

OPERATING INSTRUCTIONS

ASTRO E2200 HOIST



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The user must ensure that the equipment complies with local rules and regulations.*



WARNING

- **All persons** operating this equipment must read and completely understand this manual.
- **All persons** must be thoroughly trained in the use of this equipment, its operational and safety features, and they must also be capable of carrying out the daily inspections.
- Only authorized persons shall operate this equipment.
- Any operation in violation of these instructions is at the **operator's own risk** and **may result in serious injuries**.
- Keep this manual with the hoist at all times.
- Use only spare parts and recommended steel wire rope from Spider.
- It is the responsibility of the user of this hoist to determine that this hoist is suitable to be used in conjunction with any other equipment. The user must also determine that this hoist and other components used will be in strict conformity with the provisions of National, Provincial, and local ordinances and regulations.



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Symbol Legend

The following symbols found in this manual categorize important tasks related to operation and maintenance of this hoist:



= Inspect



= Verify



= Perform process



1. ABOUT THIS MANUAL







Before using the Astro E2200 hoist, learn the procedures described in this manual. Any operation in violation of these instructions may result in bodily injury or death.

This manual is included with each Astro E2200 hoist. Additional copies are available from your hoist supplier. Keep a current copy of this manual with the hoist at all times. It is the duty of the employer to provide each operator with a copy of this manual. Spider reserves the right to make changes or modifications to its hoists. Users of this equipment must request current operating information prior to using this equipment. Call your local hoist supplier.

The design and manufacturing of the Astro E2200 hoist complies with UL 1323 standards. The use of this Spider hoist within the United States is governed by OSHA CFR 29. Consult OSHA CFR 1926 for temporary applications and OSHA CFR 29 1910 for permanent applications.

A) SYMBOLS USED IN THIS MANUAL

This manual includes symbols that denote information that is important for hazard avoidance. Read carefully and follow all instructions when you see these symbols.

Symbol	Term	Meaning
	STOP	Stop action and follow instructions before continuing.
	WARNING	Warns against possible immediate death or serious injury.
	CAUTION	Warns against possible injury.
	ELECTRICAL HAZARD	Warns against possible electrical shock hazard.
	READ	Must read this before performing any action that follows.
	NOTE/TIP	Remember and take the following into account.



2. SAFETY

A) SAFETY INSTRUCTIONS

WARNING

Every year, workers are injured, become disabled, or are killed because of carelessness or because they did not understand how to correctly operate the equipment they were using. Do not become one of them. Know how to use this equipment and prevent accidents.

NEVER operate equipment that you do not understand. You may cause accidents, resulting in injury or death to you or people around you.

This instruction manual is not all-inclusive. It is impossible to anticipate every possible way this equipment may be used, and all possible hazardous situations. It is very important that you determine for yourself whether the equipment is safe. You must understand the operating characteristics of this hoist. You must understand how the hoist will operate in your application. You must be certain not to put yourself or others in danger, or cause damage to property or other persons. Call your hoist supplier if you have any questions concerning this equipment.

1. Read and understand this manual **BEFORE** using this equipment.
2. Setup and use must comply with Spider instructions and local codes.
3. Use the Troubleshooting Guide in this manual to solve problems that may develop with the hoist. Repairs must only be made by people trained and authorized to do so. **NEVER** maintain or repair the equipment while the unit is suspended (above ground level).

Operating the Hoist

4. Be careful when operating the hoist in freezing temperatures. Water or moisture may enter the hoist's overspeed brake or traction assembly. See "Cautions for Cold Weather Operation" on Page 27.
5. Be careful when operating the hoist in high winds. Consider stopping work or adding stabilization at wind speeds of 25 mph or more when working on a 2-line suspended platform. When working on a single line platform, stabilization should be used in winds above 20 mph. Avoid carrying large panels of material which can act like a sail in high winds.
6. If you hear any strange noises, or if the hoist does not appear to work normally, stop using it immediately. Do not continue to use the equipment until it is repaired.



7. Do not reset the overspeed brake until you have first read and completely understood the Troubleshooting Guidelines (beginning on Page 30) in this manual.
8. Do not remove any parts from the hoist without replacing them. Do not change or substitute any approved hoist parts for parts that do not meet manufacturer's specifications. Do not modify this hoist without prior approval from Spider. Modifications can put you in danger if not done correctly. Making modifications can also void any manufacturer's warranty and make you liable for any damage.
9. Maintain clearances and make sure no obstructions interfere with vertical travel.
10. When not in use, store hoist and platform where they will be protected from unauthorized use. Always unplug power cord when not in use and equipment is left unattended. For long-term storage, store the hoist indoors in a temperature- and humidity-controlled environment.
11. Only authorized and properly trained personnel shall operate this hoist. Each operator must determine his own fitness to operate this hoist. Consult your doctor if you are in doubt. Each operator must be free of the influence of alcohol or drugs.

Suspended Scaffolds

12. **WARNING!** Do not use suspended scaffolds unless:
 - a. You are wearing a personal fall arrest system that meets or exceeds your application requirements.
 - b. You have personally made sure that:
 - i. the roof support system is complete, properly assembled, counterweighted (or otherwise anchored), tied off, and not overloaded; and,
 - ii. hoists and platforms are not overloaded.
 - c. The wire rope is free of defects and is the size and type specified for the hoist;
 - d. Guardrails and toe boards are properly installed;
 - e. The main suspension wire rope is vertical.
13. Use approved personnel harnesses, lanyards, rope grabs, and independent lifelines at all times. Attach the lifelines to a structural member of the building or structure, never to part of the rigging unless specifically designed for this purpose.
14. Comply with all local, provincial and federal safety codes and equipment instructions.
15. Do not allow anyone under suspended equipment. If necessary, provide protection below the suspended equipment to prevent injury to people from falling objects. Use lanyards to secure tools and materials from falling on personnel below.



Wire Rope

16. Inspect the wire rope before rigging. Handle, inspect, and maintain wire rope carefully during and after each job. Lubricate the wire rope according to the manufacturer's recommendations.
17. Do not use visibly worn, kinked, bird-caged, undersized, or damaged wire rope. Protect wire rope from sharp or abrasive edges of the building. Do not use wire rope that has been exposed to fire, excessive wear, corrosive atmosphere, chemicals, passage of electric current, or temperatures above 200° F. For additional wire rope use instructions, refer to "Wire Rope" on Page 10.

Welding/Electrical Cautions

18. When welding from a suspended scaffold, provide proper electrical grounding for the hoist.
19. Ensure platform is grounded to the structure.
20. Insulate wire rope 4 feet above and below the platform.
21. Insulate wire rope at suspension point and ensure that the wire rope cannot come in contact with the structure at any point along its entire length, including the tail line.
22. Cover the hoist with an insulating material.
23. Avoid power lines. Make sure the platform or hand tools cannot swing or be blown within a minimum of 10 feet of a power line. Check your local codes for minimum distances. Never, under any circumstances, rig a platform above electrical power lines.

Corrosive/Explosive Environments

24. Never operate an electric hoist in an explosive atmosphere such as a refinery, chemical plant, grain elevator, distilleries, ship or silo interiors, mines, around coal handling equipment, or around explosive organic vapors or dust.
25. Never use hoists and aluminum platforms around caustic materials, acids, or acid fumes. Use hoist covers when corrosive materials are present.



B) HAZARD WARNINGS

WARNING

If the hoist is suspended in the air and the motor runs but the wire rope does not move through the hoist, STOP the hoist immediately! Damaged wire rope may be jammed inside the hoist. Any attempt to move the hoist up or down could damage equipment or cause injury or death.

There are many hazards when working on a suspended scaffold. The following is a list of common hazards. This list is not complete! It is provided to increase safety awareness on the job site.

C) MECHANICAL HAZARDS

- CRUSHING between the platform and the building or structure.
- CUTTING or severing between moving machine parts.
- LOSS OF RIGGING STABILITY because of one or more of the following:
 - Insufficient counterweight or counterweights not properly fixed;
 - Inadequate mechanical strength;
 - Increase in vertical load on suspension wire because the platform encounters an obstacle, the platform overloads, or the suspension wire rope breaks;
 - Platform catches on overhang when going up.
- FALLING
 - from the platform when working;
 - by using a wire rope that is too short;
 - if the platform is not strong enough for the weight and breaks;
 - if wire rope or platform interconnections fail;
 - rigging failure can cause falling.
- IDLING due to loss of traction.
- JAMMING due to damaged wire rope.

D) ELECTRICAL HAZARDS

- Failure of the electrical supply may delay travel of the platform.
- Control system failure can cause unwanted/unexpected movement of the platform.
- Improper power supply (voltage or frequency) may damage the hoist.



E) ENVIRONMENTAL HAZARDS

- Consider and prepare for the effects of climate: heat/cold/ice/wind.
- Sandblasting and acid wash procedures may introduce special concerns. These procedures may adversely affect the immediate health of an operator and may pose serious risks to the hoist and other equipment being used.

F) HAZARD PREVENTION

- All electrical connections must be locked and supported by strain relief devices.
- Make sure the electrical cord and wire rope are long enough to allow full travel of the suspended equipment.

G) WIRE ROPE WARNINGS

- Use protective gloves to handle the steel wire ropes.
- Use only Spider-approved steel wire rope.
- Refer to the next section for more detailed instructions on wire rope care and use.



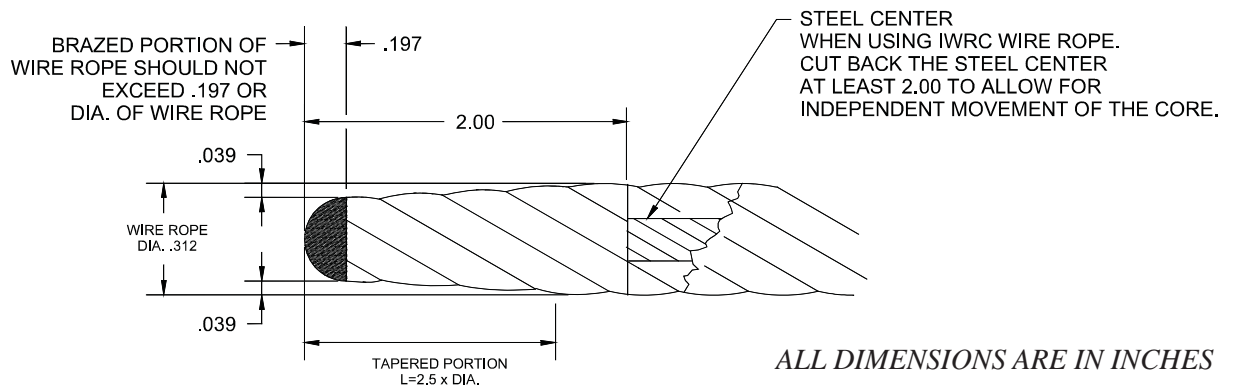
3. WIRE ROPE

A) WIRE ROPE LUBRICATION

Wire rope requires lubrication under normal conditions. Lightly lubricate it with a wire rope lubricant specified by the wire rope manufacturer on a monthly basis, or more often if necessary.

B) WIRE ROPE TERMINATIONS

1. To prepare the end of IWRC wire rope for insertion, cut back the steel center at least 2" (50 mm) to allow for independent movement of the core. Braze and rough shape the end of the wire rope to form a smooth, tapered, bullet shape no more than 1/4" (6 mm) long. Do NOT cool the end of the hot wire rope in water or oil as this makes the end brittle and may cause it to break off. Oil the bullet after it cools to prevent rusting.



2. Use a heavy-duty thimble for the primary suspension wire rope and follow the manufacturer's requirements for termination of the wire rope hardware that you are using.
3. In situations where it is not possible to lower the platform to the ground, secure the tail line with a suspension loop, as shown below, to prevent the platform from sliding off the suspension ropes. Before rigging in such a situation, consult a safety professional.



c) WIRE ROPE CAUTIONS

1. Wire rope stretches when loaded, which reduces the diameter. Wire rope begins to wear the moment it is used. It must be regularly inspected to be sure it is in good condition. Wire rope must be removed from service when diameter loss or wire breakage occurs, as detailed in ANSI A10.4.
2. Be sure there is enough wire rope to reach the lowest possible point of travel.
3. Do NOT expose the wire rope to fire, temperatures above 200° F (94° C), passage of electrical current, corrosive atmospheres, or corrosive chemicals. Such exposure will make the wire rope unsafe.
4. Acids will corrode and reduce the strength of both inner and outer stands. If wire rope has been exposed to corrosive chemicals, it MUST be discarded upon completion of the project, or sooner if damage is evident. Do NOT save wire rope that has been in contact with corrosive substances. When in doubt, replace the wire rope.



D) WIRE ROPE INSPECTION

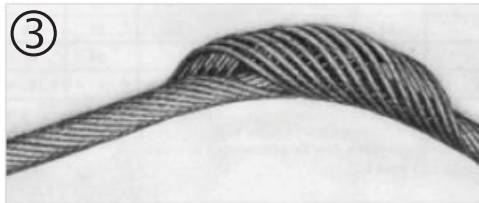
The need for replacement of suspension wire ropes shall be determined by regular inspection and shall be based on the condition of the wire rope inspected. Wire rope in active service should be visually inspected **once every working day**. A thorough inspection shall be made once a month, or before each use if the suspension wire ropes have been inactive for 30 days or longer and are placed into service. Dated and signed monthly reports indicating the condition of the ropes found during inspections must be kept.

Any of the following conditions, or combination of conditions, shall be considered as sufficient reason for the removal of the wire rope from service:

- Wire rope with one or more of the following defects shall be removed and replaced immediately:
- Whenever there is severe corrosion. Any development of slight corrosion shall be noted and watched closely;
- Whenever there are broken wires, as follows:
 1. When there is more than one valley break. A valley break is a wire break occurring in the valley between two adjacent strands.
 2. When there are six (6) randomly distributed broken wires in one rope lay or three (3) broken wires in one strand in one rope lay. (A rope lay is the length along the rope in which one strand makes a complete revolution around the rope.)
- Whenever there are broken wires in the vicinity of attachments. If this condition is localized in an operating rope, the section in question may be eliminated by making a new attachment. This may be done instead of replacing the entire rope.
- Whenever there is abrasion, scrubbing, flattening, or peening that causes loss of more than one third of the original diameter of the outside wires.
- Whenever there are severe kinks, crushing, bird-caging, or other damage resulting in distortion of the rope structure.
- Whenever there is evidence of any heat damage resulting from a torch or caused by contact with electrical wires; and
- Whenever the reduction from the nominal diameter of the rope is:
 1. More than 1.2 mm (0.047 in) for diameters up to and including 20 mm (0.78 in)
 2. 1.5 mm (0.059 in) for diameters 22 to 28 mm
 3. 2.5 mm for diameters 32 to 40 mm.
- Always inspect the wire rope termination and refer to the manufacturer's inspection procedures.

3. Steel wires ropes must be replaced under *any* of the following conditions:

- More than 10 wires are broken on a length of 10 in. (240 mm);
- Excessive corrosion;
- Damage due to heat;
- Reduction of the nominal diameter by more than 10%;
- Kinking (see ① below), crushing (see ② below), bird caging (see ③ below) or any other distortion of the wire rope structure.



4. THE SPIDER ASTRO E2200 HOIST

The Spider Astro E2200 hoist is used to raise, support and lower suspended scaffolds and work cages on, or in, buildings and structures. If the hoist is used for any other purpose, you must take all necessary precautions to ensure that both the design and operation of the setup in which the hoist will be used will be hazard free, and that such use conforms to the manufacturer's specifications.



A) FEATURES OF THE ASTRO E2200 HOIST

Feature	Function	Benefit
Operating Range: 230 V, +/-10% OR 400 V, +/-10% (depending on model number)	<ul style="list-style-type: none"> Proven reliable performance from 207 to 253 run volts or 360 to 440 run volts, depending on which motor is used. Tested in 75 min. continuous run tests 	<ul style="list-style-type: none"> Reduces service calls Extends electric component life Eliminates power-induced down time Allows longer drops with yoked hoists Saves time and money
Load Sensitive Traction	<ul style="list-style-type: none"> Applies only the traction needed to lift load, not full 2,200 lbs (9.79 kN) lifting force on rope 	<ul style="list-style-type: none"> Greater tolerance of wire rope condition Saves wear and tear on rope, extends wire rope life Prevents costly wire rope jams in field
Voltage Indicator	<ul style="list-style-type: none"> Indicates voltage is flowing to unit 	<ul style="list-style-type: none"> Easy visual inspection can eliminate a service call
Built-in Overspeed Brake	<ul style="list-style-type: none"> Stops hoist in overspeed condition Can't be left behind in shop, bypassed, or dismantled 	<ul style="list-style-type: none"> Ensures greater operator safety Improved reliability
Controlled Descent	<ul style="list-style-type: none"> Allows downward travel at a controlled rate of speed in the event of power loss 	<ul style="list-style-type: none"> Eliminates need for rescue Allows self-rescue of workers and platforms
Remote Ready	<ul style="list-style-type: none"> Built-in pendant port accepts plug-in remote control Compatible with 700786-xx or 709854-xx series remotes 	<ul style="list-style-type: none"> No need to drill and wire remote into hoist Leaves hoist mounted controls operable
Built-in Secondary Wire Rope	<ul style="list-style-type: none"> Allows use of secondary suspension wire rope for required applications (double deck, overhead protection, some industrial applications) or to eliminate independent safety lines at very minor additional cost Designed to mount into hoist for maximum durability and security 	<ul style="list-style-type: none"> More versatile hoist ready for any application Eliminates possible loss /damage because it is built-in, rather than an added on Saves money because it is less expensive than other manufacturers' products



B) OPTIONAL FEATURES OF THE ASTRO E2200 HOIST

Feature	Function	Benefit
Optional Overload	<ul style="list-style-type: none">Will trip at 1.5 times the rated load: 3,300 lbs (1,500 kg)	<ul style="list-style-type: none">Reduces damage to equipment from excess loads
Optional Top Limit Switch	<ul style="list-style-type: none">Stops upward travel on contact with an overhead obstruction for special applications	<ul style="list-style-type: none">Easy installation

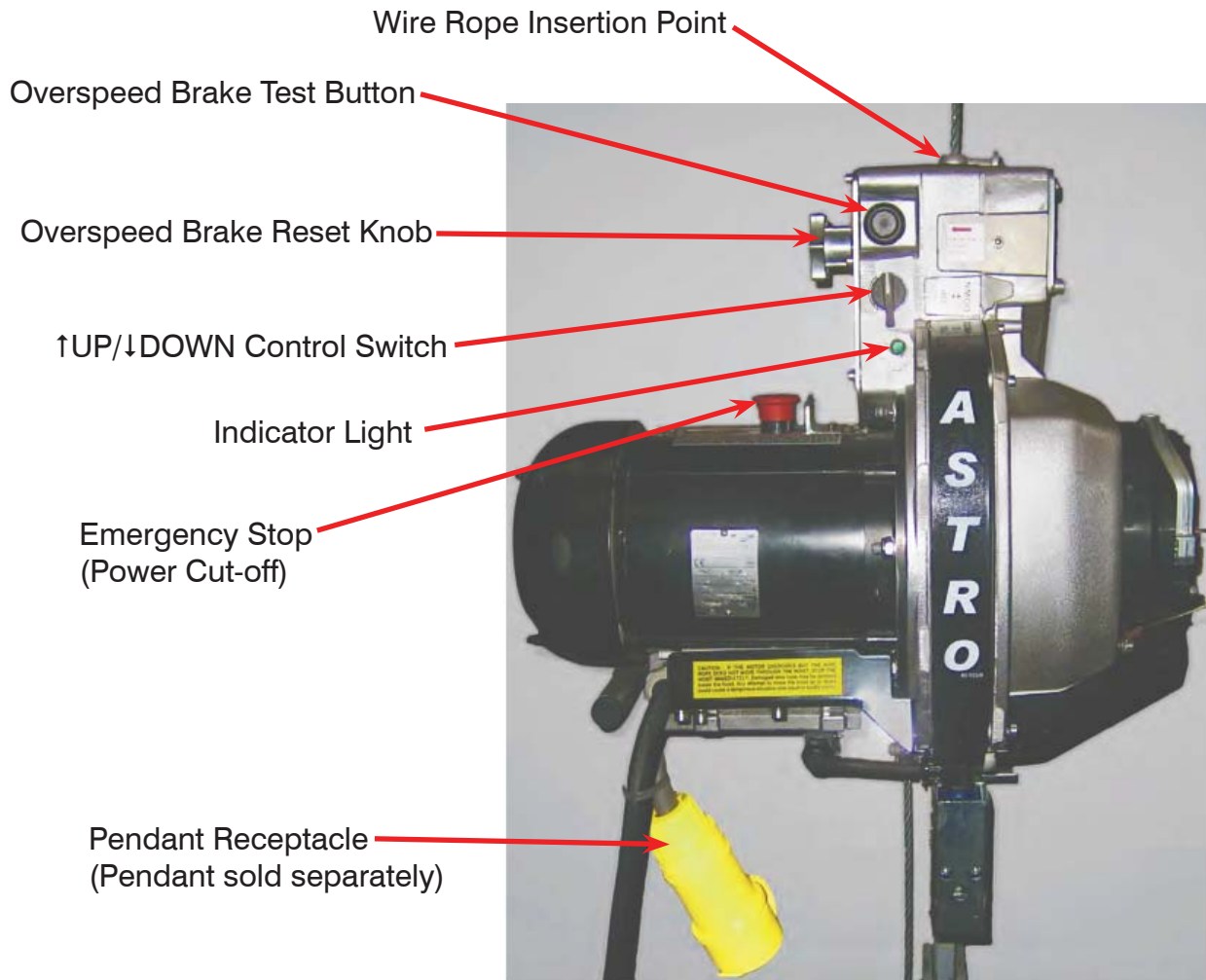
C) SPECIFICATIONS

Hoist	3-phase; 3 hp; 35 ft/min (11 m/min) max.
Working Load Limit (WLL)	2,200 lbs (1,000 kg)
Power Supply	230 or 400 VAC (depending on model number); 60 Hz; 3-phase with automatic thermal protection
Amperage at WLL	11 Amps 230 V required at hoist, or 6 Amps 400 V (depending on motor)
Hoist Weight	150 lbs (68 kg)
Wire Rope Diameter	3/8" (9.5 mm)
Wire Rope Specification	<p>4x26, Warrington Seale, Polypropylene High Density Core, Right Regular Lay, preformed wire rope with bright or galvanized finish.</p> <p>OR</p> <p>6x19, IWRC (Independent Wire Rope Core), Right Regular Lay, IPS (Improved Plow Steel) or EIPS (Extra Improved Plow Steel), , preformed wire rope with bright or galvanized finish.</p> <p>User must verify that the wire rope meets or exceeds applicable codes for breaking strength safety factor. US temporary applications require 6:1.</p>



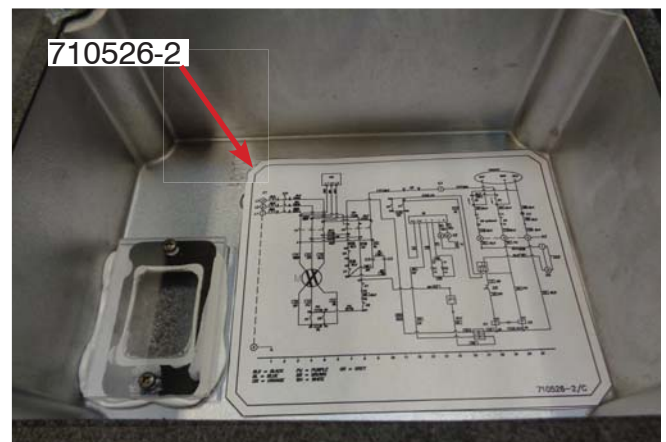
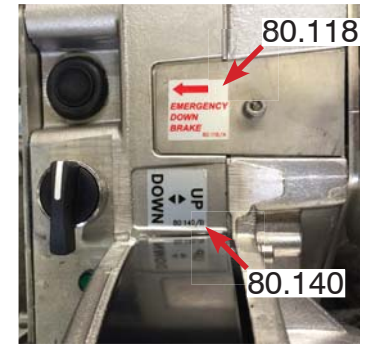
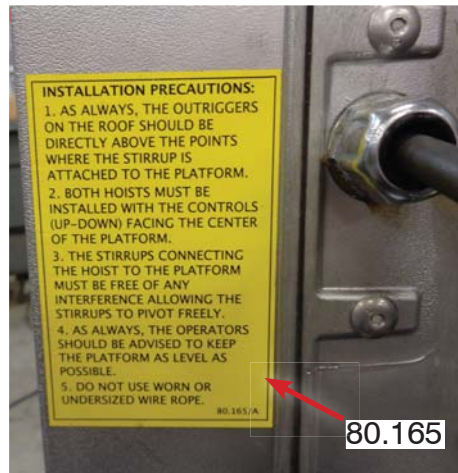
5. PARTS OF THE SPIDER ASTRO E2200 HOIST

A) FRONT VIEW





c) LABELS





6. PREPARING TO USE THE HOIST


A) ELECTRICAL SUPPLY

  The electric supply must have sufficient capacity, be in the correct phase, and the circuit breakers must be properly rated.


- The voltage loss per 100 ft (30.5 m) of 10/4 electrical cable is 2 volts for each hoist used.
- If startup is sluggish, determine the voltage at the motors when running. ↑UP is between 207-253 VAC, or 360-440 VAC depending on motor.
- If the voltage is lower than 207 or 360 VAC (depending on motor) when running:
 - Increase voltage with a transformer at the power source when voltage is low, OR
 - Use larger gauge or separate electrical cables for each hoist to improve voltage supply.
 - Do not start both hoists at the same time to ensure better hoist performance.
 - Always maintain a level platform.


B) INSTALLING HOIST ONTO THE PLATFORM

  Follow the manufacturer's instructions for platform assembly.


 The hoist can be lifted into position by hand or under power.


 Attach the hoist stirrup bar to the platform stirrup.

 Connect the hoist to the power supply. Spider® electric hoists have a twist lock plug.

 The power indicator light will come on when the hoist receives power.



 = Inspect




 = Verify

 = Perform process





7. REEVING

A) PRIMARY SUSPENSION WIRE ROPE

-  Check that the overspeed reset knob is reset. While holding the round eyelet guide vertical, push the main suspension wire rope bullet end into the hoist.
-  Operate the hoist in the ↑UP direction while pushing the rope into the hoist.
-  Ensure the wire rope runs freely through the wire rope exit guide.



B) OPTIONAL SECONDARY WIRE ROPE

-  Push secondary wire rope through the wire rope insertion point for the secondary rope until it exits the hoist.
-  Attach a 25 lb (11.5 kg) weight to the end of the secondary wire rope to assist secondary wire rope travel.



= Inspect



= Verify



= Perform process



8. DAILY TESTING AND INSPECTION

WARNING

Perform all daily tests to ensure correct operation! Do not use the hoist for lifting until it has successfully completed the daily tests.

The following tests must be performed at the start of each work shift. If the hoist fails any test, **DO NOT USE THE HOIST UNTIL IT IS REPAIRED**. Refer to the pictures on Pages 16 through 18 to identify components. All tests are performed at or near ground level.

A) INSPECT AFTER PREVIOUS USE


 Before operating the hoist, inspect the following:


- Wire rope
- Power supply
- Rigging
- Platform
- Hoist


 Verify that all parts are present, in proper working order, and are not damaged.

 Bolts, nuts, and clamps must be well secured.

 Ensure the hoist is secured to the stirrup with SAE Grade 5 fasteners and locknuts that are properly installed.

 When using the hoist in a dirty environment that contains epoxy, paint, cement, sand blast residue, or corrosive material, inspect the operation of the secondary overspeed brake several times a day. Protective hoist covers are recommended in these environments. Contact your hoist supplier.

 = Inspect

 = Verify



 = Perform process

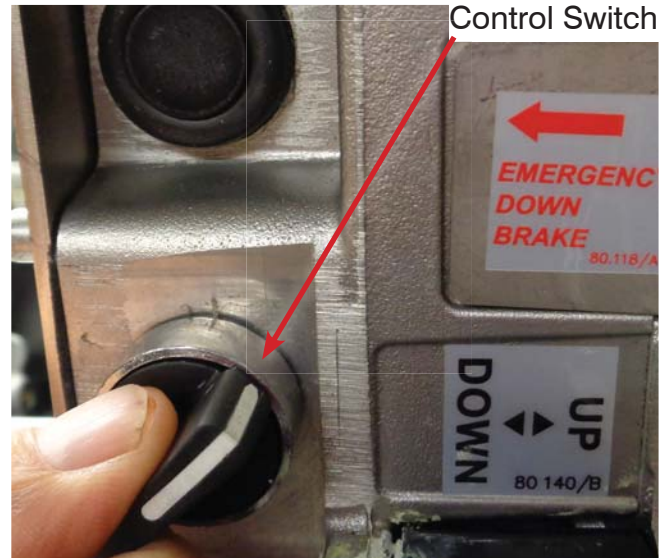


B) TESTING THE CONTROL SWITCH


WARNING!

This test is important if the hoist has recently been moved to a new work site, or there has been a change to the power supply at the work site, or the hoist has recently been repaired. Each of these circumstances may have rendered the hoist or power supply out of phase.

  Rotate the control switch in the ↑UP direction, as shown at right. If the hoist goes ↓DOWN, STOP IMMEDIATELY. This is an indication that the hoist may be out of phase. DO NOT USE THE HOIST. Contact your supervisor.



C) TESTING THE OVERSPEED BRAKE

 While powering the hoist ↑UP and ↓DOWN approximately 3 feet (1 meter), look through the window into the overspeed compartment to see whether the flywheel is turning.

WARNING!

Do NOT operate the hoist if you cannot see the flywheel turning.



= Inspect



= Verify

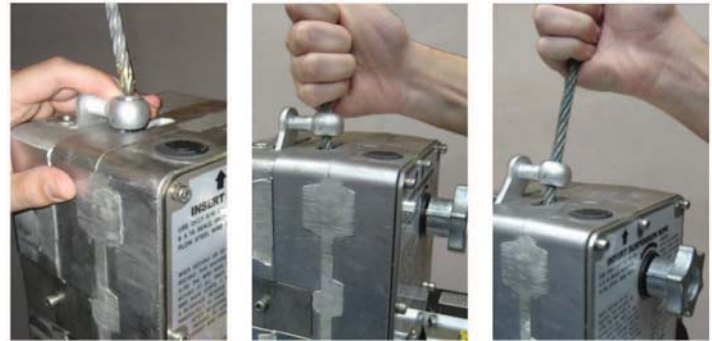


= Perform process



Dereeve the wire rope:

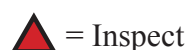
1. Re-insert the wire rope about 12" (30 cm) into the hoist.
2. Holding the wire rope firmly, pull it out quickly. If the overspeed brake is working correctly, it will grip and hold the wire rope in fewer than 4" (10 cm).
3. Repeat this test at least 3 times. If the brake does not work correctly **every time**, DO NOT USE THE HOIST. Return the hoist to your supplier.



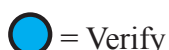
Reset the overspeed brake by turing the knob counterclockwise.



Overspeed Brake Reset Knob



= Inspect




= Verify

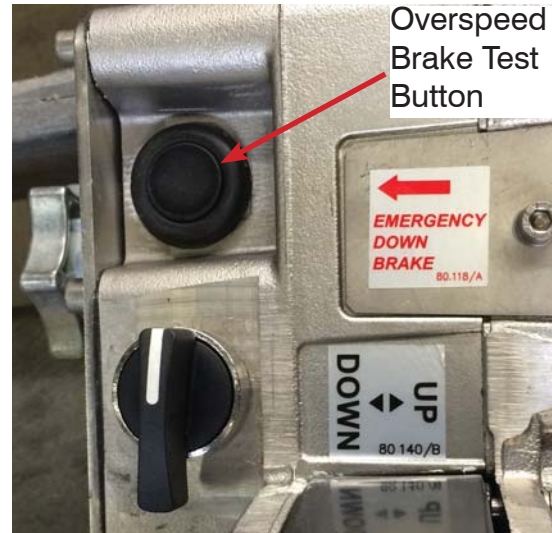



= Perform process



D) TESTING THE OVERSPEED BRAKE TEST BUTTON

 Rotate the control switch in the ↑UP direction and raise the platform approximately 3 feet (1 meter).

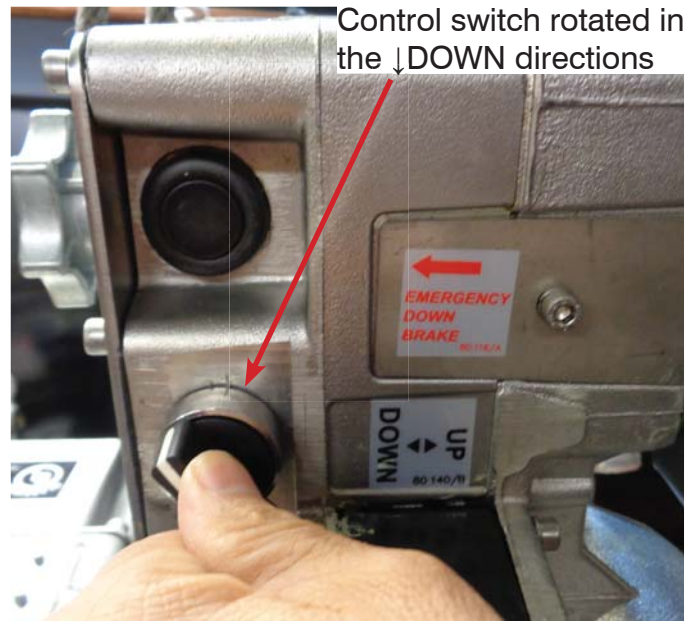


 While you rotate the control switch in the ↓DOWN direction, push in the overspeed brake test button.

 The hoist should stop immediately.

WARNING!

If the hoist does not stop immediately, this indicates the hoist is out of phase. Stop operating both switches and CORRECT THE PROBLEM BEFORE THE HOIST IS OPERATED.



= Inspect







= Verify



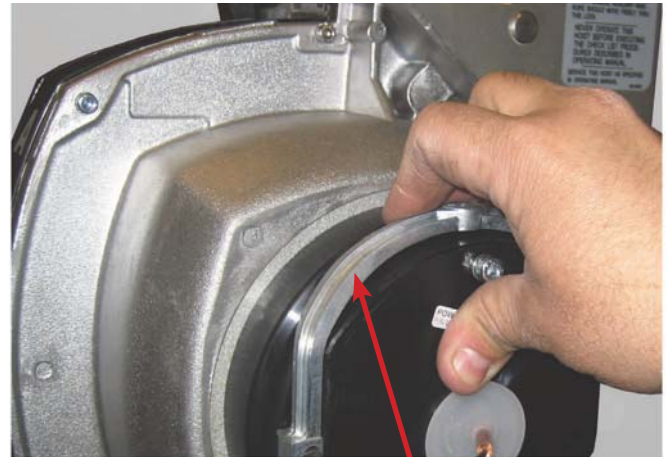
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E) TESTING THE CONTROLLED DESCENT LEVER

-  Raise the hoist approximately 3 feet (1 meter).
-  Disconnect the power supply.
-   SLOWLY pull the controlled descent lever. This must be done SLOWLY to avoid overspeeding. The platform should descend at a slow, controlled speed.





WARNING!

If the overspeed brake trips during this test, the controlled descent system is not working properly and THE HOIST SHOULD NOT BE USED.





Controlled Descent Lever

F) TESTING THE EMERGENCY STOP BUTTON

-  While the hoist is running ↑UP or ↓DOWN, press the emergency stop button.
-  Once the emergency stop button has been pressed, the hoist should not move at all.
-   To reset the emergency stop button, pull the button ↑UP.



 = Inspect

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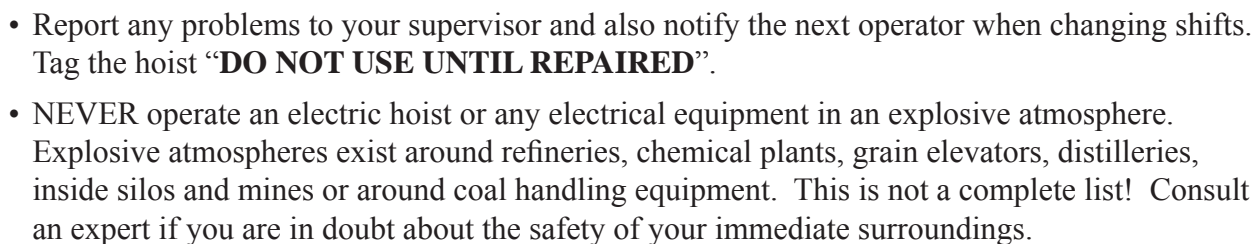
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A) BEFORE OPERATING THE HOIST


BEFORE operating this hoist, you must understand and follow the instructions in this manual. You must be properly trained, physically fit and authorized to operate the hoist. Failure to comply with these instructions could result in serious injury or death.


- ## Flywheel Observation Window



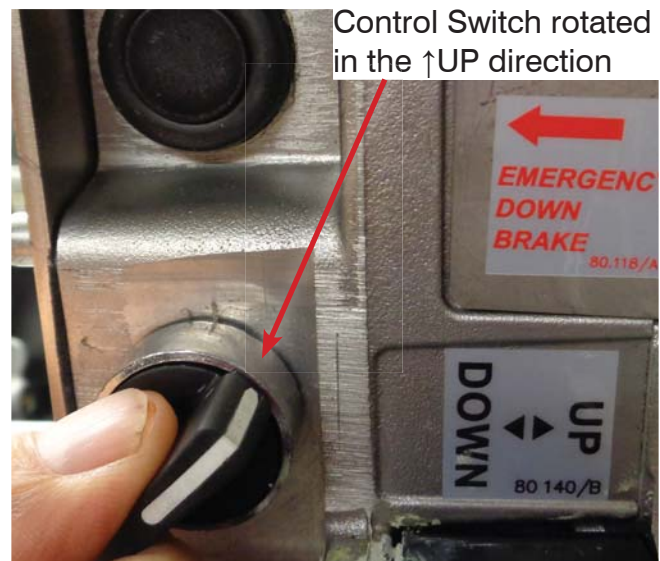


B) NORMAL OPERATION



 For routine travel in the ↑UP direction, rotate the control switch so the white line points to the right.



 For routine travel in the ↓DOWN direction, rotate the control switch so the white line points to the left.


The control switch is spring-loaded and returns to the OFF position and applies the brake when released. **If the hoist does not immediately stop the platform when the control switch is released, press the emergency stop AND the overspeed brake test buttons. Unplug the power supply cable. Contact your supervisor.**




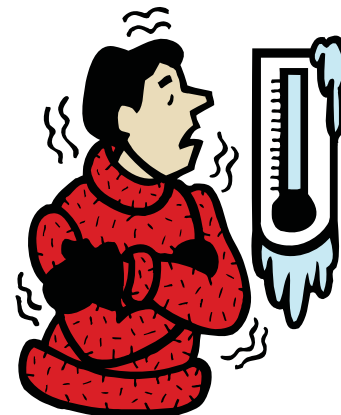
C) CAUTIONS FOR COLD WEATHER OPERATION

  When operating the hoist in cold weather, test the secondary overspeed brake frequently to make sure it is not frozen. If the hoist will not climb or descend while you are trying to test the overspeed brake, **DO NOT USE THE HOIST** unless this is corrected during the thaw-out process outlined below.

  If the overspeed brake does not stop the hoist, **DO NOT USE THE HOIST** until the brake has been thawed, is fully dry, and is in proper working condition.

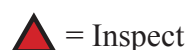
 Thaw the brake by blowing ducted dry heat (150° F / 66° C max.) on the brake area. This can be done with an ordinary hair dryer. **DO NOT USE AN OPEN FLAME** on the hoist.

 If the hoist does not operate properly after thawing, **DO NOT USE**. Return the hoist to your supplier.

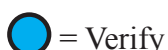


WARNING!

Use extreme caution when operating the hoist in freezing temperatures. Test frequently for normal operation. All tests must be done within 3 feet (1 meter) of ground level.



= Inspect



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= Perform process




10. DEREEVING


A) REMOVING THE PRIMARY SUSPENSION WIRE ROPE

For hoists equipped with the optional secondary wire rope, the secondary wire rope must be removed before the primary wire rope is removed.



WARNING!


To prevent hoists and platform from tipping and to avoid injuries, ensure that the platform is properly supported on a stable surface before putting slack on the primary suspension rope.


 Verify that platform is supported by a flat, stable surface before putting slack on the primary suspension wire rope.


 Turn the control switch in the ↓DOWN to wind the primary suspension wire rope out of the hoist. To remove the last 15 inches (40 cm) of wire rope, if necessary, grab the wire rope above the insertion point, hold the overspeed brake reset knob in the reset position and slowly pull the primary suspension wire rope out of the hoist.

B) REMOVING THE OPTIONAL SECONDARY SUSPENSION WIRE ROPE

  Verify hoist is secure in the stirrup mount prior to applying slack in the primary suspension wire rope. In order to remove the secondary suspension wire rope, there must be no slack on the primary suspension wire rope and the platform must be supported on a flat, stable surface.

 Remove the counterweight from the end of the secondary suspension wire rope.

 Pull the secondary suspension wire rope out of the hoist by hand.

 If necessary, the primary suspension wire rope can now be removed from the hoist.



= Inspect



= Verify



= Perform process






11. HOIST MAINTENANCE

A) REGULAR MAINTENANCE

 The hoist should be returned to a certified Spider® service center for periodic maintenance at least once a year from the date it was placed into service.

  More frequent service may be required if the hoist is subjected to dirty environments.

B) SPECIAL MAINTENANCE

   If the hoist fails any inspection or operation, it should be returned for service.

 = Inspect  = Verify  = Perform process
















12. TROUBLESHOOTING

STOP! Read **ALL** troubleshooting guidelines before attempting any solution.

Problem	Possible Cause and Solution
<p>A) NO POWER TO PLATFORM</p> <p>AND</p> <p>● Voltage indicator light is OFF.</p> <p>Consult your supervisor to correct problems.</p>	<p>● Power at junction box is off.</p> <p>● Circuit breaker is tripped.</p> <p>● Not enough power is being supplied to hoist.</p> <p>● ■ Plugs are not connected; check hoist, yoke, power cord, and power source.</p> <p>● Damaged electrical cord.</p> <p>● ▲ Power indicator light is burnt out.</p> <p>● ■ If the power indicator light comes on after 30 seconds or so, the thermal (TH2) has tripped due to excessive amperage. Consult your supervisor and check for low voltage.</p>

More troubleshooting solutions on next page

▲ = Inspect ● = Verify ■ = Perform process

Problem	Possible Cause and Solution
<p>B) HOIST DOES NOT RUN</p> <p>AND</p> <p> Voltage indicator light is ON.</p>	<p>  If the motor is hot, thermal overload protection may have been tripped. Allow motor to cool and see if it resets. This may take 30 minutes or more.</p> <p> Frequent stops and starts, high outside temperature, a dragging brake, or overloading can cause the motor to heat up.</p> <p> Determine if overspeed device is activated.</p>
<p>C) WIRE ROPE WILL NOT REEVE</p>	<p> Increase hand pressure on the wire rope while rotating the control switch in the ↑ UP direction.</p> <p> Take the wire rope out, rotate it 180° and put it back into the hoist while pushing in the ↑ UP operation button.</p> <p>  Poor bullet: prepare new end.</p> <p>  End of wire rope is bent or kinked: prepare new end.</p> <p>  Dirt or other material is obstructing the rope inside the hoist. Clean out with air or flush with water.</p>

More troubleshooting solutions on next page



= Inspect











= Verify



= Perform process



Problem	Possible Cause and Solution
D) MOTOR RUNS NORMALLY, BUT HOIST WILL NOT LIFT	<p> Make sure the bullet end of the wire rope has come out of the wire rope exit guide.</p> <p>  Inspect the wire rope for damage or wear. Replace if necessary.</p> <p>WARNING! WIRE ROPE MAY BE JAMMED. DO NOT OPERATE HOIST. CALL YOUR SUPERVISOR.</p>
E) HOIST HUMS, STARTS SLOWLY AND IS SLUGGISH	<p>  Check run voltage. If not correct, do any or all of the following:</p> <ul style="list-style-type: none"> • Run separate cords for each hoist. • Use shorter cords. • Use short cord with larger wires. • Add a booster transformer at the power source.
F) OVERSPEED FLYWHEEL DOES NOT TURN WHILE HOIST MOVES ↑UP OR ↓DOWN AND YOU ARE IN THE AIR	<p>WARNING! DO NOT OPERATE HOIST. CALL YOUR SUPERVISOR.</p> <p> Push the overspeed brake test button and wait to be rescued.</p>
G) OVERSPEED FLYWHEEL DOES NOT TURN WHILE HOIST MOVES ↑UP OR ↓DOWN AND YOU ARE ON THE GROUND	<p>WARNING! DO NOT OPERATE HOIST.</p> <p>  Check and correct the following:</p> <ul style="list-style-type: none"> • Clear obstructions such as dirt or other materials. • Wire rope may be worn out. Call your supervisor. • Hoist parts may be worn out. Call your supervisor,

More troubleshooting solutions on next page



= Inspect



= Verify



= Perform process

Problem	Possible Cause and Solution
H) HOIST DOES NOT STOP IMMEDIATELY WHEN THE CONTROL SWITCH IS RELEASED	<div> <input type="checkbox"/> Push the overspeed brake test button and wait to be rescued. </div> <div> <input type="checkbox"/> Call your supervisor. </div> <div> <input type="checkbox"/> Return the hoist to a certified Power Climber service center for servicing. </div>
I) YOU HEAR UNUSUAL NOISES COMING FROM THE HOIST AND YOU ARE IN THE AIR	<p>WARNING! WIRE ROPE MAY BE JAMMED. DO NOT OPERATE. ANY ATTEMPT TO OPERATE THE HOIST MAY CAUSE SERIOUS INJURY OR DEATH.</p> <div> <input type="checkbox"/> Push the emergency stop button. </div> <div> <input type="checkbox"/> Push the overspeed brake test button and wait to be rescued. </div> <div> <input type="checkbox"/> Unplug the hoist from the power cord. </div> <div> <input type="checkbox"/> Call your supervisor. </div> <div> <input type="checkbox"/> Return the hoist to a certified Spider service center for servicing. </div>

More troubleshooting solutions on next page



= Inspect














= Verify







= Perform process



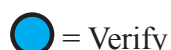
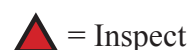
Problem	Possible Cause and Solution
<p>J) YOU HEAR UNUSUAL NOISES COMING FROM THE HOIST AND YOU ARE ON THE GROUND</p>	<p>WARNING! WIRE ROPE MAY BE JAMMED. DO NOT OPERATE.</p> <p>  Check for damaged wire rope and replace as necessary.</p> <p>  Check for dirt on the wire rope and clean/lubricate as necessary.</p> <p>  Check the hoist for visible signs of damage.</p> <p> Call your supervisor.</p> <p> Return the hoist to a certified Power Climber service center for servicing.</p>
<p>K) HOIST OPERATES IN ↓DOWN DIRECTION WHEN OVERSPEED BRAKE TEST BUTTON IS DEPRESSED</p>	<p>WARNING! HOIST MAY BE OUT OF PHASE. DO NOT OPERATE.</p> <p> Call your supervisor.</p> <p> Have a certified electrician correct phase on outlet receptacle.</p> <p> Contact a certified Spider service center for servicing and repair.</p>

More troubleshooting solutions on next page

 = Inspect
  = Verify
  = Perform process

Problem	Possible Cause and Solution
<p>L) CANNOT RESET THE OVERSPEED BRAKE RESET KNOB (HOIST HAS POWER)</p>	<p>WARNING! WIRE ROPE MAY BE JAMMED. DO NOT OPERATE HOIST.</p> <p>  DO NOT RESET THE OVERSPEED UNTIL:</p> <ul style="list-style-type: none"> You have determined that there is enough wire rope to reach a safe landing surface. You know that the wire rope is not jammed in the hoist. You know the reason that the overspeed has been tripped and there will be no danger when it is reset. You have checked for and corrected the following situations: <ul style="list-style-type: none"> Undersized wire rope Worn parts Foreign contaminants that defeat traction, such as: <ul style="list-style-type: none"> lubricants ice Improper use of the platform, such as overloading. <p> Power the hoist up a few inches at the same time as you turn the reset knob counterclockwise until the reset knob engages.</p> 

More troubleshooting solutions on next page





13. CODE OF SAFE PRACTICES FOR ADJUSTABLE SUSPENDED SCAFFOLDS

CO-DEVELOPED BY THE SCAFFOLDING, SHORING & FORMING INSTITUTE (SSFI)
and THE SCAFFOLD AND ACCESS INDUSTRY ASSOCIATION, INC. (SAIA)

It shall be the responsibility of all users to read and comply with the following common sense guidelines which are designed to promote safety in the erecting, dismantling and use of adjustable suspended scaffolds. These guidelines do not purport to be all-inclusive nor to supplant or replace other additional safety and precautionary measures. If these guidelines conflict with any local, provincial, state, federal or other government regulations, the regulations shall supersede these guidelines and it shall be the responsibility of each user to comply therewith.

I. GENERAL GUIDELINES

- A. POST THESE SAFE PRACTICES** in a conspicuous place. Be sure that all persons who erect, use, relocate, or dismantle adjustable suspended scaffold systems are fully aware of them. Use them in tool box safety meetings.
- B. FOLLOW ALL EQUIPMENT MANUFACTURER'S RECOMMENDATIONS** as well as all local, provincial, state and federal codes, ordinances and regulations relating to adjustable suspended scaffold systems.
- C. SURVEY THE JOB SITE.** A competent person shall survey the job site for hazards such as exposed electrical wires, obstructions and, unguarded roof edges or openings.
- D. INSPECT ALL EQUIPMENT BEFORE EACH USE.** Never use any equipment that is damaged or defective in any way. Mark it or tag it as damaged or defective and remove it from the job site.
- E. ERECT AND DISMANTLE ADJUSTABLE SUSPENDED SCAFFOLD EQUIPMENT** in accordance with the design and/or manufacturer's recommendations.
- F. DO NOT ERECT, DISMANTLE OR ALTER ADJUSTABLE SUSPENDED SCAFFOLD SYSTEMS** except under the supervision of a competent person.
- G. DO NOT ABUSE OR MISUSE ADJUSTABLE SUSPENDED SCAFFOLD EQUIPMENT.** Never overload any equipment.
- H. ERECTED ADJUSTABLE SUSPENDED SCAFFOLDS ARE TO BE INSPECTED REGULARLY** by the user to be sure that they are maintained in a safe condition. Stop work and report any unsafe condition to your supervisor.
- I. NEVER TAKE CHANCES! IF IN DOUBT REGARDING THE SAFETY OR USE OF ADJUSTABLE SUSPENDED SCAFFOLDS, CONSULT A QUALIFIED PERSON.**



- J. NEVER USE ADJUSTABLE SUSPENDED SCAFFOLD EQUIPMENT FOR PURPOSES FOR WHICH IT WAS NOT INTENDED.**
- K. A COMPETENT PERSON SHALL CONSIDER STOPPING WORK WHEN WIND SPEED EXCEEDS 25 MPH FOR 2 POINT ADJUSTABLE SUSPENDED SCAFFOLDS OR 20 MPH FOR SINGLE POINT SUSPENSION.** If materials on a platform create a sail effect, stopping work at lower wind speeds must be considered.
- L. ADJUSTABLE SUSPENDED SCAFFOLD SYSTEMS** are to be installed and used in accordance with the manufacturer's recommended procedures.
- M. ADJUSTABLE SUSPENDED PLATFORMS MUST NEVER BE OPERATED NEAR LIVE POWER LINES** unless proper precautions are taken. Contact the power service provider for advice.
- N. ALWAYS UTILIZE FALL ARREST EQUIPMENT** when working on adjustable suspended scaffolds or when working near unguarded edges.
- O. DO NOT WORK FROM, INSTALL OR MOVE ADJUSTABLE SUSPENDED SCAFFOLDS** if you are sick or impaired in any way.
- P. DO NOT WORK ON ADJUSTABLE SUSPENDED SCAFFOLDS** when under the influence of alcohol or drugs.
- Q. DEBRIS SHOULD NOT BE STORED OR ALLOWED TO ACCUMULATE ON A PLATFORM.**
- R. INDEPENDENT ADJUSTABLE SUSPENDED SCAFFOLDS ARE TO BE POSITIONED SO AS TO AVOID OVERLAPPING OR POSSIBLE INTERFERENCE FROM ANOTHER SCAFFOLD.**

II. GUIDELINES FOR ERECTION AND USE OF ADJUSTABLE SUSPENDED SCAFFOLD SYSTEMS

A. RIGGING:

- 1. UTILIZE FALL PROTECTION EQUIPMENT** when rigging near unguarded edges.
- 2. SUPPORTING DEVICES** must be capable of supporting the hoist rated load with a safety factor of 4.
- 3. ALL OVERHEAD RIGGING** must be secured from unwanted movement in any direction.
- 4. COUNTERWEIGHTS USED WITH OUTRIGGER BEAMS** must be of a non-flowable material and must be secured to the beam to prevent accidental displacement.
- 5. OUTRIGGER BEAMS THAT DO NOT USE COUNTERWEIGHTS** must be installed and secured to the roof structure with bolts or other direct connections. Direct connections shall be evaluated by a competent person.
- 6. TIE BACK ALL TRANSPORTABLE RIGGING DEVICES.** Tieback shall be equivalent in strength to the suspension ropes.
- 7. INSTALL TIEBACKS AT RIGHT ANGLES TO THE FACE OF THE BUILDING** and secure them without slack, to a suitable anchor capable of supporting the hoist rated load with a safety factor of 4.



8. **IN THE EVENT THAT TIEBACKS CANNOT BE INSTALLED AT RIGHT ANGLES**, two tiebacks at opposing angles must be used to prevent movement.
9. **RIG AND USE HOISTING MACHINES DIRECTLY UNDER THEIR SUSPENSION POINTS** to prevent movement or side loading.

B. WIRE ROPE AND HARDWARE:

1. **USE ONLY WIRE ROPE AND ATTACHMENTS** specified by the hoisting machine manufacturer.
2. **HANDLE WIRE ROPE WITH CARE.** Always use gloves.
3. **COIL AND UNCOIL WIRE ROPE** in accordance with manufacturer's instructions in order to avoid kinking or damage.
4. **ASSURE THAT THE WIRE ROPE IS LONG ENOUGH** to reach to the lowest possible landing.
5. **CLEAN AND LUBRICATE WIRE ROPE** in accordance with the wire rope manufacturer's instructions.
6. **INSPECT WIRE ROPE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DO NOT USE WIRE ROPE THAT IS KINKED, BIRDCAGED, CORRODED, UNDERSIZED, OR DAMAGED IN ANY WAY.** Do not expose wire rope to fire, undue heat, corrosive atmosphere, electricity, chemicals or damage.
7. **WIRE ROPES USED WITH TRACTION HOISTS MUST HAVE PREPARED ENDS.** Follow hoist manufacturer's recommendations.
8. **USE THIMBLES AT ALL WIRE ROPE SUSPENSION TERMINATIONS.**
9. **USE J-BOLT WIRE ROPE CLAMPS OR SWEDGE FITTINGS. DO NOT USE U-BOLT CLAMPS.**
10. **TIGHTEN THE J-BOLT WIRE ROPE CLAMPS** in accordance with the manufacturer's instructions.

C. POWER SUPPLY FOR MOTORIZED EQUIPMENT:

1. **USE PROPERLY GROUNDED ELECTRICAL POWER CORDS.** Protect them with circuit breakers.
2. **USE POWER CORDS AND AIR HOSES OF THE PROPER SIZE THAT ARE LONG ENOUGH** for the application.
3. **POWER CORD AND AIR HOSE CONNECTIONS MUST BE RESTRAINED** to prevent separation.
4. **USE STRAIN RELIEF DEVICES TO ATTACH POWER CORDS AND AIR SUPPLY HOSES THE PLATFORM**, to prevent them from separation.
5. **PROTECT POWER CORDS AND AIR HOSES FROM SHARP EDGES.**
6. **USE GFCI WITH POWER TOOLS.**



D. FALL ARREST EQUIPMENT:

1. **EACH PERSON ON AN ADJUSTABLE SUSPENDED SCAFFOLD** must be attached to an independent fall arrest system.
2. **EACH VERTICAL LIFELINE SHALL BE ATTACHED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS** to a separate anchorage capable of supporting a minimum of 5000 pounds (2267 kg) or an anchorage designed by a qualified person.
3. **DO NOT WRAP LIFELINES AROUND STRUCTURAL MEMBERS** unless lifelines are protected and a suitable anchorage connection is used.
4. **PROTECT LIFELINES AT SHARP CORNERS AND EDGES** to prevent chafing.
5. **RIG FALL ARREST SYSTEMS** to minimize free fall.
6. **INSTALL VERTICAL LIFELINES SO THEY HANG FREELY.**
7. **USE LIFELINES** that are compatible with the rope grab.
8. **INSTALL ROPE GRAB IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.** Rope grab must be properly oriented.
9. **KEEP ROPE GRAB POSITIONED ABOVE YOUR HEAD.**
10. **UTILIZE FULL BODY HARNESES** of the proper size and fit.
11. **UTILIZE SHOCK-ABSORBING LANYARD** attached to the D-ring at the center of your back between the shoulder blades.
12. **INSPECT FALL PROTECTION ANCHORAGE/EQUIPMENT BEFORE EACH USE.** Consult the fall protection supplier for inspection procedures.
13. **WHEN A SECONDARY WIRE ROPE SYSTEM IS USED** instead of a vertical lifeline, attach the lanyard to a horizontal lifeline or an approved platform anchor.

E. DURING USE:

1. **USE ALL EQUIPMENT AND ALL DEVICES** in accordance with the manufacturer's instructions.
2. **DO NOT OVERLOAD OR MODIFY EQUIPMENT.**
3. **INSPECT ALL EQUIPMENT INCLUDING HOISTS, PLATFORM, AND RIGGING** before each use.
4. **INSPECT WIRE ROPE BEFORE AND DURING USE.**
5. **USE CARE TO PREVENT DAMAGE TO EQUIPMENT.**
6. **CLEAN AND SERVICE EQUIPMENT REGULARLY.** Follow the manufacturers' recommendations.



7. **ALWAYS MAINTAIN AT LEAST (4) FOUR WRAPS OF WIRE ROPE ON DRUM TYPE HOISTS.**
8. **DO NOT CONNECT PLATFORMS** unless the installation was designed for that purpose.
9. **DO NOT MOVE ADJUSTABLE SUSPENDED SCAFFOLDS HORIZONTALLY** unless safe work practices are followed.
10. **WHEN RIGGING FOR ANOTHER DROP** assure sufficient wire rope is available before moving the suspended platform horizontally to the next location.

F. WELDING FROM SUSPENDED SCAFFOLDS REQUIRES SPECIAL TRAINING:

1. **ASSURE PLATFORM IS GROUNDED TO THE STRUCTURE** using a grounding conductor.
2. **INSULATE WIRE ROPE ABOVE AND BELOW THE PLATFORM.**
3. **INSULATE WIRE ROPE AT SUSPENSION POINT AND ASSURE WIRE ROPE DOES NOT CONTACT THE STRUCTURE ALONG ITS ENTIRE LENGTH.**
4. **PREVENT THE WIRE ROPE END FROM BECOMING GROUNDED.**
5. **INSULATE EACH HOIST WITH A PROTECTIVE COVER.**
6. **INSULATE TIE BACK WIRE ROPES AT THE CONNECTION POINTS.**

Since field conditions vary and are beyond the control of the SSFI and the SAIA, safe and proper use of adjustable suspended scaffolding is the sole responsibility of the user.

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