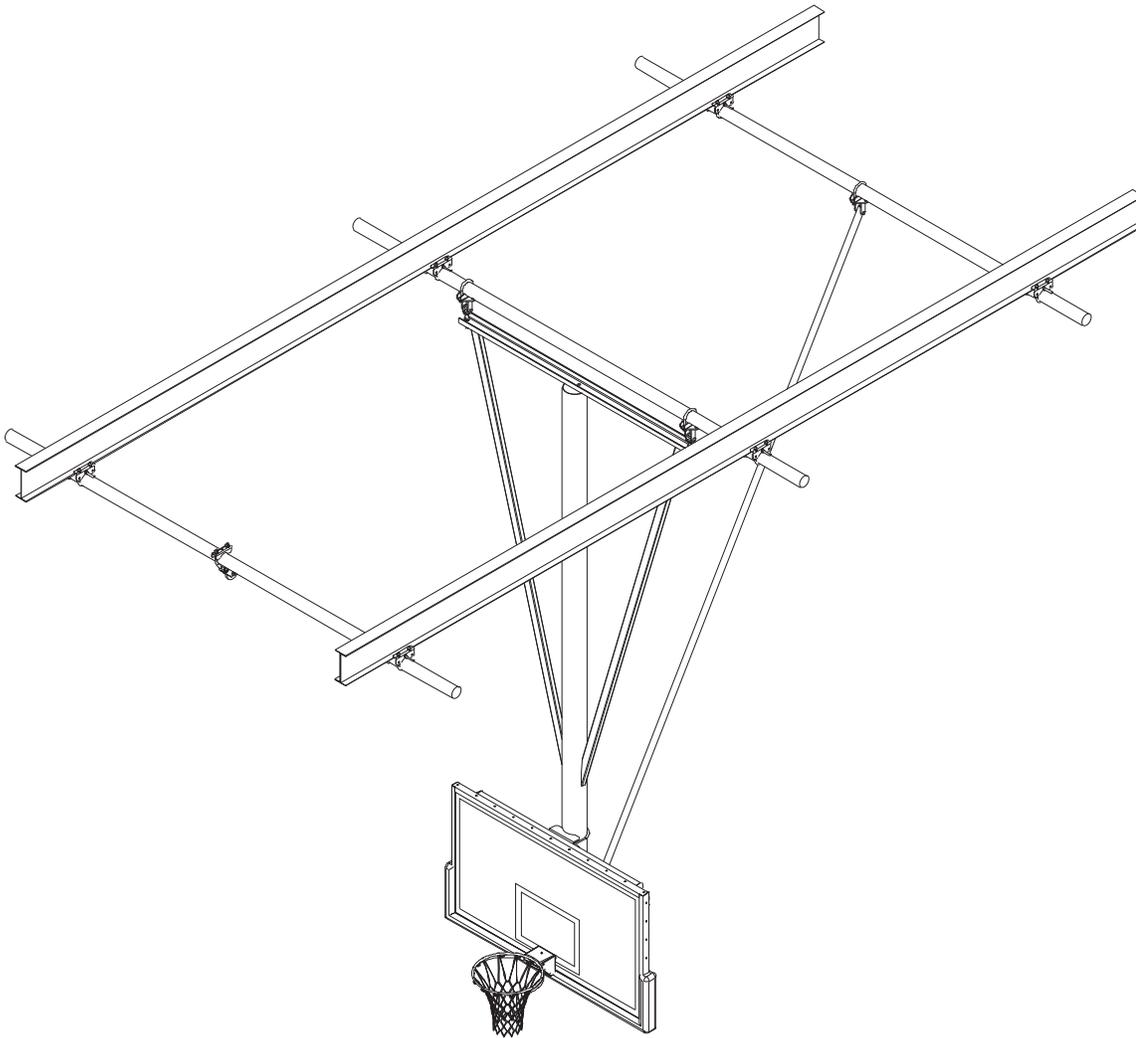


BASKETBALL BACKSTOPS

900, 500, 600 AND 1400 SERIES



Porter[®]

Installation, Operation, and Maintenance Manual

SAVE THESE INSTRUCTIONS FOR FUTURE USE



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

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.



BASKETBALL BACKSTOPS

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

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PORTER LIMITED PRODUCT WARRANTY

Product Line: Ceiling Suspended Basketball Backstops (the “Equipment”)

Porter Athletic (“Porter”) provides the below limited warranty (the “Limited Warranty”) to the original purchaser of the Equipment and only as to the facility in which the Equipment was originally installed. The Limited Warranty extends from the time the Equipment is installed by qualified installers and continues based on the timeline listed below under the terms and conditions stated below.

Limited Warranty Terms and Conditions

Porter warrants the Equipment against defects in material or factory workmanship which cause failure of the Equipment within the applicable Limited Warranty period and provided that notification of defects, together with proof of purchase, is given to Porter at Porter@porterathletic.com within thirty (30) days of discovery of such defect. Porter, once it confirms the existence of a covered defect will, at its sole discretion, repair or replace the defective Equipment with comparable Equipment or will provide a refund of the purchase price prorated over the remaining Limited Warranty period. In the event of repair or replacement, the Limited Warranty includes labor, materials, and freight during the first year of the Limited Warranty and then materials only for the balance of the Limited Warranty period based on the Limited Warranty coverage time period shown below for each category. All other costs, expenses or losses are excluded, including, but not limited to, costs for maintenance of the Equipment. The manner of fulfillment of the Limited Warranty (including investigation, timing of response, labor, and manner of shipment, if applicable) is at the sole discretion of Porter.

Standard Limited Warranty Coverage Time Period

25 years – Structural Components (Mast, Structure Pipes, and Ceiling attachments)

5 years—Saf-Straps

1 year – Mechanical (Height Adjuster, Pulleys, Hinges)

1 year -- Electrical Components (Height Adjuster Motors, Control Systems)

Backboard/Goal/Rim – Covered by separate warranty, please see product information sheets

Exclusions and Conditions: This limited warranty excludes and does not apply to:

- Damage, whether natural or manmade, including, but not limited to fire, flood, wind, lightening or other acts of nature or God.
- Normal maintenance items such as fuses and belts.
- Normal wear and tear
- Use for other than intended purpose or use not in accord with generally approved practices
- Abuse, neglect, vandalism, alterations, modifications or misuse – as determined by Porter
- Equipment not installed by Porter Athletic Approved Installers
- Natural variations occurring in product finishes are not considered defects.
- User attached accessories
- Damage caused by operation of Equipment by persons not properly trained to operate it
- Equipment not routinely inspected and maintained by facility personnel or operators in accordance with the Porter Operation and Maintenance Manual.

In cases where repair or replacement of Equipment is deemed necessary, color or texture shall be in accord with that offered by Porter at the then current time.

Porter’s liability under this Limited Warranty is limited to repair or replacement of defective Equipment or a prorated refund as described above. The sole and exclusive remedy against Porter, or its parent, affiliates, subsidiaries, or distributors shall be for the repair, replacement or prorated refund, at Porter’s sole discretion, of any defective Equipment as provided herein. **IN NO EVENT SHALL PORTER OR ITS PARENT, AFFILIATES, SUBSIDIARIES, OR DISTRIBUTORS BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RELATING TO, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE EQUIPMENT, INCLUDING WITHOUT LIMITATION, ANY LABOR AND /OR OTHER INSTALLATION EXPENSES INCURRED IN CONNECTION WITH THE REPLACEMENT OR REPAIR OF DEFECTIVE EQUIPMENT, EXCEPT TO THE EXTENT OTHERWISE SET FORTH HEREIN, OR ANY OTHER INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, LOSS OF REVENUE, PROFITS OR OPPORTUNITY.**

This document constitutes Porter’s Limited Warranty in its entirety and no other provisions express or implied exist. This Limited Warranty excludes, without limitation, any implied warranties of merchantability or fitness for a particular purpose. Any modifications of this Limited Warranty must be in writing and signed by an officer of Porter. No other person, agent or representative of Porter or any distributor or dealer has any authority to change or modify this Limited Warranty, either verbally or in writing.

Porter reserves the right to change required inspection and maintenance provisions for the Equipment from time to time and upon notification of such change, Customer must abide by those revised provisions or this limited warranty is void.

Various states may have laws affecting your rights under this Limited Warranty.

PORTER EXTENDED LIMITED PRODUCT WARRANTY

Product Line: Ceiling Suspended Basketball Backstops (the “Equipment”)

Porter Athletic (“Porter”) provides the below extended limited warranty (the “Extended Limited Warranty”) to the original purchaser of the Equipment and only as to the facility in which the Equipment was originally installed. The Extended Limited Warranty extends from the time the Equipment is installed by qualified installers and continues based on the timeline listed below under the terms and conditions stated below, including, but not limited to, the required inspections and maintenance referenced below (the “Maintenance Program”). **The equipment must be inspected by a certified porter inspector at least annually for this warranty to be maintained.**

Extended Limited Warranty Terms and Conditions

Porter warrants the Equipment against defects in material or factory workmanship which cause failure of the Equipment within the applicable Extended Limited Warranty period and provided that notification of defects, together with proof of purchase, is given to Porter at Porter@porterathletic.com within thirty (30) days of discovery of such defect. Porter, once it confirms the existence of a covered defect and compliance with the Maintenance Program, will, at its sole discretion, repair or replace the defective Equipment with comparable Equipment or will provide a refund of the purchase price prorated over the remaining Extended Limited Warranty period. In the event of repair or replacement, the Extended Limited Warranty includes labor, materials, and freight during the first year of the Extended Limited Warranty and then materials only for the balance of the applicable Extended Limited Warranty based on the Extended Limited Warranty coverage time period shown below for each category. All other costs, expenses or losses are excluded, including, but not limited to, costs for maintenance of the Equipment. The manner of fulfillment of the Extended Limited Warranty (including investigation, timing of response, labor, and manner of shipment, if applicable) is at the sole discretion of Porter.

Extended Limited Warranty Coverage Time Period

25 years – Structural Components (Mast, Structure Pipes, and Ceiling attachments)

10 years – Mechanical (Safety Straps, Height Adjuster, Pulleys, Hinges)

5 years -- Electrical Components (Electric Winch, Height Adjuster Motors, Control Systems)

Backboard/Goal/Rim – Covered by separate warranty, please see product information sheets

Exclusions and Conditions: This Extended Limited Warranty excludes and does not apply to

• **Equipment not properly inspected or maintained by a Porter certified inspector at least annually in accordance with the Maintenance Program set forth in the current Porter Installation, Operation and Maintenance Manual for Basketball Backstops of the series covering the involved Equipment which is delivered with the product, is available on line at www.porterathletic.com, or which may be ordered from Porter.**

- Damage, whether natural or manmade, including, but not limited to fire, flood, wind, lightning or other acts of nature or God.
- Normal maintenance items such as fuses and belts.
- Normal wear and tear
- Use for other than intended purpose or use not in accord with generally approved practices
- Abuse, neglect, vandalism, alterations, modifications or misuse – as determined by Porter
- Equipment not installed by Porter Athletic Approved Installers
- Natural variations occurring in product finishes are not considered defects.
- User attached accessories
- Damage caused by operation of Equipment by persons not properly trained to operate it
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In cases where repair or replacement of Equipment is deemed necessary, color or texture shall be in accord with that offered by Porter at the then current time.

Porter’s liability under this Extended Limited Warranty is limited to repair or replacement of defective Equipment or a prorated refund as described above. The sole and exclusive remedy against Porter, or its parent, affiliates subsidiaries, or distributors shall be for the repair, replacement or prorated refund, at Porter’s sole discretion, of any defective Equipment as provided herein. **IN NO EVENT SHALL PORTER OR ITS PARENT, AFFILIATES, SUBSIDIARIES, OR DISTRIBUTORS BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RELATING TO, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE EQUIPMENT, INCLUDING WITHOUT LIMITATION, ANY LABOR AND /OR OTHER INSTALLATION EXPENSES INCURRED IN CONNECTION WITH THE REPLACEMENT OR REPAIR OF DEFECTIVE EQUIPMENT, EXCEPT TO THE EXTENT OTHERWISE SET FORTH HEREIN, OR ANY OTHER INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, LOSS OF REVENUE, PROFITS OR OPPORTUNITY.**

This document constitutes Porter’s Extended Limited Warranty in its entirety and no other provisions express or implied exist. This Extended Limited Warranty excludes, without limitation, any implied warranties of merchantability or fitness for a particular purpose. Any modifications of this Extended Limited Warranty must be in writing and signed by an officer of Porter. No other person, agent or representative of Porter or any distributor or dealer has any authority to change or modify this Extended Limited Warranty, either verbally or in writing.

Porter reserves the right to change required inspection and maintenance provisions for the Equipment from time to time and upon notification of such change, Customer must abide by those revised provisions or this Extended Limited Warranty is void.

Various states may have laws affecting your rights under this Extended Limited Warranty.

INTRODUCTION

WARNING

READ ALL INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING TO OPERATE THIS EQUIPMENT. FAILURE TO COMPLY WITH THE FOLLOWING INSTRUCTIONS AND WARNINGS MAY RESULT IN SERIOUS INJURIES AND/OR PROPERTY DAMAGE.

This manual has been prepared to assist you with the installation, operation and maintenance of your basketball backstops.

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

We recommend that you read this manual to become familiar with the style and operation of the backstop 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 **only** qualified personnel supervise all utilized equipment.

For ease of administering this maintenance program, we suggest that your equipment be numbered, and a file maintained on 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. We suggest that you use the inspection chart as a checklist and indicate with an "S" when satisfactory, and mark "R" when replacement or repair is necessary. Defective equipment must be marked "**DO NOT USE**", and the circuit breaker must be turned off and also tagged "**DO NOT USE**", until replacement or repairs are completed.

Inspections should be performed annually. When the equipment is exposed to heavy use, special inspections should be made in addition to the normal maintenance program.

Any structural deviation from the Porter installation drawings without written authorization will void all warranties, and could cause an unsafe condition of the equipment.

LIABILITY

Liability is not only an issue with the installation and maintenance of this product, but it also extends to the proper operation by the end user. The operational instructions must be read and understood before operating this equipment!

This Basketball Backstop Manual, which provides explicit examples of a variation of overhead attachments, is meant to serve as a general guideline only for the safe installation of this product. Variables must be taken into consideration which are outside of Porter's control, including, but not limited to, steel joist variations which include splice plate interference, web panel point attachments if specified by the architect, conduit interference, HVAC and sprinkler interference, non-grouted cells of block or acoustical walls, spacing and frequency of wall ties, appropriate selection of wall anchors for the given wall composition, proper installation of said anchors, embed depth of the anchors, etc. It is Porter's explicit requirement that this product be installed in a safe and secure manner. Any structural deviation from Porter installation drawings without written authorization will void all warranties. Contact the factory immediately should such a condition exist, necessitating a design revision. All anchor and fastening methodology is to comply with the International Conference of Building Officials (ICBO), the Uniform Building Code (UBC), the Industrial Fastener Institute (IFI), and all state regulatory agencies, such as The Division of the State Architect (DSA) in California.

General Hardware Guidelines

- Do not substitute hardware without written authorization from the factory.
- Minimum Grade 5 hardware is to be utilized at all attachments, unless specified otherwise. Refer to the specific part drawing in this manual for the proper grade of hardware.
- On eyebolt applications, a turned eye is not acceptable. Utilize forged eyebolts or, if necessary, a turned eye that is welded closed.
- Do not substitute for the factory-supplied cable and cable clamps. The quality of the 1/4" cable and clamps can vary widely from different manufacturers, and are not all suited for curtain applications.

OPERATIONAL INSTRUCTION OVERVIEW

Operation – Both manual and electrically powered winches develop tremendous forces; therefore, all backstops must be operated by qualified personnel only to avoid structural damage or possible personal injury. Authorized personnel is defined as an individual (or individuals) who is at least 21 years of age, has been trained for the proper operation of the unit, and is sanctioned by the facility as being responsible for the operation of the equipment.

Electrically Operated Equipment – The wall mounted key switch must be flush-mounted on the wall and located in full view of the gymnasium equipment so that the operator may stop the operation of the equipment should there be any malfunction during the raising and lowering cycles. At no time should the key switch or reversing switch on the portable electric operator be reversed quickly, as this may cause damage to gears and may cause the electrical circuitry to override the up-and-down limits. On the up cycle, the backstop operation must halt before any portion of it strikes the building structure.

Manually Operated Equipment – Limit switches or mechanical stops may not be used. Therefore, it is the responsibility of the operator to stop the hoisting operation before the backstop strikes an obstruction. As a visual aid, a piece of tape may be placed on the hoist cable to align with the top of winch when the backstop is in the up position.

Important Note – These units can be dangerous if operated carelessly by inexperienced personnel; therefore, the keys or handles of the manual winches must be in the possession of responsible, trained personnel only. Proper operation and maintenance will promote longevity to the equipment and avoid the possibility of accidents.

REQUIRED MAINTENANCE CHECK LIST

This inspection checklist is to assist you with your maintenance program. As you are making the inspection, enter an “S” for satisfactory, or an “R” for repair or replacement.

Porter recommends a maintenance inspection take place at least once a year by a Porter Certified Inspector, using the attached check list. Porter recommends the same check list be used as a guide for additional inspections by facility personnel or operators every 6 months. Any abnormal movement or sound during operation is cause for an immediate and thorough inspection. The annual inspection by a Porter Certified Inspector is required to maintain the extended limited warranty.

1. **Inspect All Winches** – The winch, either manual or electric, is the most important part to maintain on a folding-type- basketball backstop.

A. For the manual winches, periodically check the winch every three to four months, lubricating as required. Use Pyroshield No. 5182 Grease.

Check gears for excessive wear, replacing them if signs of wear are apparent. To properly check manual winches, the metal cover may be removed. If the teeth of either the bronze or steel gear show signs of becoming pointed or tapering to a point, they should be replaced. Steel or bronze shavings (a sign of improper lubrication) will usually be present if the teeth have worn this severely. Normally the teeth will appear to be blunt and show signs of slight wear only on the sides. If this is the case, lubricate the gears with the recommended open gear lubricant.

B. Electric winches should also be periodically inspected for proper operation of the limit switch assembly and key switch. Faulty electrical components could create serious hazards.

The winches should also be inspected for possible hairline cracks in the cable drum. If cracks are visible, do not use until unit is replaced or repaired. If winch is belt driven, inspect the small and large belt drive pulleys, making certain they are properly secured to each shaft, and rotate concentrically. Also, check anchorage of winch to either the support pipe or wall; and loose anchorage should be repaired immediately. If the winch is gear driven, make sure the gear is not showing excessive signs of wear. Note any excessive noise as well as checking the limits are properly set to ensure complete stop before backstop comes within a safe distance of any obstructions. Make sure cable is properly spooling to ensure the limits will properly engage. The cable should evenly wrap the cable drum until the entire cable drum is wrapped or the limits are reached before the cable wraps on top of itself.

2. **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. Also, make certain the cable wraps evenly on the drum. Refer to the instructions in this manual for correcting an uneven cable wrap. Ensure the cable is free of any interferences which may be present along it's route. Ensure cable connections are secure and tight.

Note – The grinding noise of the hoist cable against the strands already wrapped on the winch-hoisting drum is normal with this hoist system.

3. **Inspect All Pulleys** – It is advisable to check all pulleys, checking the sheave bearing and shaft for excessive wear, replacing if necessary. Lubricate bearing at assembly.
4. **Inspect Slide Rods or Telescoping Back Braces** – (Forward-fold, back braced models) Clean slide rods and lubricate periodically to prevent binding on raising or lowering cycle. Binding of the rear brace slide casting on the slide rod could cause damage to backstops if not properly lubricated. A dry silicon lubricant is recommended on the slide rods so as not to collect dirt and dust which cause binding of slide rod fitting. Note and surface finish defects or deformation of the brace
5. **Inspect Folding Brace Hinge** – (Folding Brace Models) Check power lock hinge is properly folding and connections are secure. Ensure rivets installed to insure brace is secure. Hinge should be all the way locked so that a force on the back of the backstop does not cause the unit to start folding. Check that braces do not have any signs of deflecting.
6. **Inspect Backstop Structure Fittings** – Visually inspect backstop clamps and support fittings for hairline cracks, loose bolts and corrosion, replacing defective parts as required. All backstop fittings should be tightened occasionally to keep backstop rigid. Vibration may cause fittings to loosen causing undue “rattling” of backstops. To stiffen backstops with cross tension type flats, drive the bottom clamps downward on pipe to put flats in tension. Check all hinge fittings, tightening and lubricating hinge bolt as required. Replace worn bolts as required, utilizing the proper grade bolt and nut type as listed in the Fittings Parts List in this manual.
7. **Inspect Backstop Structure** – Visually inspect structure pipes for any sign of abnormal deflection or structural cracks.

8. **Check Backstop Accessories** – Such as the cable/saf-strap retractor system (on forward fold models), which retracts the cable/saf-strap from the hoist position. Replace if required.
9. **Safety Straps** – Check Saf-Strap to make sure it retracts properly into the housing unit. Also inspect strap tie-off on the equipment, ensuring it is securely attached. It is recommended that a safety lock be used on any backstop which folds over a spectator bleacher. Consult factory for details if this unit was not included on the original installation. Ensure saf-strap warning label is not exposed as this indicates the strap has caught a load and replacement may be required.
10. **Goal and Backboard Hardware** – Ensure that the hardware that secures the goal and backboard to the mast is present and tight. Take a wrench to the hardware to confirm. Check the connections for the height adjuster or backboard extenders to the mast are present and tight as well.
11. **Mast** – Ensure that the backstop mast does not have any un-expected deformations or surface defects.
12. **Mast and Brace Hangers** – Check that mast hinges are rotating properly when backstop is folding. Check that mast hinge hardware is present and tight. Check that each brace connection is properly rotating and that the hardware securing these hangers are secure. Note any excessive wear
13. **Electrical System** – Check that the key switch or electrical system is working properly in both directions.
14. **Other Equipment** – Other equipment such as height adjusters, winches, shot clocks, and electrical systems may have their own maintenance check lists to perform.

BASKETBALL BACKSTOP INSPECTION REPORT

The following page should be copied and returned to Porter Athletic by a Porter Certified Inspector after each inspection.

Porter Order Number _____
Project Name _____
Name of Selling Dealer _____
Date of Scheduled Shipment _____
Date of Substantial Completion _____

(Information should be found on the first page of Installation manual)

Inspecting Company Name _____
Porter Certified Inspector Name _____
Inspection Date _____

Summary of Inspected Equipment, Include any replaced, repaired, damaged, or worn parts. _____

Please attach the checklist of each equipment inspected

BASKETBALL BACKSTOP INSPECTION CHECKLIST

Please refer to previous pages for details on inspections.
 This checklist is to assist you in your inspection program.
 As you are making the inspection, enter "S" for satisfactory, or "R" for repair and replace.

INSPECT ALL ITEMS FOR EACH BACKSTOP											
WINCH											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
HOISTING CABLE											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
PULLEYS											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
TELESCOPING/SLIDING BRACES											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
FOLDING BRACE HINGE											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
STRUCTURAL FITTINGS											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
STRUCTURE											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
BACKSTOP ACCESSORIES											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
SAFTEY STRAPS											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
GOAL AND BACKBOARD HARDWARE											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
MAST											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
MAST AND BRACE HANGERS											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
ELECTRICAL SYSTEMS											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
OTHER EQUIPMENT											
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12

HEIGHT ADJUSTER MAINTENANCE

There are a total of eight different height adjuster manuals. See your specific installation instructions sent with the unit for further information. This is intended as a general information guide only.

CAUTION

MANUAL HEIGHT ADJUSTERS ONLY

- ◆ Do not continue to crank unit once it reaches the 10'-0" or 8'-0" goal heights as this will place undue strain on the mechanism and possibly jam unit in place.
- ◆ When using a power drill (with the optional No. XCRK 90000 202 Power Drill Adapter) to raise and lower the height adjuster, use ONLY a battery-operated power drill with a torque (clutch) adjustment. CAUTION - As a safety precaution, use the lowest torque clutch setting possible to operate the height adjuster, to avoid undue stress on the unit as it reaches the maximum Up (10') or Down (8') positions.

ALL HEIGHT ADJUSTERS (MANUAL AND ELECTRIC)

- ◆ When height adjustment unit is mounted on a folding type backboard support system, always adjust the goal height to 10'-0" before hoisting or folding the unit so as not to place undue strain on the hoist system or the height adjustment mechanism.
- ◆ Always keep the operating device (Hand Crank, Keys from Key Switch, Powr-Stick, Sportsonic® II Transmitter, or Powr-Touch Pad) in the possession of a responsible adult trained in the proper use of this system.

WARNING

Before attempting any repairs, lower the unit to the lowest position (8'-0" goal height) to eliminate the possibility of the backboard dropping suddenly, which could result in serious injuries or death.

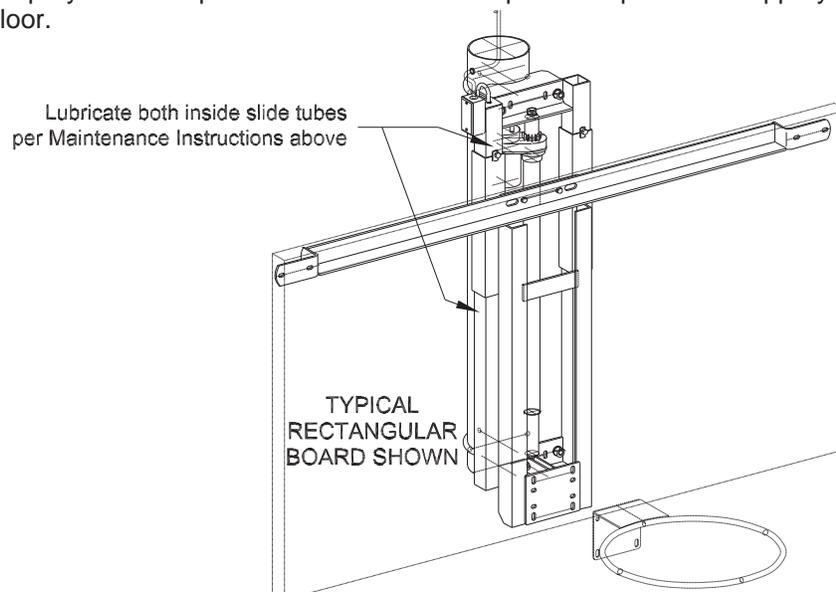
CARE AND MAINTENANCE

MANUAL HEIGHT ADJUSTERS ONLY

- ◆ Semi-annually lubricate the entire threaded rod assembly and upper thrust roller bearing with any high quality multi-purpose type grease.

ALL HEIGHT ADJUSTERS (MANUAL AND ELECTRIC)

- ◆ Periodically inspect height adjustment and support system for loose or defective parts - tighten or replace immediately as required.
- ◆ Periodically (at least annually, depending on usage) lubricate the two plated inside slide tubes with a WD-40 type lubricant. Run height adjuster up and down (10' to 8') several times, and wipe slide tubes dry to clean any dust or residue build-up. Spray the two plated inside slide tubes once again with a high quality silicon spray. NOTE - protect the floor with a drop cloth to prevent a slippery build-up on the gymnasium floor.



INVENTORY and INSPECTION

Inventory parts listed on the packing list to ensure parts required are accounted for. Inspect all components for possible shipping damage. Report any shortages to Porter's Customer Service Department immediately. On visible freight damage, sign as damaged, and file a freight damage claim with the carrier immediately. Failure to report shortages or hidden freight damage directly to Porter's Customer Service Department within three working days will place the financial burden for the missing or replacement parts with the installer or general contractor.

SAFETY ATTIRE TO BE WORN AT ALL TIMES DURING THE INSTALLATION AND MAINTENANCE OF THE EQUIPMENT

- Remove all jewelry before commencing with installation or maintenance.
- Hard hat.
- Long jeans (no shorts).
- Steel toe work boots.
- Safety glasses.
- Leather gloves.
- OSHA approved harness (properly tethered).
- Nothing which may be caught by moving equipment such as long hair or baggy clothing.

TOOLS and EQUIPMENT REQUIRED

To Be Provided by the installer:

- Scissor lift or scaffolding.
- Hand tools, power drill, drop cord, laser measuring device, etc.
- Duct Tape.
- Cable & bolt cutters.
- Chain fall hoist (verify load and length capacity)
- Canvas drop cloths
- 4'x8' thin Masonite® sheets
- 5/16" drill bit
- 17/32" drill bit x 4" (+) long
- Control box assembly with plug (Porter part no. ELEC00201000 or equal) for drop cord operation (recommended).
- 3 furniture roller carts
- Magnetic torpedo level
- Plumb bob with 12' Gammon Reel ® or laser plumbing device
- Spring Clamp or vise grips
- Reciprocating saw or band saw

Power Requirements:

Note – anticipate needing an electrician or a temporary control box for limit switch adjustments.

- "Cheater" box, Porter part no. ELEC 00201 000, is available through Porter.

OPTIONAL EQUIPMENT



Bolt cutter



ELEC 00201 000 - "Cheater" box for powering of equipment during installation



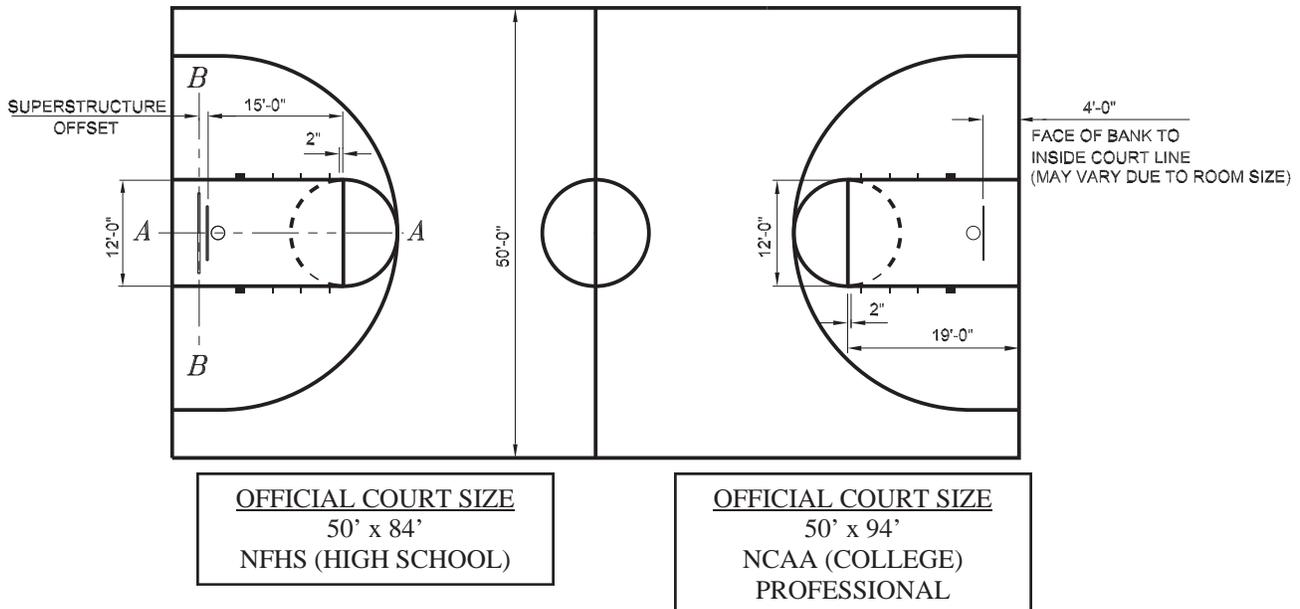
Transport Mast Cart
00900-CRT



Vise-Grips for a variety of special uses

TYPICAL BACKSTOP LOCATION TO COURT LINES

FIGURE A

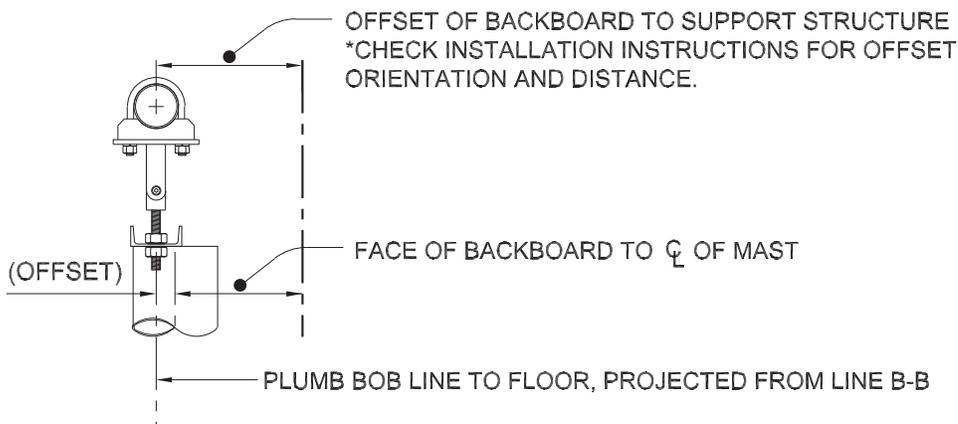


OFFICIAL COURT SIZE
50' x 84'
NFHS (HIGH SCHOOL)

OFFICIAL COURT SIZE
50' x 94'
NCAA (COLLEGE)
PROFESSIONAL

1. THE INITIAL STEP PRIOR TO ANY ERECTION OF THE EQUIPMENT IS THE LAYOUT OF WORKING LINES ON THE FLOOR. FAILURE TO IDENTIFY COURT LINE LOCATIONS, VERIFIED BY THE APPROVED ARCHITECT'S "COURT STRIPING PLAN", MAY RESULT IN RELOCATING EQUIPMENT AT THE INSTALLER'S EXPENSE! THIS STEP IS CRITICAL.
2. USING A CHALK LINE, SNAP LINE **A-A** THROUGH CENTER OF THE BASKETBALL COURT.
3. SNAP LINE **B-B** AT RIGHT ANGLE TO COURT CENTERLINE. LOCATION OF THIS LINE IS DETERMINED BY THE OFFSET OF THE MAST HANGER FROM THE FACE OF THE BACKBOARD. BE SURE TO INCLUDE OFFSET DIMENSION (IF ANY) ON MAST. SEE **FIGURE B.**
4. ERECT SUPERSTRUCTURE PER THE JOB SPECIFIC INSTALLATION PRINTS. ANY DEVIATION FROM THE PORTER INSTALLATION DRAWINGS WITHOUT WRITTEN AUTHORIZATION WILL VOID ALL WARRANTIES.

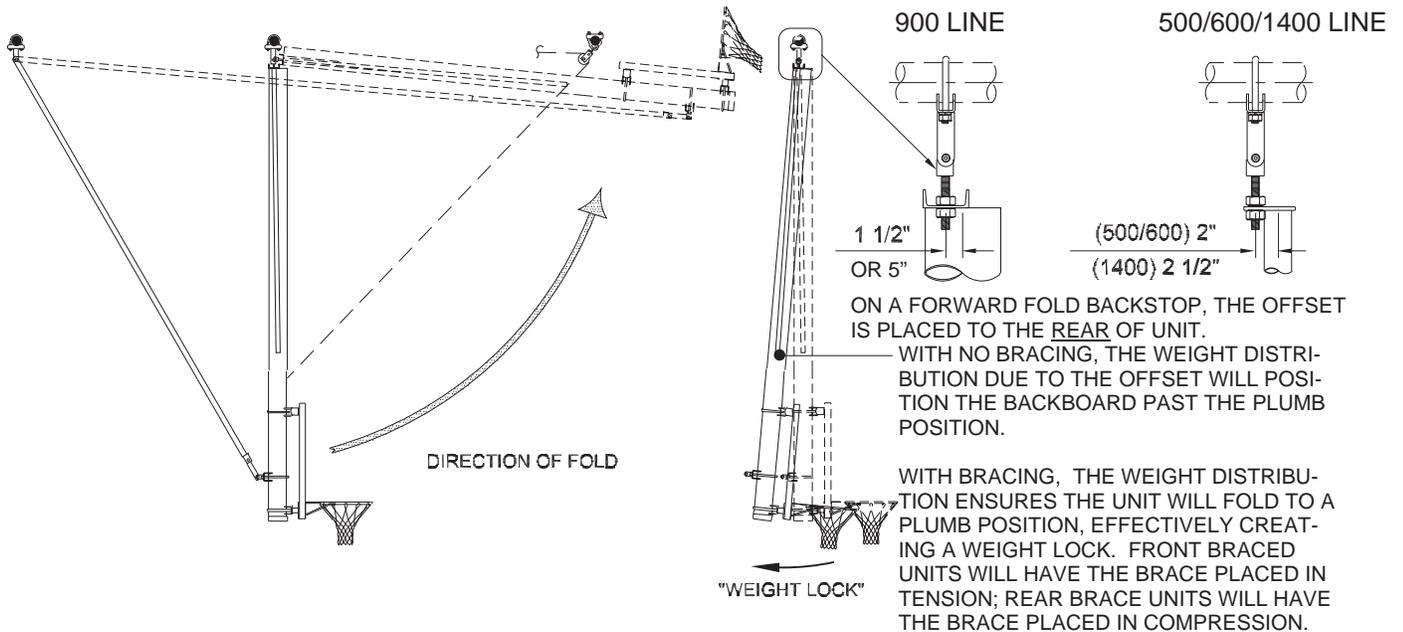
FIGURE B



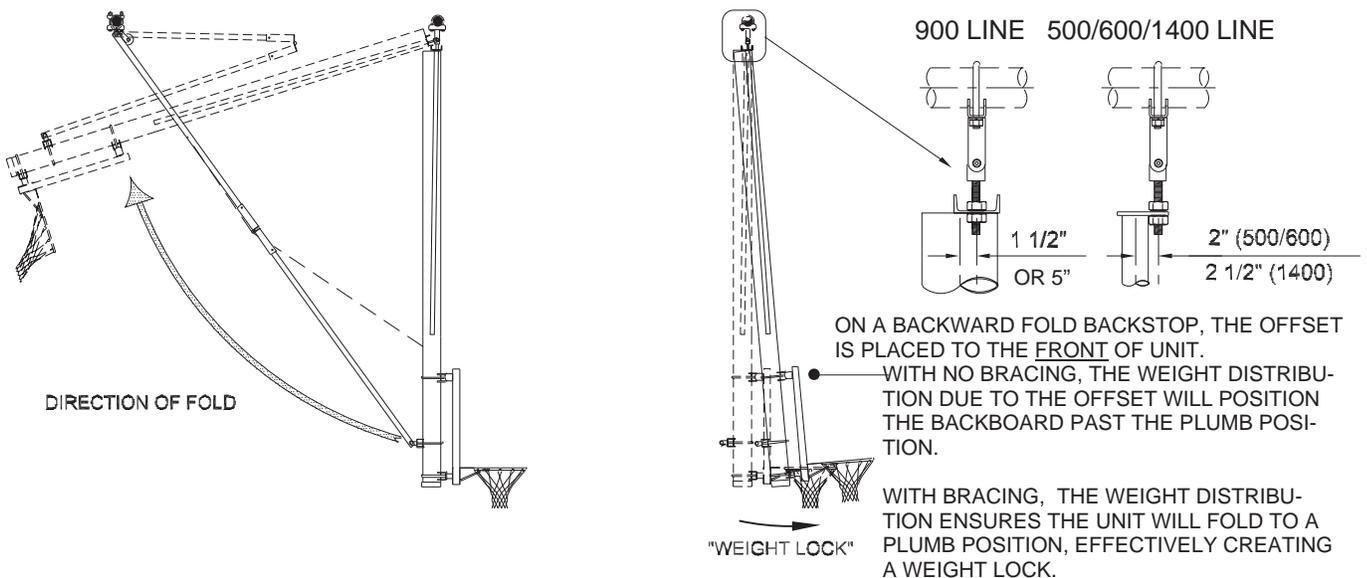
BACKSTOP MAST "WEIGHT LOCK" OFFSET DIRECTION

IT IS IMPORTANT TO NOTE ON ALL 500/600/1400 LINE BACKSTOPS WITH AN ATTACHMENT HEIGHT OF 25'-0" OR LESS, AND ALL 900 LINE BACKSTOPS WITH AN ATTACHMENT HEIGHT OF 32'-0" OR LESS, AN OFFSET "WEIGHT LOCK" ATTACHMENT IS UTILIZED. THE DIRECTION OF THE OFFSET MUST BE DETERMINED **BEFORE** LOCATING THE SUPERSTRUCTURE SUPPORTS. AS ILLUSTRATED BELOW, THE POSITION OF THE OFFSET IN RELATIONSHIP TO THE FOLD DIRECTION WILL AUGMENT THE FOLD OF THE BACKSTOP. IF THE OFFSET IS PLACED IN THE OPPOSITE DIRECTION, THE SEATING OF THE UNIT IS INHIBITED BY THE INCORRECT DISTRIBUTION OF WEIGHT.

FORWARD FOLD UNIT (EITHER FRONT OR REAR BRACED)

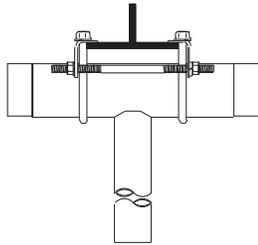


BACKWARD FOLD UNIT (REAR BRACED)

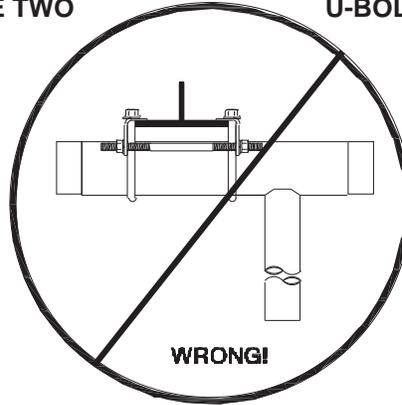


SINGLE CONNECTION DROP PIPE INSTALLATION, AND FRICTION CONNECTIONS

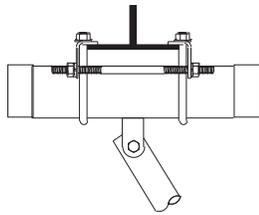
ON SINGLE CONNECTION DROP PIPES, WHERE THE DROP IS CONNECTED TO ONLY ONE JOIST OR I-BEAM, THE DROP PIPE IS TO BE CENTERED UNDER THE STRUCTURAL MEMBER AS SHOWN. NEVER LOCATE THE DROP PIPE OUTSIDE OF THE TWO U-BOLTS!



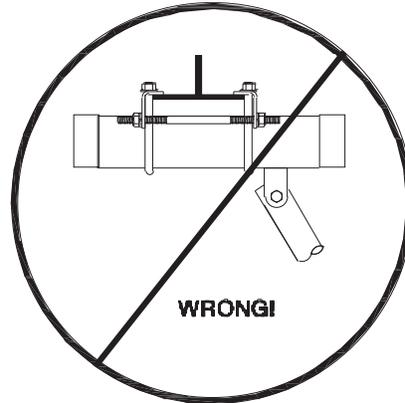
CORRECT!



WRONG!



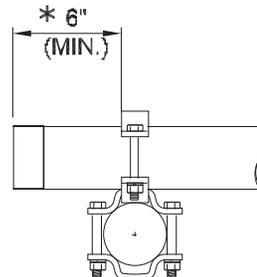
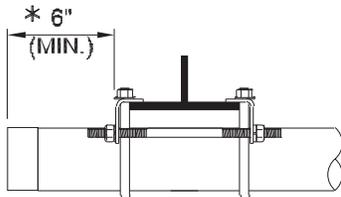
CORRECT!



WRONG!

ALL "FRICTION" CONNECTIONS
FROM CONNECTION TO THE END

MUST BE ASSEMBLED WITH A MINIMUM OF 6" OVERHANG
OF TUBING.



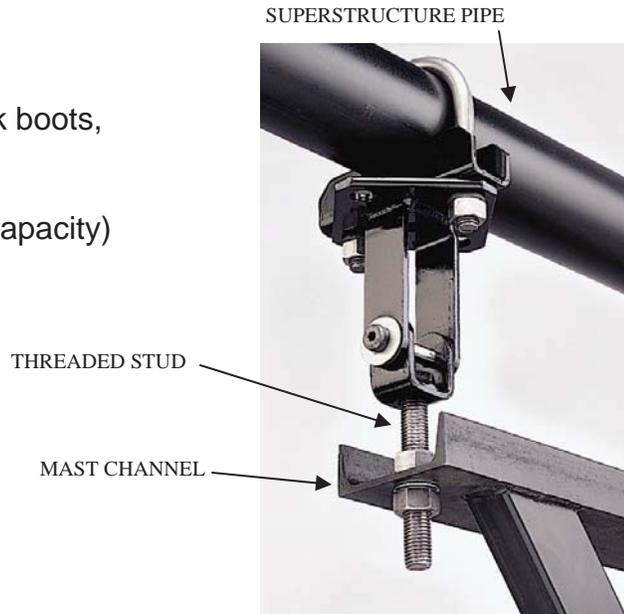
*THE STATE OF CALIFORNIA MAY REQUIRE A MINIMUM 1'-0" OVERHANG

MAST HOISTING INSTRUCTIONS

(TWO PEOPLE REQUIRED MINIMUM)

Recommended equipment:

- hard-hat, safety goggles, steel toe work boots, back support
- scaffold or electric lift
- chain fall hoist (verify load and length capacity)
- Canvas drop cloths
- 4'x 8' thin Masonite® sheets
- 3 furniture roller carts
- hand tools
- magnetic torpedo level
- plumb bob with 12' Gammon Reel® or laser plumbing device
- tape measure
- spring clamp or vise grips
- reciprocating saw or band saw



PICTURE OF A
STANDARD HANGER
PART NO. XHNG50405002

The following instructions are written assuming the backstop mast is a fully welded 900 line frame, not a knock-down frame, and utilizing a standard mast hanger (part number XHNG 50405 002). If this is not what is supplied for your installation, contact Porter for alternate hoisting instructions. All of the distances listed in the instructions are derived off of these components.

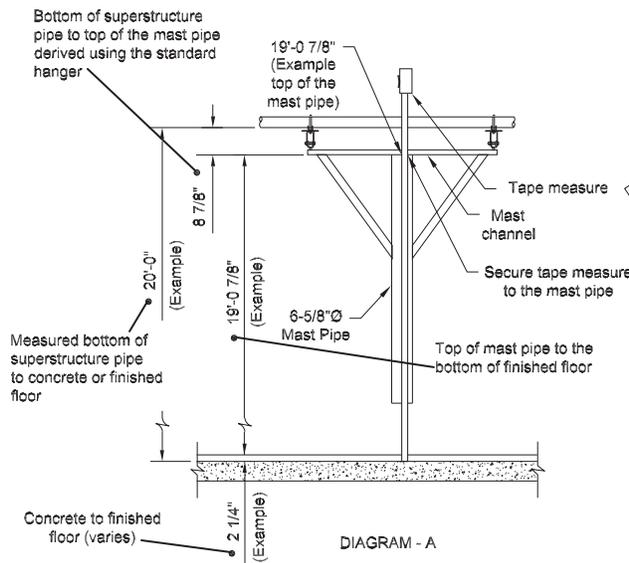
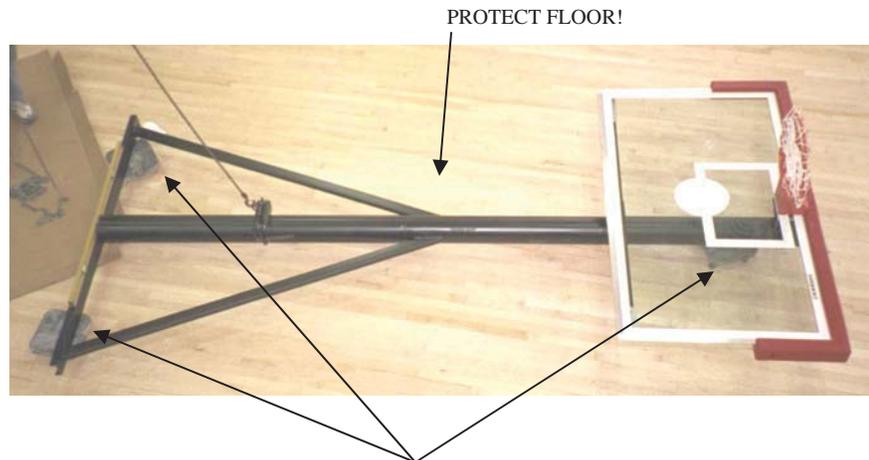
CAUTION

Caution must be exercised at all times during the installation, due to the weight and size of the equipment. All OSHA guidelines governing safety must be adhered to. Tether all supports and apparatus during the installation process, until the permanent connections are made.

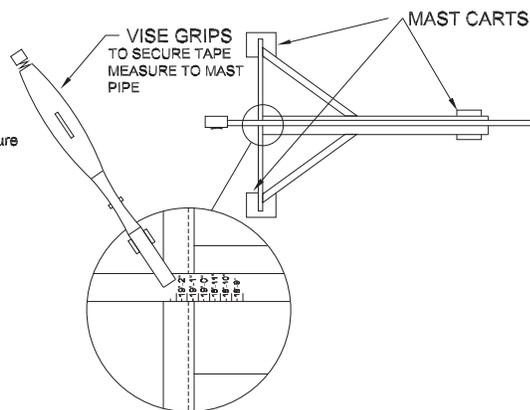
1. Before installing the backstop structure, clear the gymnasium of any debris.
2. If you are working over a finished floor, it must be protected from scratches during the installation of the gymnasium equipment. Protect the installation area with a drop cloth (canvas or plastic) in conjunction with sheets of Masonite®, thin plywood, or the backboard packaging. Remove all metal staples if the backboard packaging is utilized.
3. Install the mast superstructure and mast hangers. Refer to the installation print and previously laid out chalk lines (see page 14) for exact locations. Use laser device for precise placement of superstructure and mast hangers.
4. Transport the backstop mast in the installation area so that the top of the mast is directly below the superstructure it is to be attached to. Place the mast on the floor so that the front of the mast is facing towards the ceiling. Refer to the installation print for the exact mast offset direction. Refer to page 15 of this book for more details.

MAST HOISTING INSTRUCTIONS (CONTINUED)

5. Place the bottom end of the mast and each end of the top mast channel on roller carts (see picture A).
6. Take a measurement to the bottom of the pipe the mast is to attach to. If the mast is attaching to two pipes, note the higher measurement. The difference between the two measurements should not be more than 1".
7. From the measurement you have noted, subtract 8-7/8" and the thickness of the finished floor if you are working over a concrete sub floor. For example, 20'-0" minus 8-7/8" minus 2-1/4". In this case your final measurement would be 19'-0-7/8".
8. Match the calculated distance from step 7 to the top end of the 6-5/8" mast pipe (bottom of channel) with a tape measure (see diagram A). Secure the tape measure by using vise grips or a spring clamp. The purpose of this is to match the measured heights to the mast on the floor.
9. Lay the extended tape down the mast and mark the bottom of mast cut-off elevation, brace location, and cable tie-off location. Refer to the installation prints for exact locations.
10. Mark the location of the clamps for the bank attachments. See Detail A (on page 28) for dimensions. These dimensions are not for retrofitted backboards.



MAST CARTS

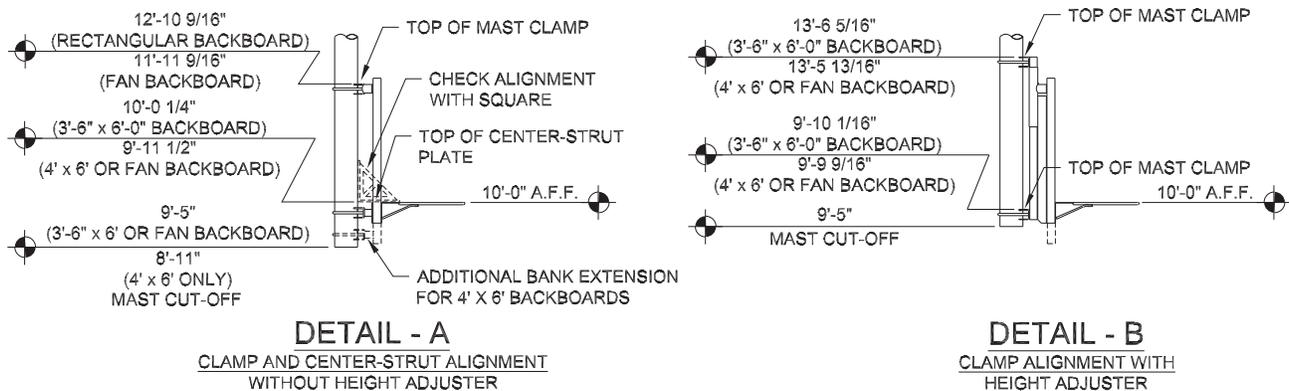


SECURE THE TAPE MEASURE TO THE MAST WITH THE MAST LAYING ON THE FLOOR (ON MAST CARTS). DIAGRAM 'A' SHOWS THE UNIT IN ELEVATION FOR CLARIFICATION OF MEASUREMENTS ONLY.

MAST HOISTING INSTRUCTIONS (CONTINUED)

11. Before cutting off the mast, double check all measurements and remove tape measure. Move the roller cart that is at the bottom of the mast 1' above where the cut is going to be made. Cut off mast with reciprocating saw or band saw.
12. Level out top channel by using shims or rolling the mast to a level area of the floor.

REFER TO THESE DETAILS FOR INSTALLATION OF BOARD AND GOAL HARDWARE TO THE MAST



IF YOU ARE INSTALLING A HEIGHT ADJUSTER, SKIP TO STEP 20

13. Install center-strut weldment with 5/8" diameter U-bolt. Utilize a square to establish the dimension from Detail A. Tighten U-bolt in small increments on each side to help the assembly stay level.
14. Use a torpedo level to verify that the center strut is level and thereby parallel with the top channel of the mast. Center-strut must be fully tightened.
15. Attach bank extension arm to backboard, and fully tighten hardware.
16. Place top mast clamp on mast at location from Detail A, do not attach U-bolt yet.
17. Lay bank on center-strut and mast clamp.
18. Install U-bolt through mast clamp and bank extension. Leave hardware finger tight.
19. Attach backboard and goal to center-strut. Leave hardware finger tight. Skip to step 31.

HEIGHT ADJUSTER MOUNTING INSTRUCTIONS (STEPS 20 - 30)

20. Align the top of the mast clamps at the position from Detail B. Do not attach U-bolt yet. Carefully rest the height adjuster assembly on the two mast clamps.
20. Install bottom U-bolt through clamp and height adjuster assembly. Leave hardware finger tight.
22. Install top U-bolt through clamp and height adjuster assembly. Leave hardware finger tight.
23. Use a torpedo level to verify that the height adjuster is level with the top channel of the mast.
24. Adjust if necessary.
25. Fully tighten both U-bolts to height adjuster assembly.

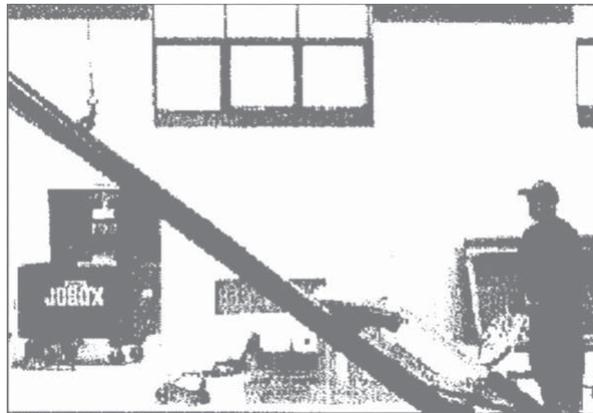
MAST HOISTING INSTRUCTIONS (CONTINUED)

26. Attach bank extension arm to backboard, and fully tighten hardware.
27. Lay bank on height adjuster assembly.
28. Attach bank extension to height adjuster assembly. Leave hardware finger tight.
29. Attach lower backboard hardware to height adjuster goal plate. Leave hardware finger tight.
30. Attach goal to height adjuster. Leave hardware finger tight.



PICTURE - B

31. Attach backboard padding, if applicable.
32. A chain fall (see picture B) with a clip-type hook is recommended to be used to hoist the mast. A block and tackle hoist system may also be used, provided it is rated for the load. Attach chain fall body above mast pipe to either the backstop's superstructure or to the upper part of the roof structure. Supplemental load rated chain will be required to attach the chain fall body. Verify that the chain fall body is securely attached.



PICTURE - D



PICTURE - C

33. Secure the chain fall hook to the mast by utilizing a brace hanger near the channel (see pictures C & D). The brace hanger shown also has a shackle to allow connection to the large hook of the chain fall.
34. One person is to hoist the mast, and the other person is to guide the mast into position and keep it from swaying (see picture D). Begin hoisting the mast slowly.
35. During the initial raising, as soon as the mast channel is off the carts, remove the carts and lower the channel of the mast to the ground.
36. Reposition one of the unused carts at the end of the mast to prevent it from dragging on the floor.
37. Begin to raise the mast again. This is an ideal opportunity to touch up any scratches which may have occurred during shipment with touch up paint.
38. When the bottom of the mast is at shoulder level, install mast pipe cap to cover raw end of mast tube while working. This pipe cap will need to be removed for cabling a folding unit, then replaced again. If a laser leveling device (see picture E - next page) is not available use a plumb bob with a 12' Gammon Reel (see picture F - next page) through the center of the pipe cap for step No. 42.

MAST HOISTING INSTRUCTIONS (CONTINUED)

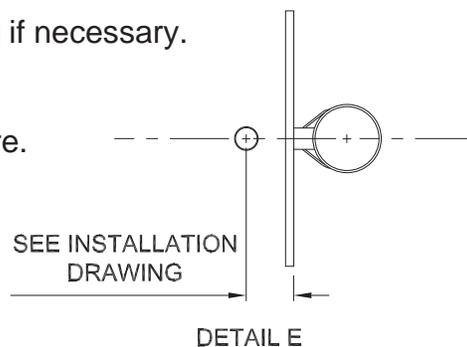


PICTURE - E

39. Raise the mast to approximately the same elevation as the middle of the threaded stud on the hanger.
40. One person is now needed on scaffolding or an electric lift to attach the top of the mast to the adjustable hangers. Additional hoisting and/or lowering of the mast may be required. Slip the mast hanger studs through the holes in the channel and attach with the hex nuts and lock washers top and bottom. Leave hardware finger tight.
41. Take laser (or tape) measurement (from step 7) on one side of mast channel. Raise other side until plumb by tightening bottom hex nut.
42. Using the mold point on the center of the mast cap as a reference, insure that the center of the mast is in perfect vertical alignment (or plumb) with the previously established center line of the court the backstop is to hang in. Fully tighten the mast hanger stud hardware. A minimum of two full threads must be exposed on the stud of the hangers.
43. Install supplemental braces to plumb the mast in the direction of the braces. The laser (or plumb) should now be an 1 1/2" offset from the intersection of the chalk lines (pages 10 & 11) on the floor. It is easier to strike an additional chalk line to correspond to the dimension from the face of bank to the centerline of the 6 5/8" O.D. mast. Refer to project drawing for the offset dimension, and detail E.
44. Level backboard by leaning top of bank in slots in bank extension arm, slightly tighten bank hardware.
45. Level goal and verify goal is 10' AFF, adjusting if necessary.
46. Fully tighten goal hardware.
47. Fully tighten upper bank hardware.
48. Fully tighten backboard to center-strut hardware.

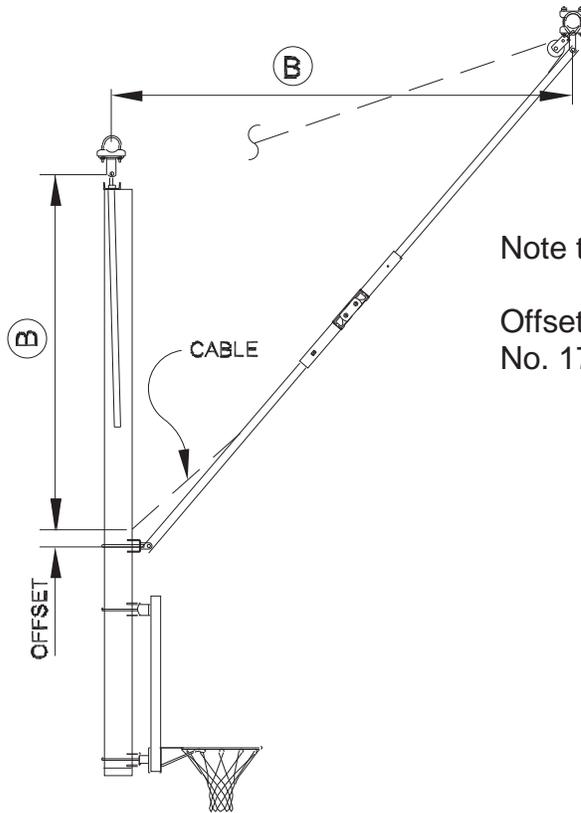


PICTURE - F



LOCATING PULLEY ("B" DIMENSION)

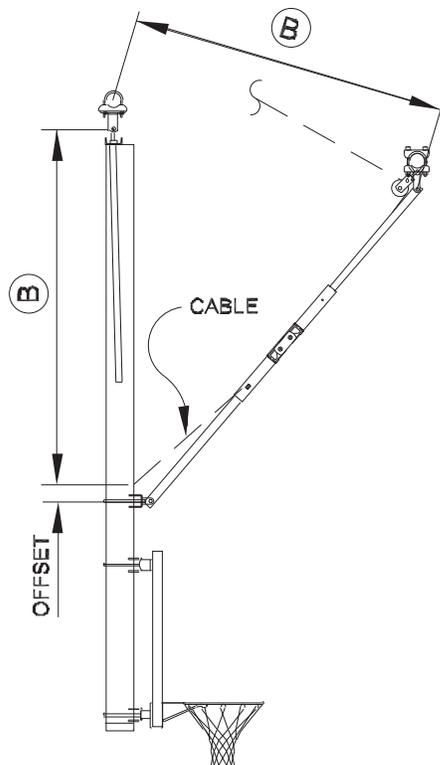
APPLIES TO: 917, 923, 949, 950, 951, 952, 955, 517, 523, 549, 617, 623, 949, 1417, 1423, 1449



LEVEL OR SLOPE UP

Note the horizontal B is **not** calculated on a slope.

Offset can be ignored for Forward Fold Back Braced No. 17 units.



SLOPE DOWN

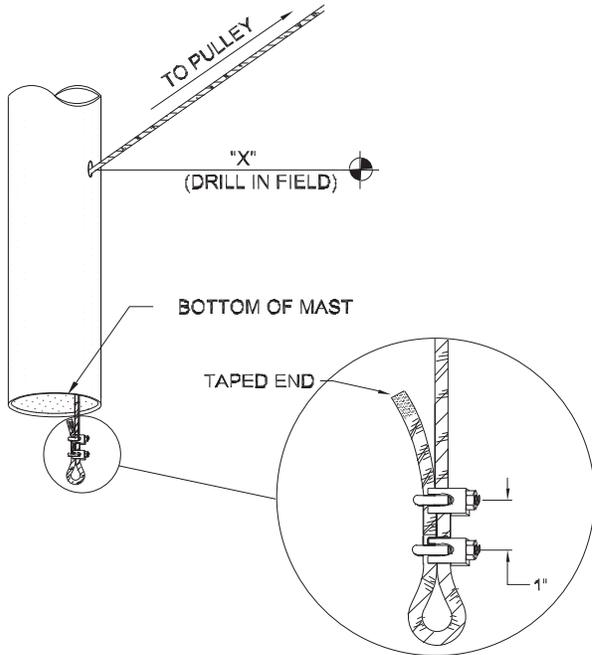
Note in this scenario, the (vertical) B of mast hanger hinge point to cable tie-off must equal the distance of mast hanger hinge point to front (or rear) brace hanger hinge point **on a slope**.

Offset can be ignored for Forward Fold Back Braced No. 17 units.

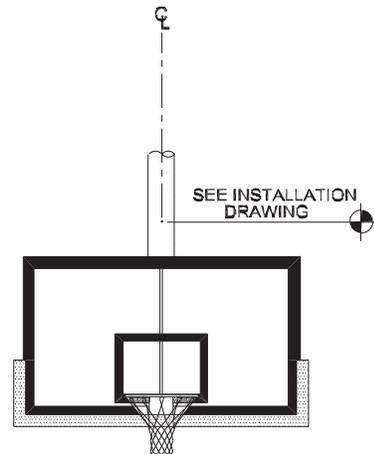
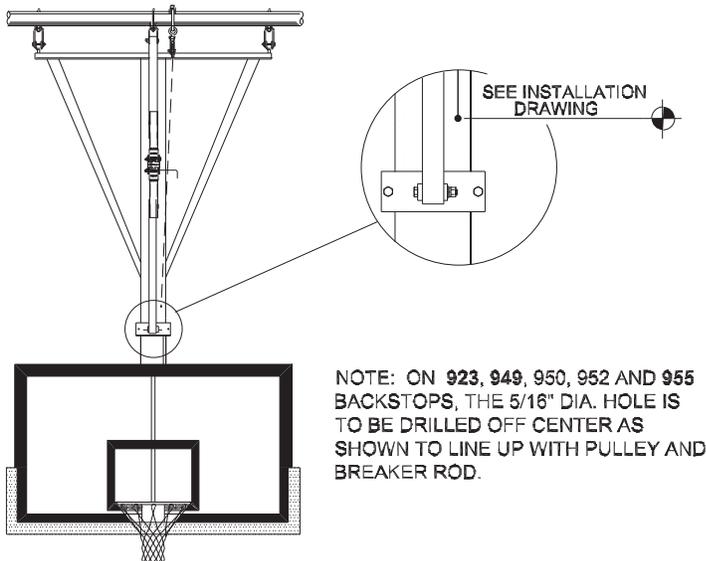
900 LINE FOLDING UNITS CABLE TIE-OFF INSTRUCTIONS

APPLIES TO (UNDER 28' ONLY): 917, 923, 949, 950, 951, 952, 955

SEE INSTALLATION DRAWING FOR THE EXACT LOCATION OF
THE CABLE TIE-OFF AT THE MAST



1. DRILL 5/16" DIA. HOLE IN MAST AT ELEVATION SHOWN ON INSTALLATION DRAWING.
2. FEED 1/4" GALVANIZED CABLE THROUGH HOLE AND OUT BOTTOM OF THE MAST.
3. FORM A SMALL LOOP WITH THE CABLE AND SECURE (OVER TWO WIDTHS OF CABLE) WITH 1/4" CABLE CLAMP PROVIDED. LOCATE SECOND CABLE CLAMP WITHIN 1" ABOVE FIRST CLAMP AS SHOWN. A MINIMUM 4" LENGTH OF CABLE FROM THE TAPED END TO THE TOP CLAMP IS REQUIRED. BE SURE TO TIGHTEN BOTH CABLE CLAMPS.
4. FEED CABLE BACK THROUGH MAST AND SECURE OPPOSITE END OF CABLE TO WINCH WITH A MINIMUM OF THREE (3) WRAPS AROUND WINCH DRUM. CABLE IS SECURED TO DRUM WITH SET SCREW PROVIDED.



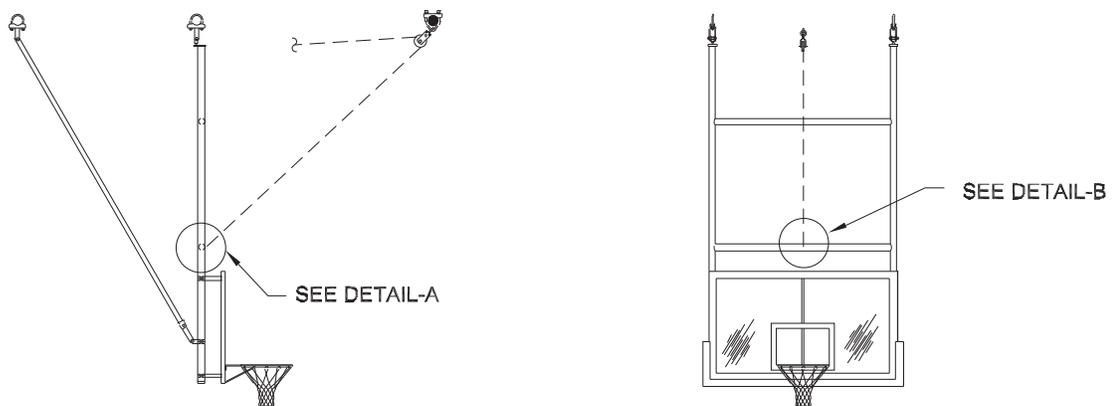
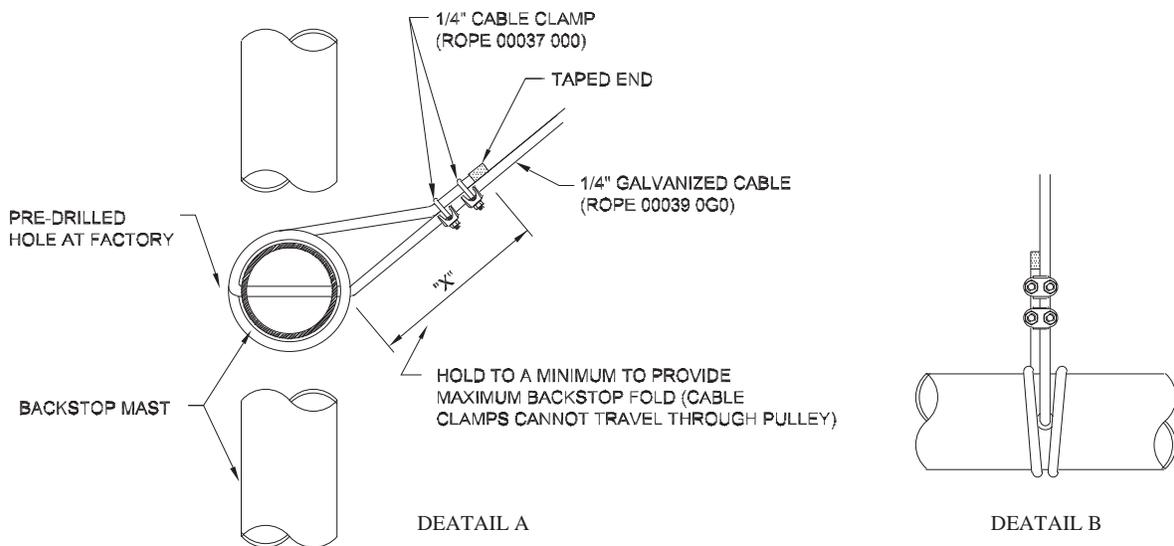
ON 917 BACKSTOPS THE 5/16" DIA. HOLE IS TO BE CENTERED ON 6 5/8" TUBING.

500, 600 AND 1400 LINE FOLDING UNITS CABLE TIE-OFF INSTRUCTIONS

APPLIES TO: 517, 523, 549, 617, 623, 649, 1417, 1423, 1449

INSTALLATION INSTRUCTIONS

1. ROUTE CABLE THRU HOLE IN PIPE (LOCATION INDICATED ON INSTALLATION DRAWING). SEE DETAIL A.
2. LOOP CABLE AROUND PIPE TWICE, ONCE ON EACH SIDE OF HOLE (SEE DETAIL B).
3. SECURE TWO WIDTHS OF CABLE AS SHOWN WITH TWO 1/4" CABLE CLAMPS PROVIDED.
4. TAPE WHAT WILL BE THE CUT END OF THE LOOSE CABLE BEFORE TRIMMING OFF EXCESS.



NO. 17 SERIES BACKSTOPS TELESCOPING BRACE

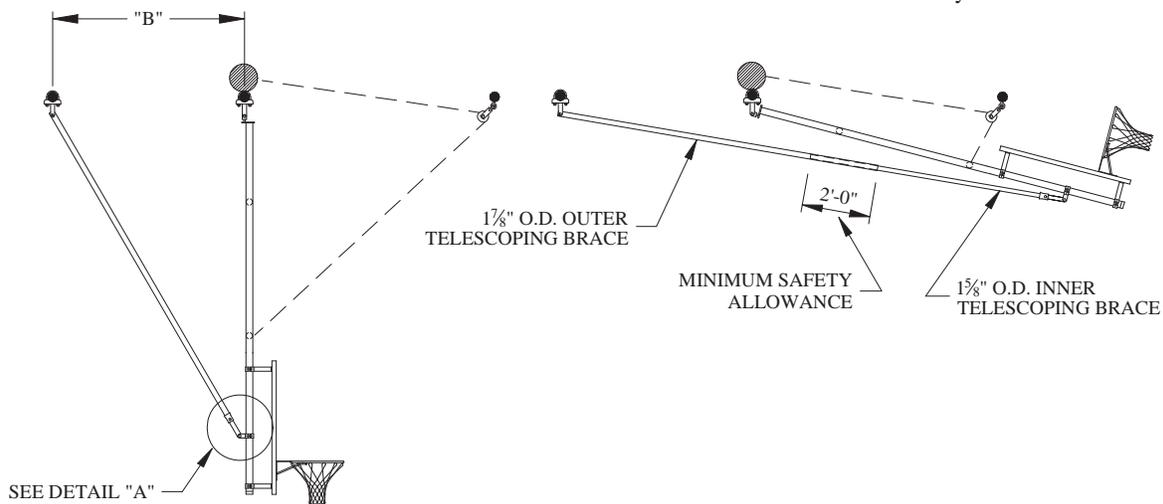
APPLIES TO: (UNDER 28' ONLY) 917; (ALL) 517, 617, 1417

INSTALLATION INSTRUCTIONS

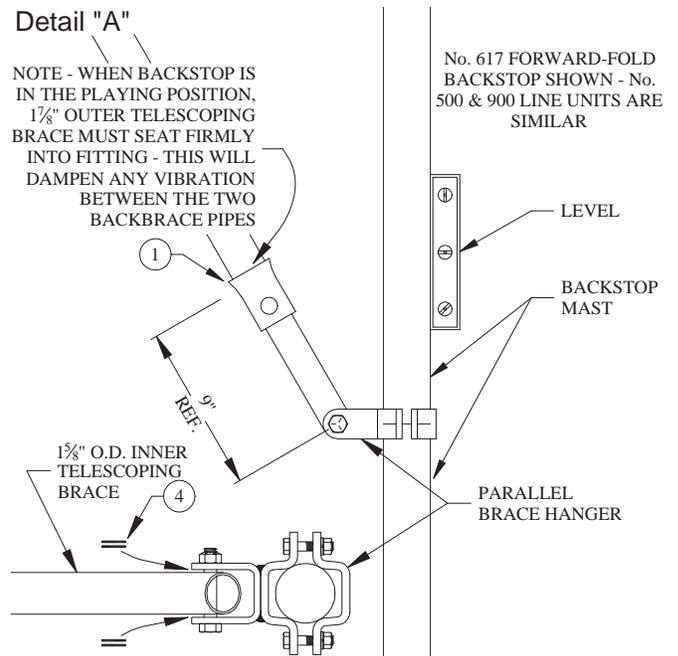
(FOR ALL FORWARD FOLD BACKSTOPS WITH TELESCOPING REAR BRACE)

PARTS LIST

ITEM NO.	PART NO.	QTY	DESCRIPTION
1	BRCE0029002	1	Telescoping Backbrace Fitting
2	HDWE09006000	2	Set Screw - 1/4" x 1/2" Lg.
3	HDWE581470E0	1	Hammer Hit Rivet- 5/16" x 7/16" Lg.
4	HDWE55007000	4	Nylon Flatwasher - 1/2"



1. **INSTALLER NOTE:** Before assembling the telescoping backbrace, grease the 1-5/8" O.D. inner telescoping brace to ensure smooth operation.
2. Four nylon flatwashers (#4) are provided with this kit. Install these at the pivot bolt where the 1-5/8" O.D. inner telescoping brace connects to the parallel brace hanger on the backstop mast - two on each side. See Detail "A".
3. Set the B dimension according to the backstop installation drawing.
4. With a level against the mast, plumb the backstop and temporarily secure the telescoping backbrace fitting (#1) with the two set screws (#2). Be sure that the 1-7/8" O.D. outer telescoping brace is firmly seated in the telescoping backbrace fitting (#1). See Detail "A".
5. Using the pilot hole in the telescoping backbrace fitting (#1), drill a 5/16" dia. hole through one wall of the 1-5/8" O.D. inner telescoping brace. Secure with the hammer hit rivet (#3).

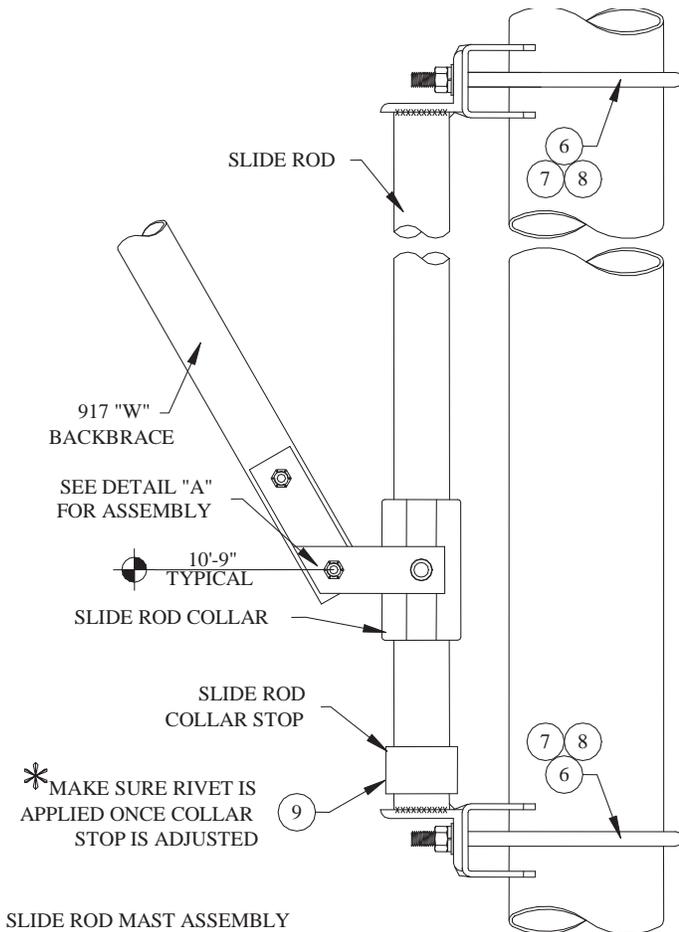


NO. 17 SERIES BACKSTOPS SLIDE ROD ASSEMBLY

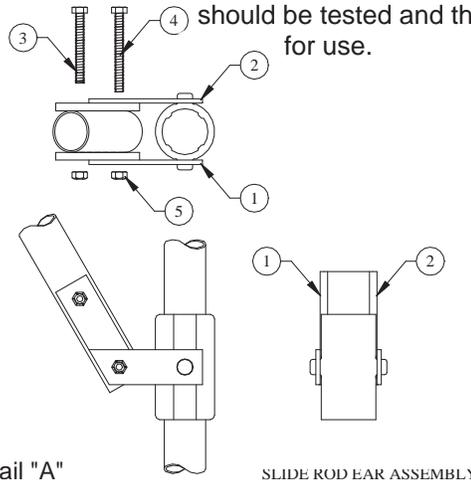
APPLIES TO (OVER 28' ONLY): 917

INSTALLATION INSTRUCTIONS

NO. XBRC 91701XXX



1. Check all items against Parts List to ensure all have been included.
2. Apply left (1) and right (2) ears to slide rod collar and 917 "W" series back brace as shown.
3. Insert 4" Hex Head Cap Screw (3) through upper hole in ear and Backbrace and 4 1/2" Hex Head Cap Screw (4) into through lower hole in ear and Backbrace and snug together with 1/2" Convex Locknuts (5)
4. After final height adjustments are made to the Slide Rod, tighten the setscrew. Drill a 3/8" diameter hole through the existing hole on the Slide Rod Collar Stop through only one wall of the slide rod tube. Install the Hammer Hit Rivet (9) to ensure that the Slide Rod Collar Stop does not move.
5. After completing these assembly steps the unit should be tested and then ready for use.



Detail "A"
PARTS LIST

ITEM NO.	PART NO.	QTY	DESCRIPTION
1	BRCE0029002	1	Slide Rod Side Plate (Left Side)
2	FRME00356002	1	Slide Rod Side Plate (Right Side)
3	HDWE011770E0	1	H.H.C.S. 1/2" x 4" Grade 5
4	HDWE011780E0	1	H.H.C.S. 1/2" x 4-1/2" Grade 5
5	HDWE030730E0	2	Convex Locknut 1/2"
6	UBOT000060E2	2	6-5/8" DIA. U-Bolt
7	HDWE04006000	4	Lockwasher - 5/8"
8	HDWE03012000	4	Hex Nut - 5/8"
9	HDWE581370E0	2	Hammer Hit Rivet 3/8" x 11/16"

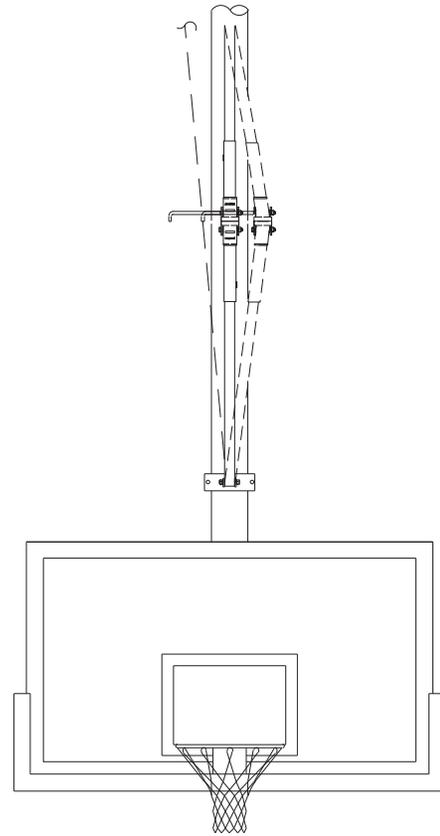
ADJUSTABLE HINGE SLEEVE

APPLIES TO: 923, 949, 950, 951, 952, 955

GENERAL GUIDELINES ON POWR-LOK® ADJUSTABLE HINGE SLEEVE (JACKKNIFE BRACE) INSTALLATIONS

Installation of folding braces is a relatively straight-forward procedure, but it can be complicated by a change in field conditions not indicated at the time of field check. If a change in attachment height, or unknown obstructions such as a duct, light or sprinkler line necessitate a revision to the folding dimensions indicated on the project specific installation print, we recommend contacting the factory for revised folding dimensions. The preceding pages illustrate a "how to" on installing and securing the POWR-LOK® adjustable hinge sleeve. Following is a guide to trouble shoot and make modifications to an improperly folding unit.

The fold of a jackknife front or rear brace is to be free of any mechanical bind. After initially securing the hinge sleeve with set screws, operate the unit and visually inspect the operation by standing in front (or behind) the backstop, ensuring when the brace initially "breaks" from the cable tension, the entire brace assembly stays in alignment. Should the brace stray or initially "pop" to the left or right, there is a bind in the operation. Refer to the following pages for self setting the brace halves. Should this not eliminate the bind, check to make certain the dimensional parameters that follow have been achieved.



The diagrams illustrate critical dimensional parameters that must be met to ensure a proper folding operation. This does not supersede your project specific installation prints, and also does not account for the multiple variations of both one and three pulley set-ups provided by PORTER.

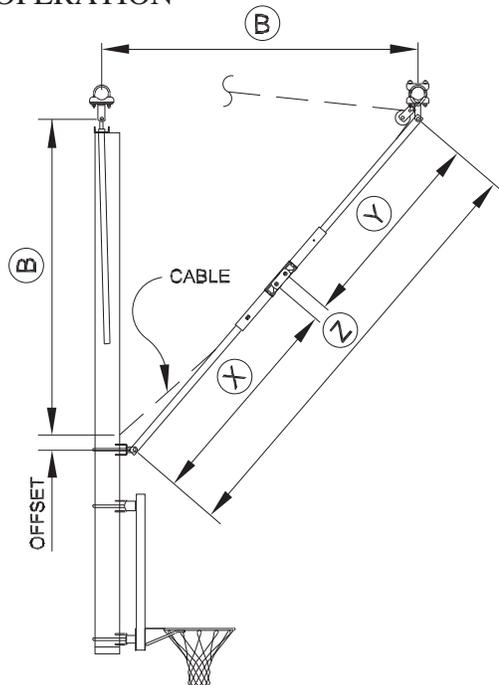
ADJUSTABLE HINGE SLEEVE INSTALLATION ("X" AND "Y" DIMENSIONS)

APPLIES TO: SEE BELOW

LEVEL CONDITION PULLEY OPERATION

(ALL DIMENSIONS ARE TO HINGE POINTS AND CABLE TIE-OFF)

MAST TIE-OFF, SINGLE
PULLEY OPERATION



B = Mast hanger hinge point to cable tie-off.
This dimension must equal the horizontal distance of mast hanger hinge point to front (or rear) brace hanger hinge point.
(See page 19 for non-level "B" dimension calculations)

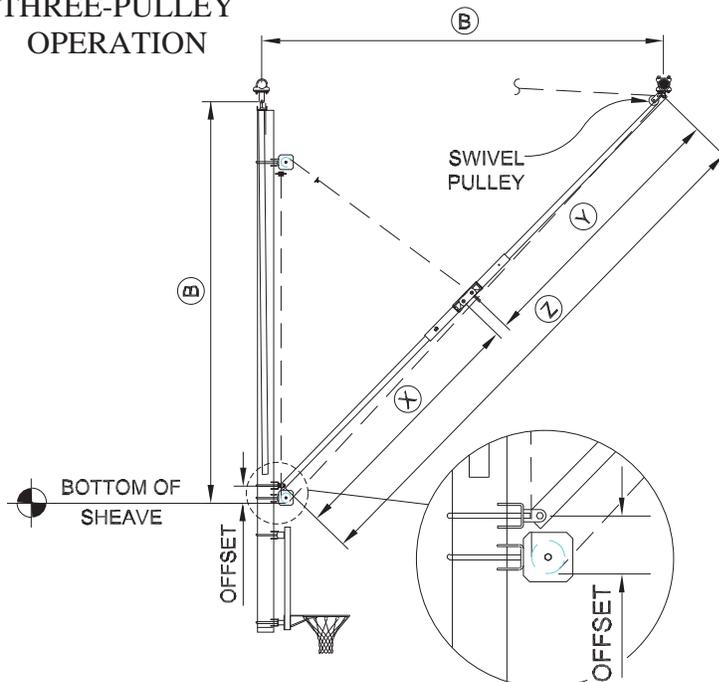
OFFSET = Vertical distance from the brace hanger hinge point at the mast junction to the cable tie-off.

$$X = (1/2(Z - 3'')) + (1/2 \text{ OFFSET})$$

$$Y = (1/2(Z - 3'')) - (1/2 \text{ OFFSET})$$

APPLIES TO: (UNDER 28' ONLY) 923, 949, 950, 951, 952, 955; (ALL) 523, 549, 623, 649, 1423, 1449

THREE-PULLEY
OPERATION



The "B" dimension is calculated as detailed for units with the typical mast tie-off. In lieu of the mast tie-off elevation, the lower pulley sheave elevation is used.

$$X = (1/2(Z - 3'')) - (1/2 \text{ OFFSET})$$

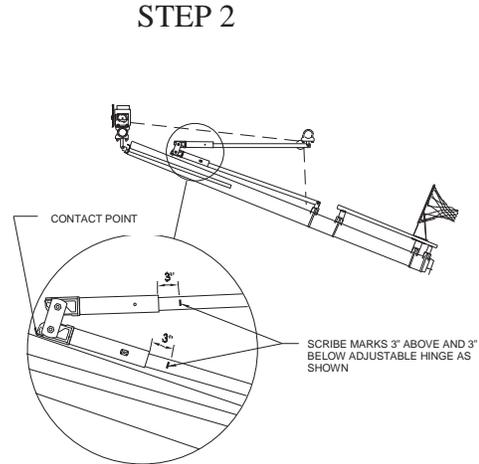
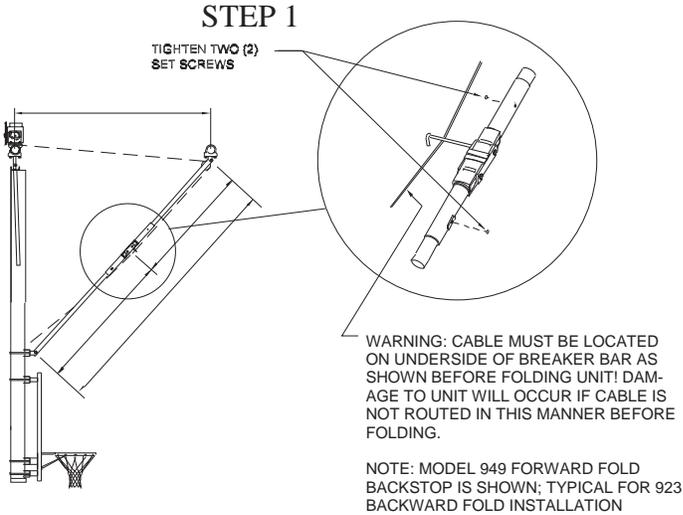
$$Y = (1/2(Z - 3'')) + (1/2 \text{ OFFSET})$$

APPLIES TO (OVER 28' ONLY): 923, 949, 950, 952, 955

900 LINE ADJUSTABLE SLEEVE

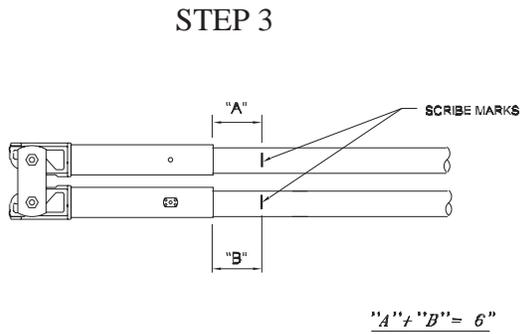
APPLIES TO: 923, 949, 950, 951, 952, 955

INSTALLATION INSTRUCTIONS

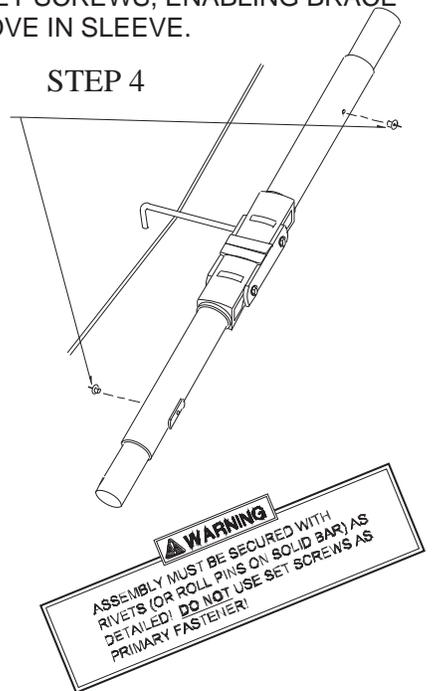


SET THE FRONT/REAR BRACE DIMENSIONS AS DETAILED ON THE INSTALLATION DRAWING. SET THE BRACE DIMENSIONS FROM HINGE POINTS, NOT PIPE LENGTHS. TIGHTEN THE TWO (2) SCREWS (AS DETAILED).

FOLD BACKSTOP UNTIL HINGE SLEEVE COMES IN CONTACT WITH MAST. IMMEDIATELY STOP UPWARD TRAVEL OF BACKSTOP AT THIS POINT. SCRIBE MARKS AS DETAILED AND RELEASE THE TWO (2) SET SCREWS, ENABLING BRACE HALVES TO MOVE IN SLEEVE.



DRILL ONE WALL OF BRACE TUBES THROUGH PILOT HOLES AS SHOWN AND SECURE WITH TWO (2) 5/16"x7/16" LG. HAMMER HIT RIVETS



NOW CONTINUE TO HOIST THE BACKSTOP TO THE MAXIMUM "UP" POSITION. AT THIS POINT ADJUST THE SLEEVE ASSEMBLY SO THAT THE TOTAL OF DIMENSIONS "A" PLUS "B" EQUALS EXACTLY 6". EXAMPLE ("A") 2-1/4" PLUS ("B") 3-3/4" EQUALS 6". TIGHTEN THE TWO SET SCREWS AND OPERATE BACKSTOP THROUGH A COMPLETE FOLDING CYCLE.

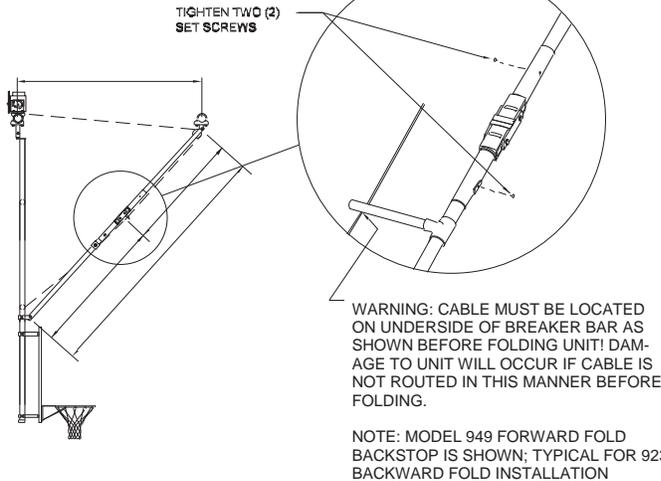
AFTER INSURING PROPER FOLDING ACTION OF BACKSTOP, PERMANENTLY SECURE HINGE AS SHOWN WITH THE RIVETS PROVIDED.

500 AND 600 LINE ADJUSTABLE SLEEVE

APPLIES TO: 523, 549, 623, 649, 1423, 1449

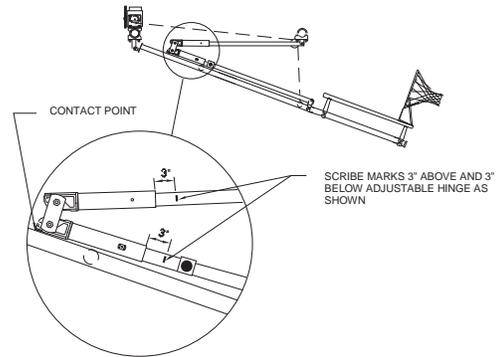
INSTALLATION INSTRUCTIONS

STEP 1



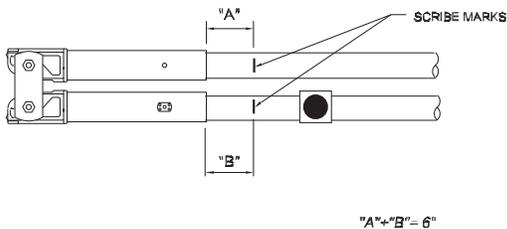
SET THE FRONT/REAR BRACE DIMENSIONS AS DETAILED ON THE INSTALLATION DRAWING. SET THE BRACE DIMENSIONS FROM HINGE POINTS, NOT PIPE LENGTHS. TIGHTEN THE TWO (2) SCREWS (AS DETAILED).

STEP 2



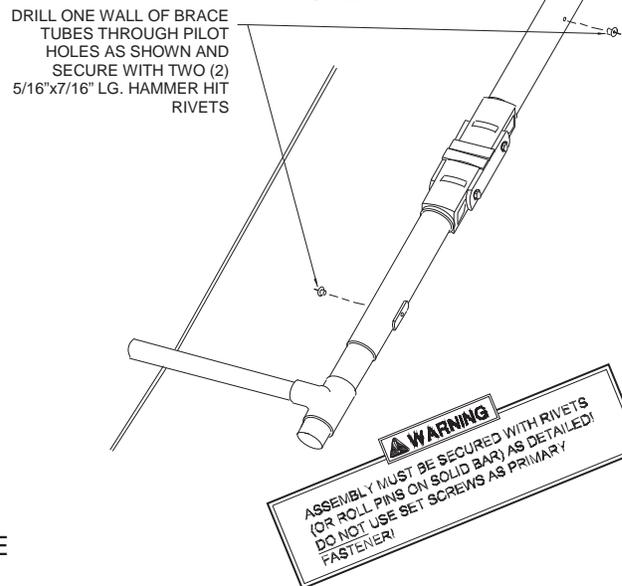
FOLD BACKSTOP UNTIL HINGE SLEEVE COMES IN CONTACT WITH MAST. IMMEDIATELY STOP UPWARD TRVEL OF BACKSTOP AT THIS POINT. SCRIBE MARKS AS DETAILED AND RELEASE THE TWO (2) SET SCREWS, ENABLING BRACE HALVES TO MOVE IN SLEEVE.

STEP 3



NOW CONTINUE TO HOIST THE BACKSTOP TO THE MAXIMUM "UP" POSITION. AT THIS POINT ADJUST THE SLEEVE ASSEMBLY SO THAT THE TOTAL OF DIMENSIONS "A" PLUS "B" EQUALS EXACTLY 6". EXAMPLE ("A") 2-1/4" PLUS ("B") 3-3/4" EQUALS 6". TIGHTEN THE TWO SET SCREWS AND OPERATE BACKSTOP THROUGH A COMPLPETE FOLDING CYCLE.

STEP 4

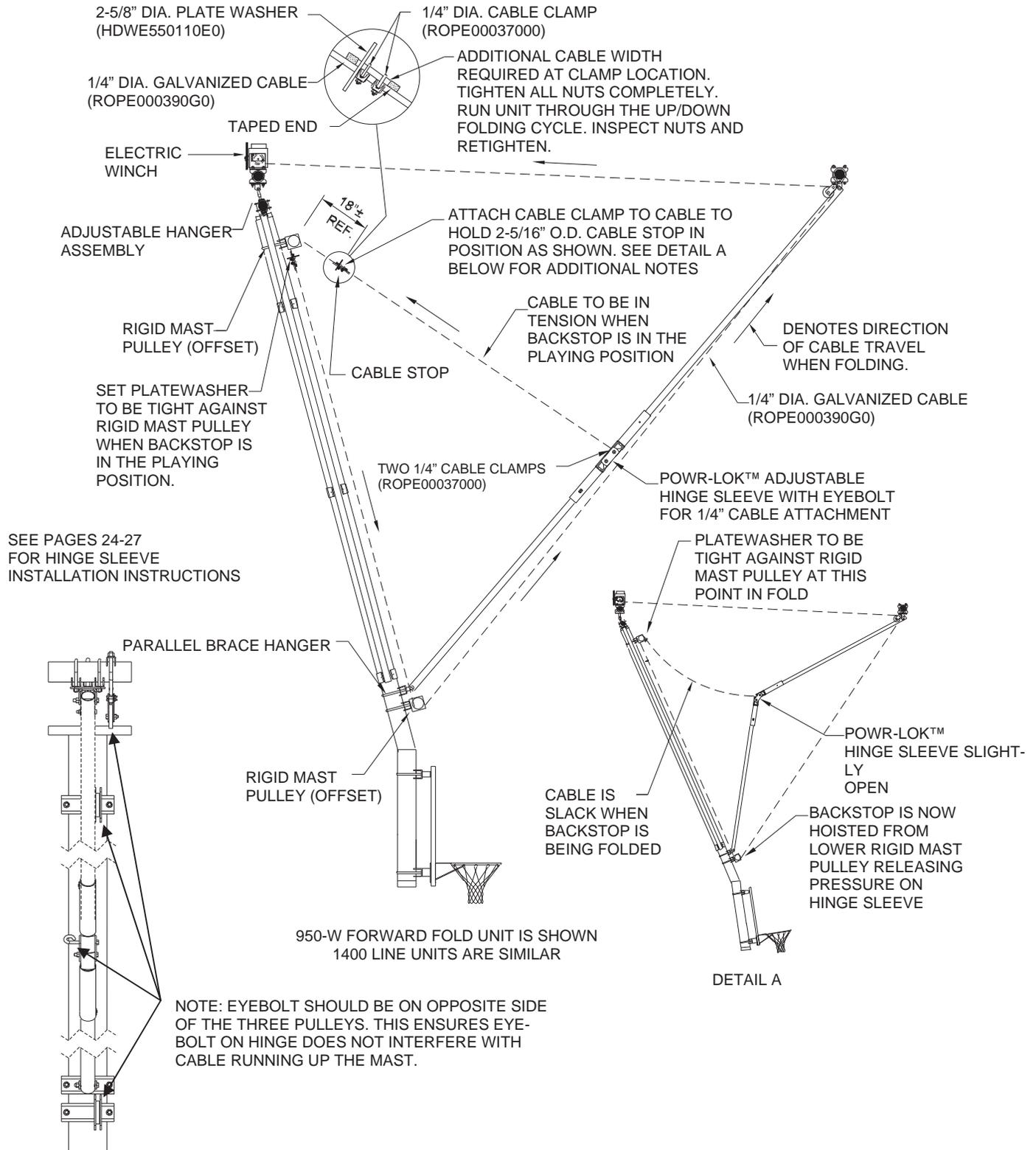


AFTER INSURING PROPER FOLDING ACTION OF BACKSTOP, PERMANENTLY SECURE HINGE AS SHOWN WITH THE RIVETS PROVIDED.

THREE PULLEY HOISTING SYSTEMS

APPLIES TO (OVER 28' ONLY): 923, 949, 950, 952, 955

INSTALLATION INSTRUCTIONS (ON INSTALLATIONS ABOVE 28' WITH HINGED BRACES)



 **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.

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INSTALLER NOTES

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SAVE THESE INSTRUCTIONS FOR FUTURE USE

