
232-SP Series Heavy Duty Tall Stands



Assembly & User's Manual



Helping the World Measure TM



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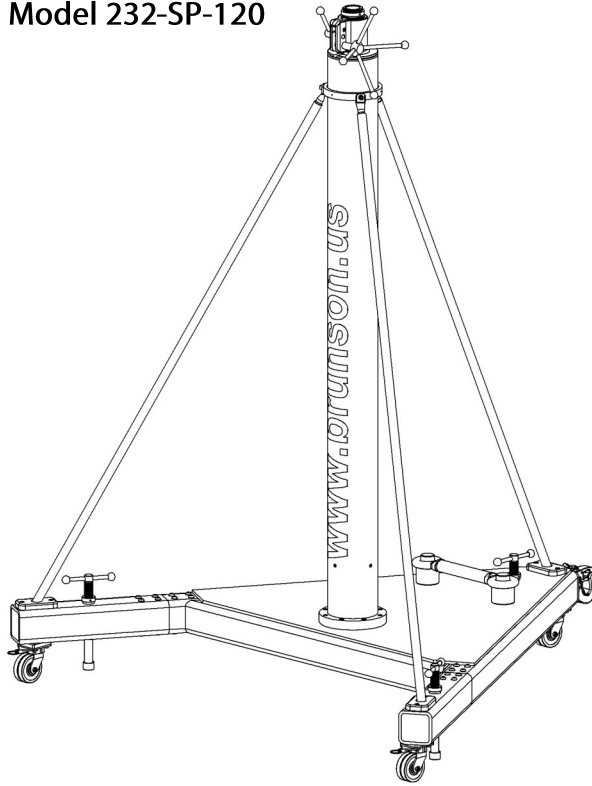
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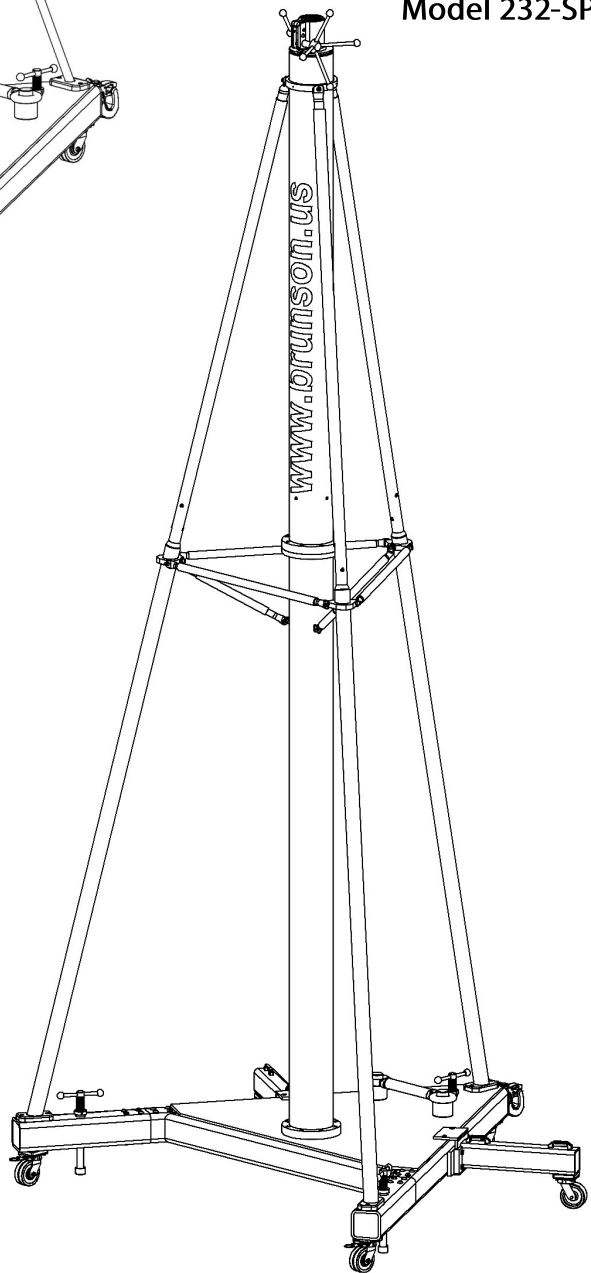
Thank you for purchasing a Brunson Heavy Duty Tall Stand.

Remember that our customer support does not stop after shipment of a product—we are here to help you with any measurement challenges that you may have.

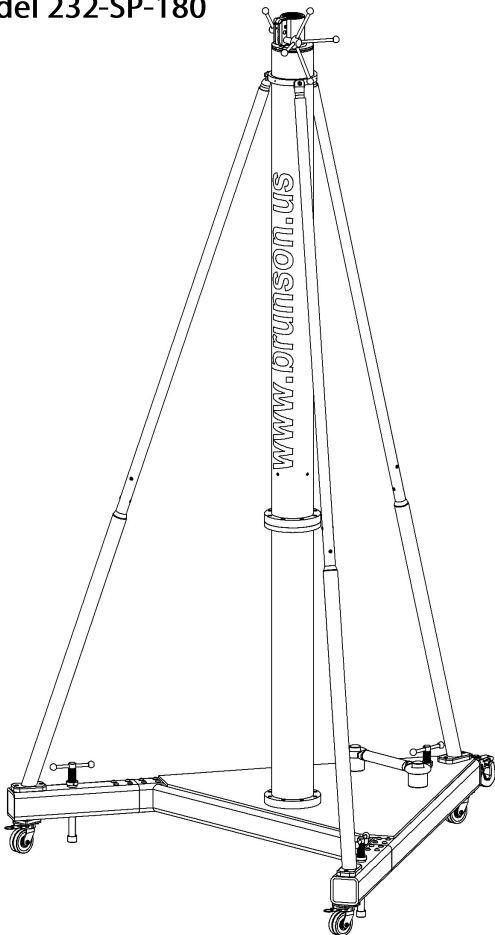
Model 232-SP-120



Model 232-SP-240



Model 232-SP-180



232-SP Series Heavy Duty Tall Stands

Congratulations and thank you for your purchase of a Brunson Heavy Duty Tall Stand. We believe that our stands are the finest available, providing a rock-solid base to meet all of your metrology needs. We have been in the measurement industry since 1927, so we fully understand the importance of a stable, rugged, and durable metrology platform. At Brunson, HELPING THE WORLD MEASURE™ is more than our motto; it truly reflects our passion and dedication to the metrology world.

General Information

Please take a moment to review this manual. It contains important safety and operational information for the stand. Refer to Figure 1 for part names referenced in the instructions. Finally, for future reference, please record the model and serial number for the stand in the space provided.

Model Number _____

Serial Number _____

Static (non-moving) stability:

Safety Precautions

- These stands are designed for level surfaces. Operating a stand on non-level surfaces increases the tipping hazard.
- Instrumentation / equipment used with the stand should be centered over the axis of the intermediate Tube. Extending unbalanced loads from the centerline axis increases the tipping hazard.

Dynamic (moving) stability:

- Stands should only be moved when no instrumentation / equipment is attached and the intermediate tube is in its fully retracted (lowest) position).
- Stands should be moved no faster than a normal walking pace over smooth, level surfaces. Tall stands can be moved by manually pushing or pulling, or by towing with a powered vehicle.

TO MINIMIZE THE TIPPING HAZARD, DO NOT MOVE THE STAND FASTER THAN THE SPEED INDICATED ON THE YELLOW WARNING LABEL ON THE BASE.

- Avoid sudden starts and stops.

One stand model (232-SP240) include two outriggers that enhance dynamic stability. Ensure outriggers are securely extended prior to moving the stand (as described later in this manual).

These stands are designed for indoor use only. Wind (or other external) loading was not considered when determining stability.

Do not exceed the load capacity of the stand for any attached instrumentation / equipment. The maximum load capacity is listed in Table 1.

It is the responsibility of the end user to ensure that any instrumentation or equipment attached to the stand is safely secured.

Model	Stand weight		Max load capacity	
	lbs	Kg	lbs	Kg
232-SP-120	2400	1080	150	68
232-SP-180	2900	1315	150	68
232-SP-240	3300	1497	150	68



WARNING!

This is the safety alert symbol. This symbol alerts you to hazards that can hurt you and others, and/or cause damage to equipment. Additional information specific to the hazard will be included with this warning.

Unpacking and Setup

The components for this stand are shipped in several crates. Please refer to the following instructions for guidance on stand assembly and setup.

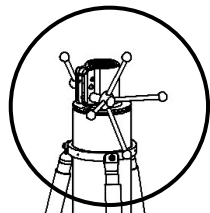
Required Tools:

- Overhead crane or forklift - 23 ft. [7m] ground clearance for 232-SP240-0; 18 ft. [5.5m] for 232-SP180-0; 15ft. [4.5m] for 232-SP120-0, 1000 lbs. [450 kg] minimum lift capacity.
- Man Lift - 23 ft. [7m] for 232-SP240-0; 18 ft. [5.5m] for 232-SP180-0; 15ft. [4.5m] for 232-SP120-0
- Torque wrench - 60 ft. lbs. [81 Nm] minimum
- Allen wrench set. (imperial)
- Wood blocks (2)

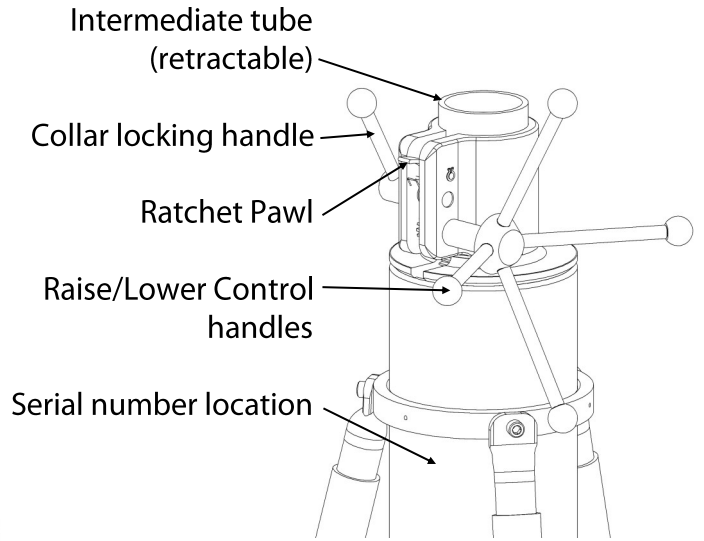
Torque Specifications:

- 1/2-13 fasteners - 27 ft. lbs. [37Nm]
- 5/8-11 fasteners = 54 ft. lbs [73 Nm]
- Shoulder bolts - N/A, hand tight + 1/4 turn

(The 232-SP240 is illustrated here, but other models in this family are substantially similar.)

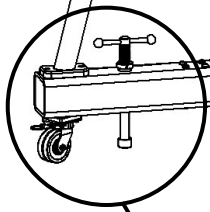


Refer to Detail 1

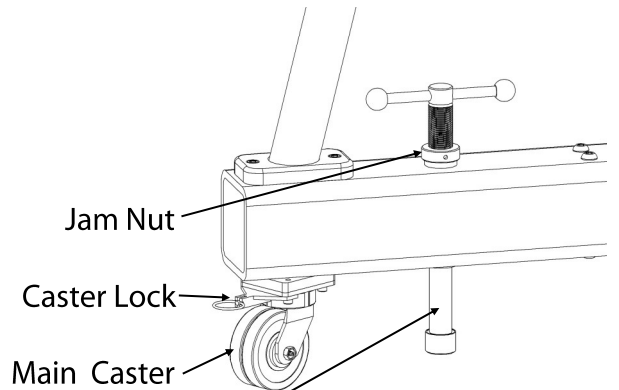


Detail 1

Braces (3)



Refer to Detail 2



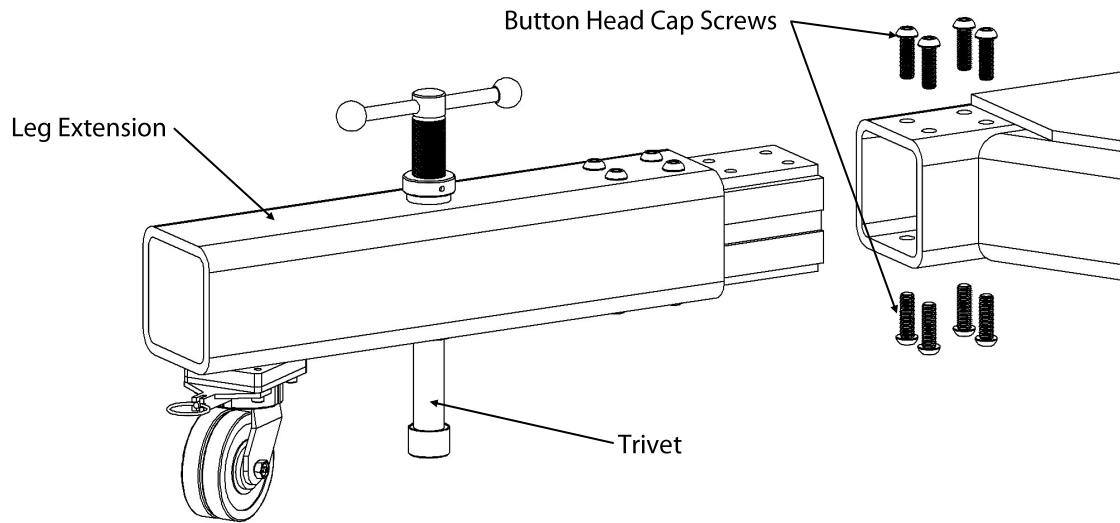
Detail 2

Towbar (shown stowed)

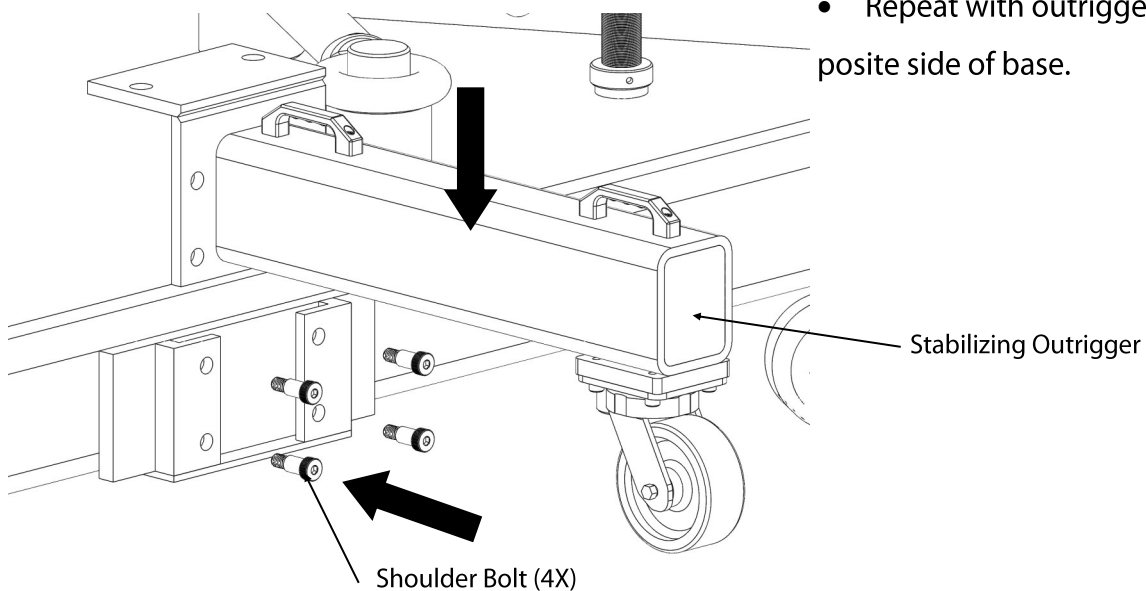
Outriggers (2)
(not supplied on all models)

Base Assembly

- Before removing the base from the crate, install the leg extensions by sliding into main base and installing 5/8-11 button head cap screws.
- Repeat for the other leg extension.



- Use overhead lifting device to remove base from crate (approx. 1000lbs. [450 kg]).
- Lower trivets to prevent base from rolling.
- Install outrigger (232SP-240 only) in stabilizing position. Install and tighten 5/8" shoulder bolts (4 places).



- Repeat with outrigger on opposite side of base.

Upright Post

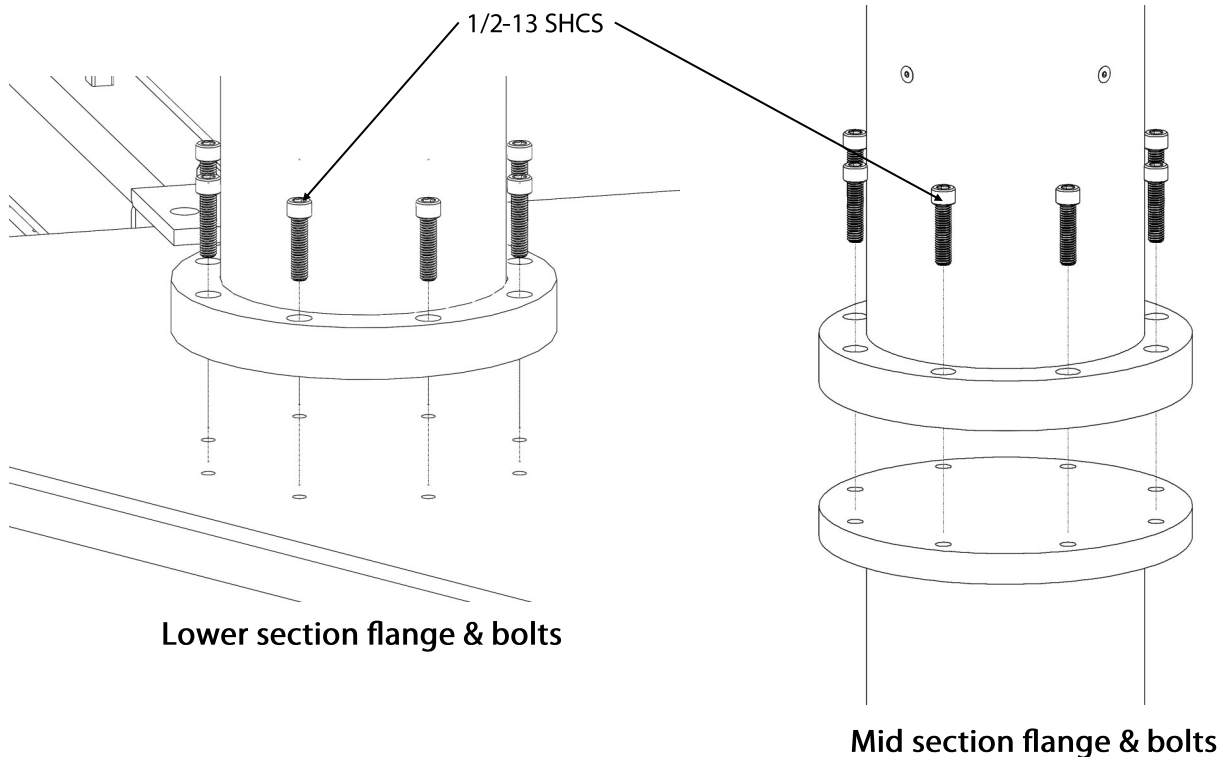
Caution: Lifting the upright post should be performed by skilled personnel only.

Caution: Do NOT remove lifting device until all bolts and braces are tightened.



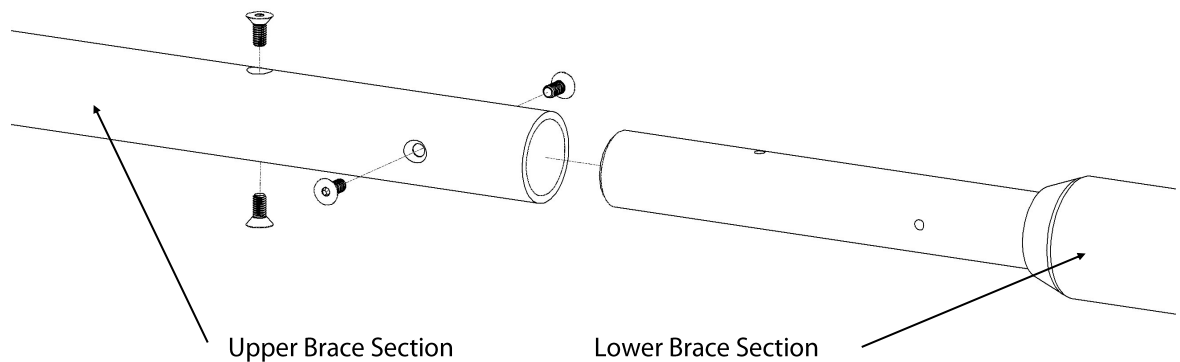
WARNING!

- Use overhead lift to raise the bottom section into place. The front of the round mounting flange should be marked with a scribe line or stamp that aligns to a corresponding mark on the base. Ensure the lower section is indexed correctly when mounting.
- Install and tighten 1/2-13 SHCS into the base. Torque the bolts.
- Use overhead lift to raise the upper section (232-SP180 and 232-SP240) into place. The front of the mounting flange should be marked with a scribe or stamp that aligns to a corresponding mark in the mating flange. The crank and rack assembly should be centered on the open side of the V created by the base. Ensure the upper section is indexed correctly.
- Install and tighten 1/2-13 SHCS into the mid-height mounting flange. Torque the bolts.

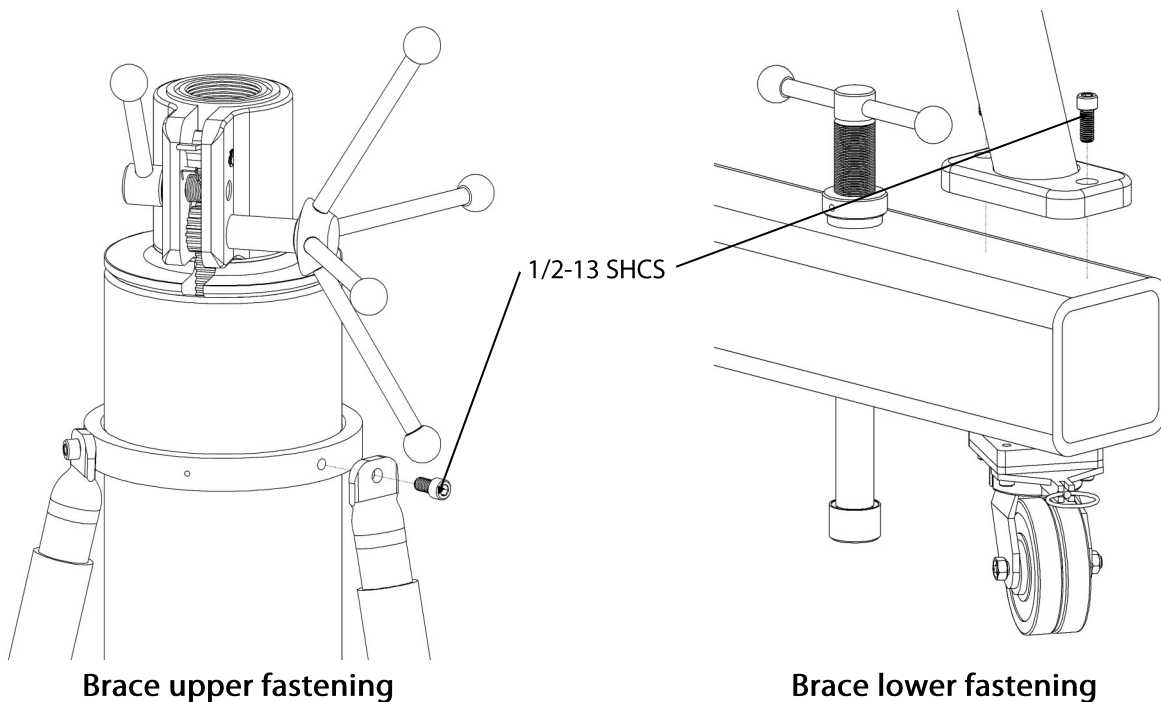


Braces & Truss System

- The three braces ship as six components (232-SP180 & 232-SP240); 232-SP120 braces are fully assembled. Assemble the top and bottom half of each of the three braces with provided screws. Each brace is stamped with an ID mark. Ensure the top and bottom piece IDs match before assembling.

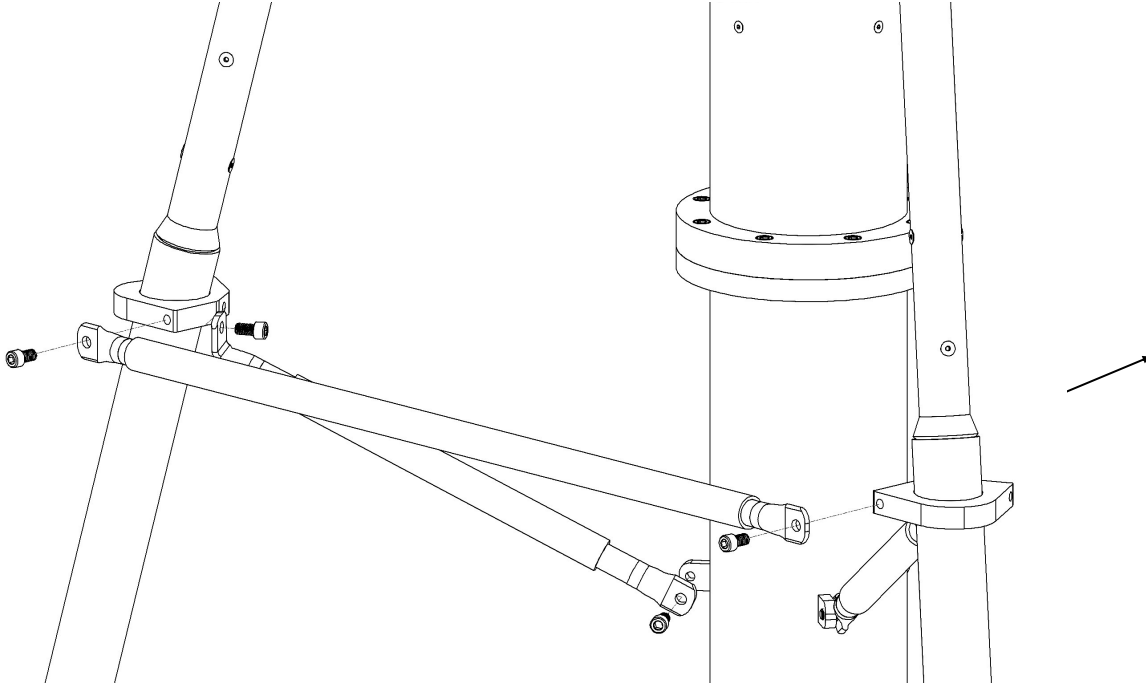


- Install braces to corresponding mounting brackets using 1/2-13 SHCS. Braces are numbered and should be matched to corresponding mounting location before lifting to be installed.
- Install the top bolt first followed by the two bottom bolts. Tighten all three bolts until snug.
- Repeat for all three braces making sure to match the stamped ID to the mounting holes.



Braces & Truss System

- Loosely assemble all 3 sets of the truss system components (232-SP240 only). Only one set is shown for clarity. Note: truss components are ID stamped for placement in a similar manner to the braces.



- After all truss components are in place snug all bolts.
- Perform the final torque check on all brace bolts including upper and lower mounts.
- Release the overhead lift.

Moving & Positioning Your Stand

Be sure that the intermediate tube is in its lowest position and that no instrument/ equipment is attached to the top of the stand. Be certain that the trivet bolts are retracted not only to engage the casters but also for sufficient clearance over any small obstacle that may be encountered when the stand is moved.

The stand may be manually pushed or pulled, or towed behind a powered vehicle. For towing, attach the towbar to the tribrach coupler.



WARNING!

TIPPING HAZARD

Only move the stand over smooth, level surfaces, with the intermediate tube in its lowest position and no instrumentation / equipment attached. Avoid sudden starts and stops. Move the stand by manually pushing or pulling (no faster than a walking pace), or by towing with a powered vehicle. **TO MINIMIZE THE TIPPING HAZARD, DO NOT MOVE THE STAND FASTER THAN THE SPEED POSTED ON THE YELLOW WARNING LABEL ON THE TRIBRACH.**

TIPPING HAZARD

If outriggers were included, be sure that they are installed and adjusted properly prior to moving the stand

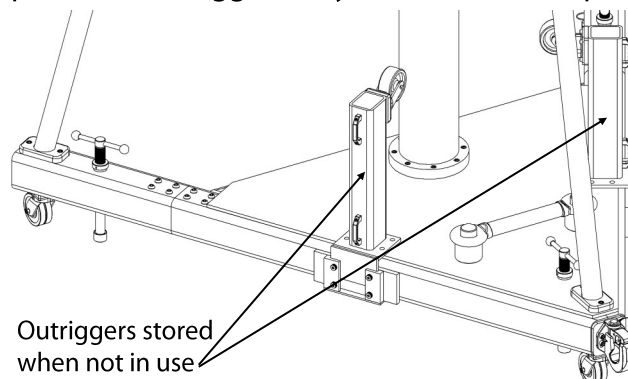
When the stand is in the desired position, extend the three trivet bolts until they contact the floor, and adjust to achieve the required height. Lock the trivet bolts in place by tightening the jam nut.

CRUSHING HAZARD

Stands are very heavy! Prior to lowering the stand, ensure area below Tribrach is clear of all obstacles.

After the stand is secured the final location, with trivet bolts locked in place, the outriggers may be removed and placed in their storage position. This can be done in order to facilitate access around the stand.

This can be done in order to facilitate access around the stand. Remember that the stand should **never** be moved without the outriggers properly attached.



Outriggers stored when not in use

Outriggers may be stored in the vertical position in the mounting brackets, but only when the stand is not to be moved.

Stand Operation

With the intermediate tube fully retracted, attach the instrument to the stand.

Raise the collar locking handle until the intermediate tube can be raised easily by rotating the control handles.

To raise the intermediate tube, rotate the control handle counter-clockwise (when looking directly at the handle hub).

To lower the intermediate tube, release pressure from the ratchet pawl by slightly raising the intermediate tube, and then retracting and holding the ratchet pawl away from the rack. Rotate the control handle clockwise to lower the intermediate tube.

ROTATING HAZARD

The stands are equipped with an air-check mechanism to prevent rapid descent of the intermediate tube. However, until sufficient air pressure has built up, considerable force can be exerted by the free spinning control handle. Therefore, always lower the intermediate tube by applying a resistive force to the control handle.



WARNING!

When the desired height has been reached, lock the intermediate tube in place by rotating the collar locking handle down as firmly as possible by hand.

Test to see if the trivets are fully supporting the stand by rotating each caster by hand. If each caster does not move freely, loosen the jam nut and adjust the trivet near that caster downward. After adjusting, ensure that each jam nut is tight against the tribrach.

The stand is positioned and ready to use.

Upon completion of the job, raise the collar locking handle and lower the intermediate tube to the bottom of its travel, then remove the instrumentation / equipment from the stand.

Maintenance

Although the stands were designed for minimal maintenance, two items will help maximize service life:

- A small amount of Neats Foot oil injected through the collar opening on a yearly basis will keep the air cushion leather in good condition. This should be done with the intermediate tube in the fully extended position.
- A periodic wiping of the intermediate tube with a lightly oiled rag followed by wiping with a dry cloth will preserve the chrome finish.

**EU DECLARATION OF CONFORMITY
WITH COUNCIL DIRECTIVE 2006/42/EC**

<i>Date of Issue:</i>	3 June, 2015
<i>Document Ref:</i>	15190 Rev 3
<i>Directive:</i>	Machinery Directive 2006/42/EC
<i>Conforming Machinery:</i>	Manually Operated Lifting Stands - Models: 231-MOD Series: up to 26" 231 Series: up to 42" 233 Series: up to 54" 230 Series: up to 67" 232 Series: up to 112" 232-SP Series: up to 40' (480") 331 Series: up to 37" 333 Series: up to 50" 330 Series: up to 62" 332 Series: up to 112" M-Series Adjustable: up to 75" M-Series Fixed: up to 51" TetraLock: 400S and 400L Series 810-Series: up to 56" 801-1 Series: up to 51" 5030 Series: up to 52" 5035 Series: up to 17" 237 Series 'Groundhog'
<i>Manufacturer:</i>	Brunson Instrument Company 8000 E. 23rd St. Kansas City MO 64129 USA
<i>Authorised Representative:</i>	Carl Baines 6 Micklehead Business Village St. Michaels Road Lea Green, St. Helens WA9 4YU United Kingdom
<i>Harmonised Standards Referenced or Applied:</i>	EN ISO 12100:2010, EN ISO 13857:2008, ISO/TR 14121-2:2012
<i>Specifications with which Conformity is Declared:</i>	Essential Health and Safety Requirements of Annex 1 of the Machinery Directive
We hereby certify that the machinery described above conforms with the essential health and safety requirements of Council Directive 2006/42/EC on the approximation of the laws of the Member States relating to the safety of machinery.	
<i>Signed:</i>	<i>Deighton E. Brunson</i>
<i>Signatory:</i>	Deighton E. Brunson, President



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