AES Raptor TriRex™ PATENT PENDING

Fall Protection System

Instruction Manual

*** WARNING ***

Serious injury or death may result if this product is used for purposes other than designed. The manufacturer provides the following instructions for the use and care of this equipment. It is the responsibility of the purchaser to understand and convey explicit instruction to each user. The AES Raptor TriRex™ complies with the requirements of the Federal Occupational Safety and Health Administration (OSHA) when set up and used according to the manufacturers' instructions.

AES Raptor, LLC - TriRex™ Instruction Manual

Published by AES Raptor, LLC, North Kansas City, MO

AES RAPTOR COMPLETE MOBILE FALL PROTECTION SYSTEM
is a registered trademark of
Architectural Exterior Services CORPORATION MISSOURI
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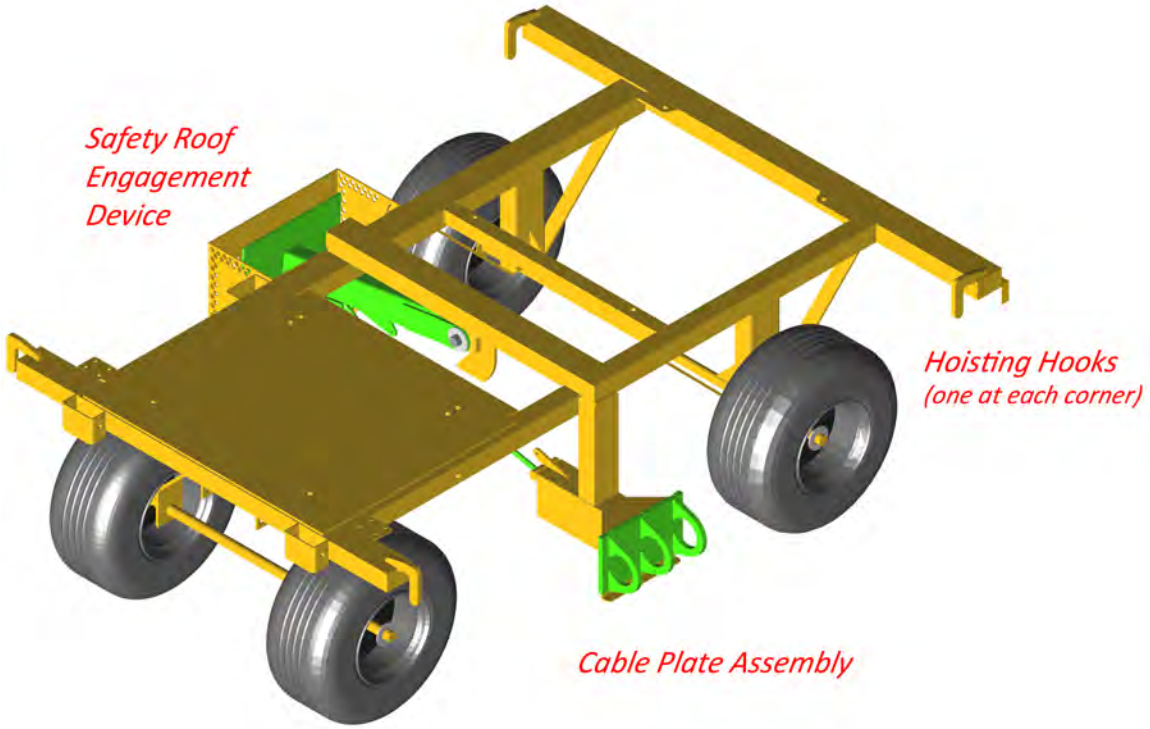
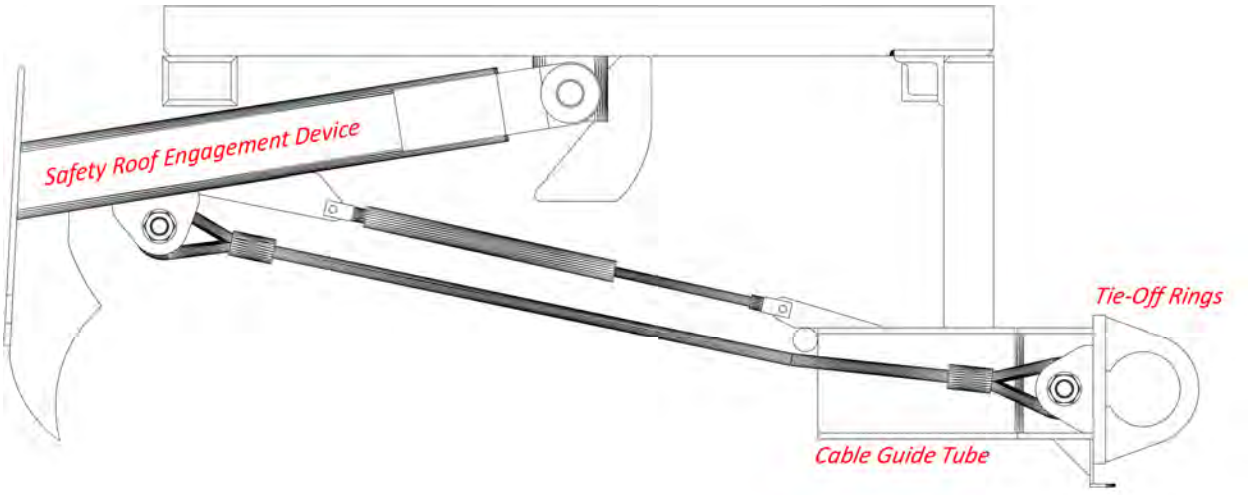
DIAGRAM OF PARTS

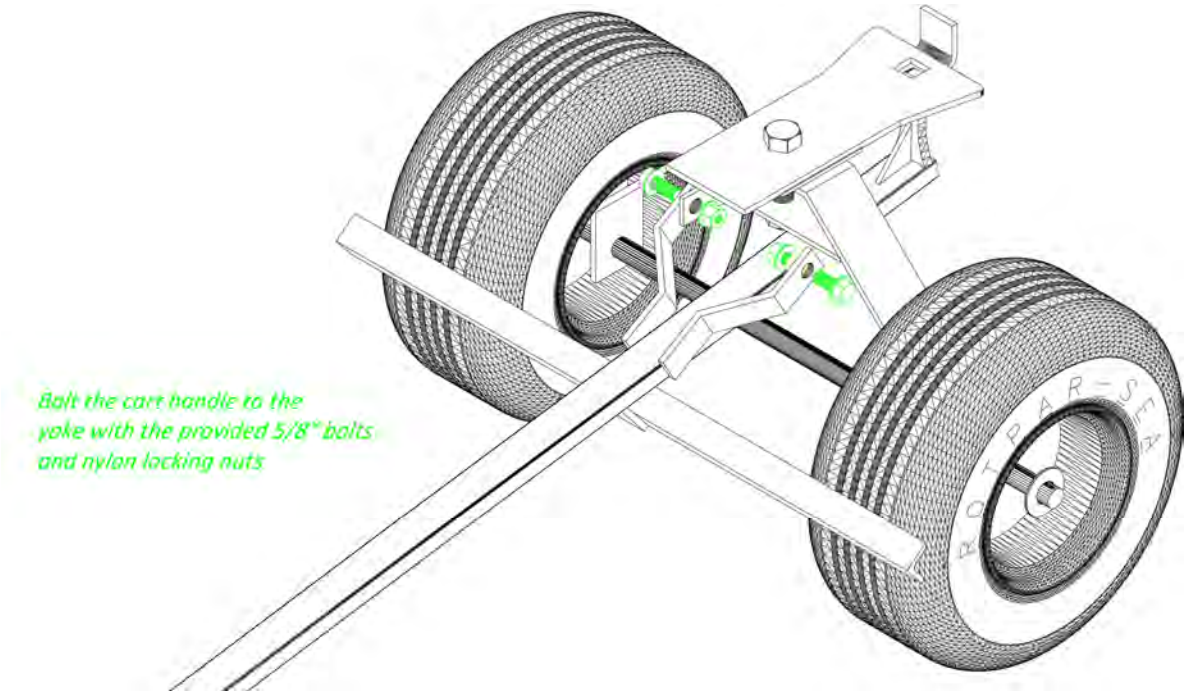




Patent Pending

1.0 ASSEMBLY

After unpacking the TriRex, bolt the cart handle to the yoke with the provided 5/8 x 2" bolts and 5/8" nylon locking nuts. Refer to the Illustration below:



2.0 APPLICATIONS

2.0 The TriRex Mobile Fall Protection cart is to be used as an anchorage point for a personal fall arrest system. The TriRex may be used where worker mobility and fall protection are required.

2.1 The TriRex is used as a part of a complete mobile fall protection system. Personal fall arrest systems typically include a full body harness, anchorage point, connectors, lifelines and lanyards. See WWW.OSHA.GOV for all regulations and standards.

2.2 When set up properly the TriRex allows three workers to be tied off for fall arrest (using the standard fall arrest tie-off rings) and an additional two workers tied-off for fall restraint if the optional *Fall Restraint Tie-Off Rings* have been installed. See the following definitions:

DEFINITIONS:

A. **Fall Restraint System** – A fall protection system that prevents the user from falling any distance. The system is comprised of a body harness along with an anchorage, connectors and other necessary equipment. The components typically include a lanyard and also may include a lifeline and other devices.

B. **Personal Fall Arrest System** - This consists of an anchorage, connectors, and a body harness and may include a decelerated lifeline, or suitable combinations. If a Personal Fall Arrest System is used for fall protection it must meet the following requirements:

- Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness;
- Be rigged so that an employee can neither free-fall more than 6 feet (1.8 meters) nor contact any lower level;
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet (1.07 meters); and
- Have sufficient strength to withstand twice the potential impact energy of an employee free-falling a distance of 6 feet (1.8 meters) or the free-fall distance permitted by the system, whichever is less.

3.0 USE AND LIMITATIONS

3.0 **USE ON LOW SLOPE SURFACES ONLY**

3.1 RECOMMENDED SURFACES INCLUDE:

1. Built-up Roofing (BUR) Membrane
2. Modified PVC Membranes
3. Thermoplastic Polyolefin (TPO) Membranes
4. EPDM Roofing Membranes
5. Ballasted EPDM Membrane
6. Modified Bitumen Membranes
7. Metal Deck (20 ga. And 22 ga. ONLY)
8. Dens Deck
9. Hardboard
10. Plywood
11. Lightweight Concrete
12. Gypsum Deck
13. Polyisocyanurate (ISO)
14. Expanded Polystyrene (EPS)
15. Flat Surfaces to .5:12 (the R1000 can be used on slopes .5:12 to 1:12 when using the optional braking system)

3.2 DO NOT USE THE TRIREX SYSTEM ON THE FOLLOWING SURFACES:

1. Tectum Deck
2. Metal Deck less than 22 ga. Or over 20 ga. (Structural Deck)
3. Loose laid material not part of a complete finished system.
4. Ice
5. Snow

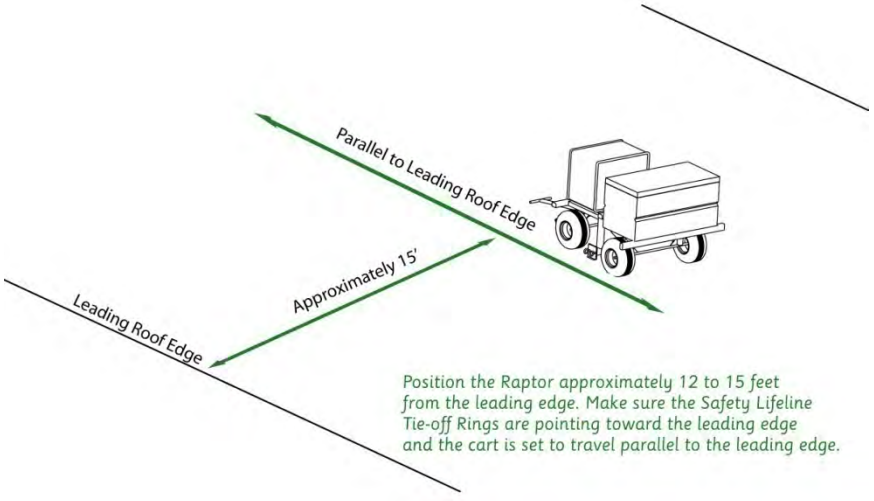
**** BEFORE A TRIREX IS HOISTED TO ANY ROOF SURFACE****

THE CONTRACTOR MUST VERIFY THAT THE DECK ASSEMBLY CAN ACCOMMODATE THE LIVE LOAD REQUIREMENTS OF THE RAPTOR.

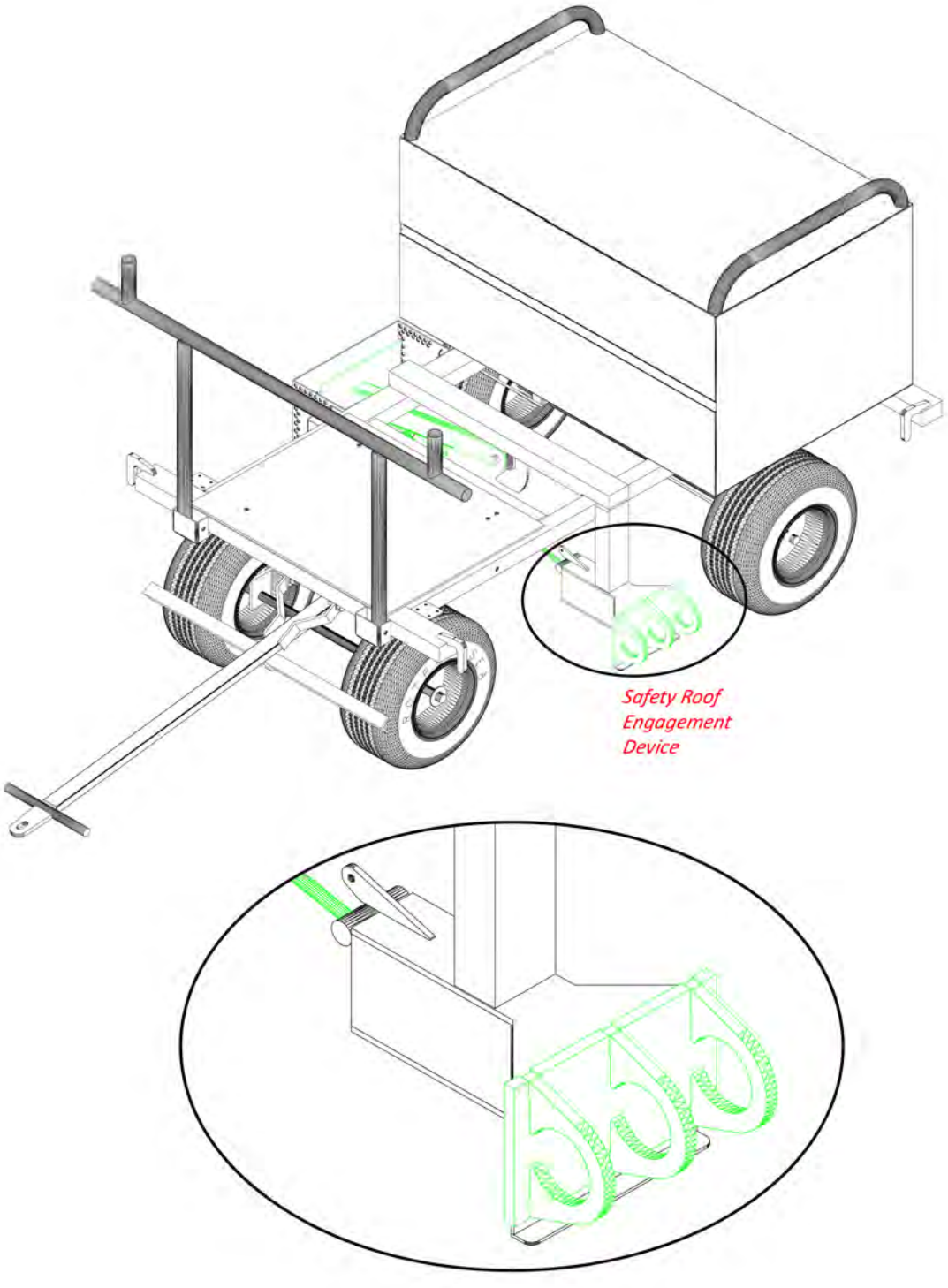
3.3 CAPACITY: The TriRex Mobile Fall Protection System is designed for a maximum of three persons for fall arrest and two for fall restraint (when optional *Fall Restraint Tie-Off Rings* are installed) with a combined weight (clothing, tools) of no more than 310 lbs. per person. No more than five persons may be connected to the TriRex at any time.

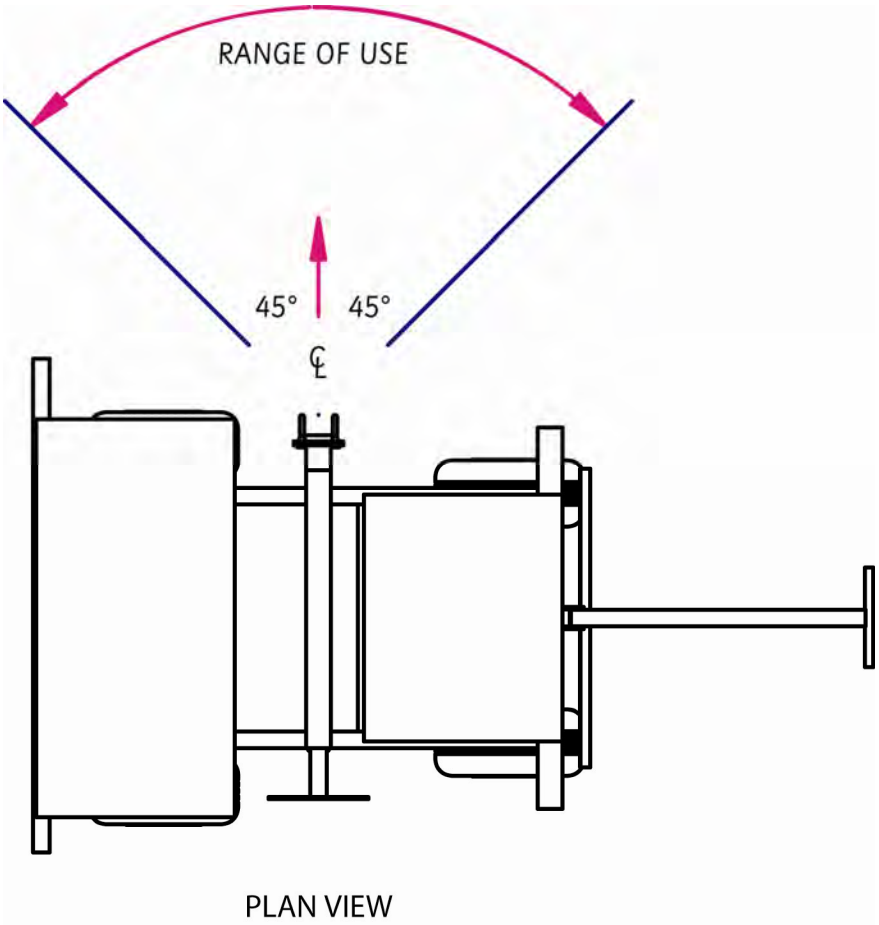
3.4 POSITION: First, verify that the surface that the TriRex will be installed onto is capable of supporting the product and personnel using it. A complete assessment of the entire surrounding areas should be made to determine if the working surfaces have the strength and structural integrity to support users safely.

Position the TriRex approximately 15 feet from the leading edge. Make sure the Safety Lifeline Tie-off Rings are pointing toward the leading edge and the cart is set to travel parallel to the leading edge. Refer to the Illustration Below:



A. Hook the Safety Lifelines to the Safety Lifeline Tie-off Rings. Refer to the Illustration below:





PLAN VIEW

4.0 MAKING CONNECTIONS:

4.0 Only connect the safety tie-off plate to the safety engagement arm using the provided safety cable. If the safety cable is broken, remove from service immediately and contact AES Raptor, LLC at 1-888-990-2990. If safety cable is lost or stolen, contact AES Raptor, LLC at 1-888-990-2990.

4.1 DO NOT hook lifeline to designated hoisting hooks – lifeline should only be hooked to the Safety Lifeline Tie-off Rings.

4.2 When making connections, only use self-locking snap hooks and self-locking carabiners with this equipment. Only use connectors that are suitable to each application. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure that all connectors are fully closed and locked.

5.0 OPTIONAL FALL RESTRAINT TIE-OFF RINGS:

5.0 The Fall Restraint Tie-Off Rings can be installed on either side of the Safety Engagement Arm. Secure the Rings using a 1 1/8" socket and ratchet.

5.1 Tie-off configurations must be in a way that will not allow a person to fall over a leading edge.

5.2 Note: If other options such as the Raptor Alert or the Raptor Rescue System are installed on the TriRex, it may restrict the use of the fall restraint anchors.

6.0 BEFORE EACH USE:

6.0 OSHA 1926.502 requires that before operating the system there must be an inspection for damaged equipment.

INSPECTION STEPS

STEP 1: Check for loose, bent or damaged parts.

STEP 2: Check welded connections for distortion, cracks, or other damage.

STEP 3: Check D-Rings for distortion or damage.

STEP 4: Check cables for rusting and/or wear before each use – DO NOT use if cable and cable connections have been damaged.

STEP 5: All labels must be present and fully legible. (Copies of all labels are attached at the back of the manual for accurate inspection)

STEP 6: Check for corrosion on entire unit.

STEP 7: Check Safety Cable Ring Attachment plate for freedom of movement.

STEP 8: Check Engagement Arm for freedom of movement.

DO NOT OPERATE DAMAGED EQUIPMENT. DO NOT OPERATE EQUIPMENT THAT HAS BEEN MODIFIED.

(Please use the Inspection and Maintenance Log)

MAINTENANCE AND CARE:

A. Inspect all AES Raptor equipment and parts before and after each use.

B. Keep wheels free from roofing build up or debris. Asphalt or adhesive build up on the tires can cause the wheel brake to function improperly.

C. Regularly inspect all bolts and pins. Damaged or missing pins can severely hinder the safety factor of the Raptor.

D. Maintain paint finish to prevent corrosion.

7.0 GENERAL SAFETY

7.0 USE COMMON SENSE! Most accidents can be avoided by using common sense and concentrating on the job to be done.

7.1 The AES Raptor TriRex should not be used by persons whose ability or alertness is impaired by fatigue, intoxicating beverages, illegal or prescription drugs, or any other physical cause that exposes the user or others to injury.

7.2 Always wear proper safety attire.

7.3 Keep hands and feet clear of moving parts. DO NOT stick hands or fingers in the equipment when operating.

7.4 Do not operate the equipment near electrical power lines.

7.5 Maintain proper and even tire pressure on cart tires if equipped with pneumatic tires.

7.6 Do not allow passengers to ride on safety cart.

7.7 Allow handle to drop and set brake when not in use.

7.8 Ensure that the safety arm works properly. Make sure that all areas directly underneath, and in front of the cart, are clear and free of debris.

7.9 Do not use on icy roofs.

7.10 Only use the cart on a surface or roof composition for which it has been tested.

7.11 Do not set cart atop unfastened materials. Materials may slide if not mechanically attached to the roof.

8.0 GENERATOR SAFETY:

8.1 Never let extension cords or the plug connection lay in water. Locate the equipment such that it cannot fall into water.

8.2 Never use cords with frayed, cut or brittle insulation. Check the cord on the motor for nicks in the insulation and for sound connections to the ground fault interrupter plug and motor.

8.3 Operate in well ventilated areas only.

8.4 Do not breathe exhaust fumes when working in the area of the engine. (Exhaust gasses are odorless and can be fatal.)

8.5 Keep the exhaust system components tight and in good working condition.

8.6 Exhaust system parts get very hot and stay hot for some time after shutting the engine off – Do Not Touch.

8.7 Never add fuel to the tank while the engine is running. Stop engine and allow it to cool. Avoid spilling fuel.

8.8 Do not refuel near open flame; wipe up spilled fuel.

8.9 Never remove factory-installed equipment from the cart. If any equipment is removed then the cart is deemed useless for fall protection.

8.10 When applicable: Always refer to Generator/Air Compressor User Manuals for use and safety directions.

9 HOISTING: *WARNING*

9.1 Loads may slip or fall if proper Hoist Ring Assembly and lifting procedures are not used.

9.2 A falling load may cause serious injury or death.

9.3 Do not use with damaged slings or chain. For inspection criteria see ASME B30.9.

9.4 Utilize appropriate Rigging Gear suitable for overhead lifting.

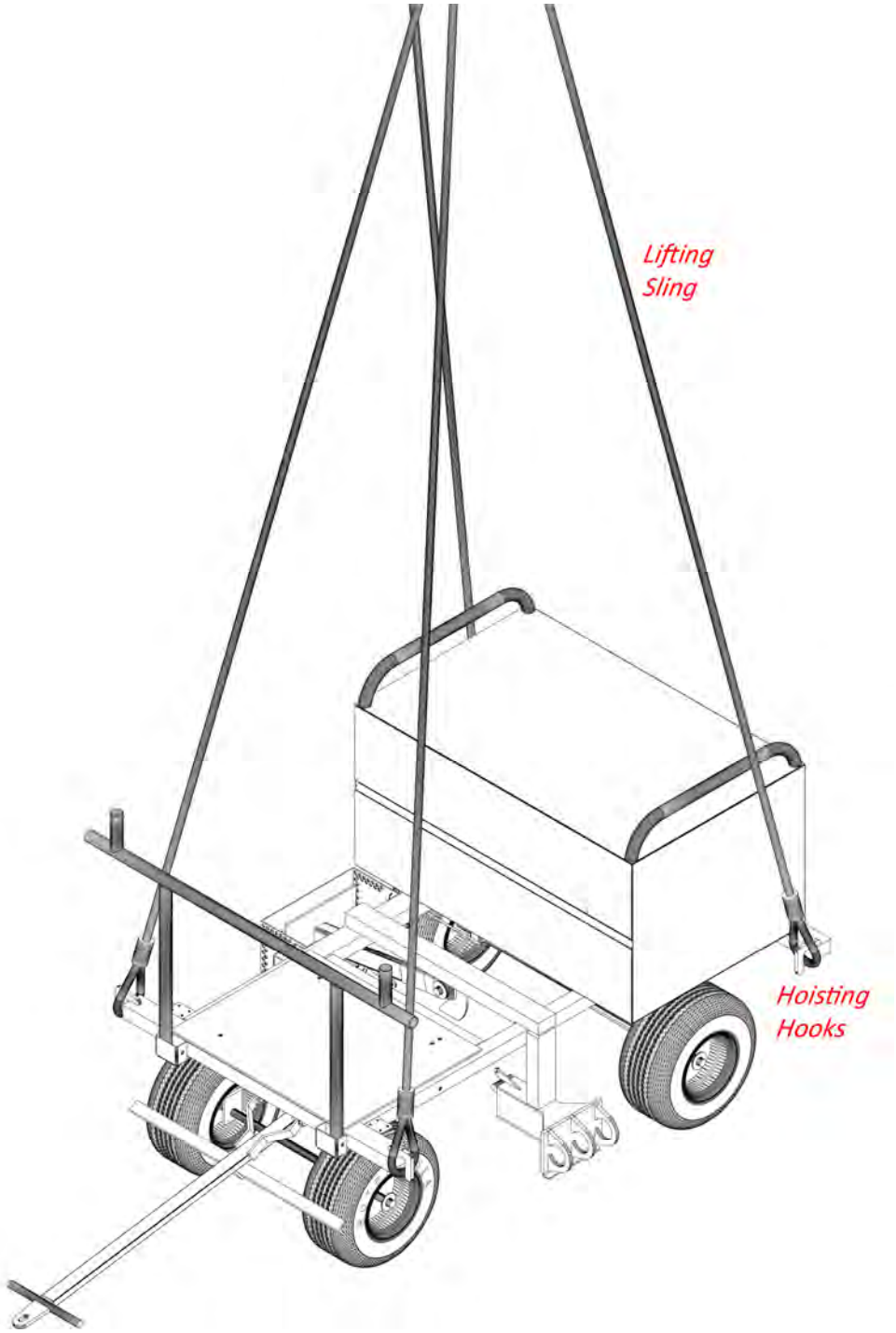
9.5 Utilize Rigging Gear within the industry standards and the manufacturer's recommendations.

9.6 Conduct regular inspection and maintenance of the Rigging Gear.

DO NOT hook lifeline to designated hoisting hooks.

9.7 The TriRex was designed to be hoisted by a crane with the use of a four-leg wire rope sling or bridle chain sling. Refer to the illustration on the following page for proper hoisting procedures.

HOISTING DIAGRAM



WARNING LABELS

(Upon each inspection please use this page to verify that all five Warning Labels are present and fully legible.)

(One is to be located by each Hoisting Ring for a total of four)

(Located inside job box)

(Located on back of the job box)

(Located on the guard)

(Located below the Job Box handle)

(located above the safety lifeline tie-off ring plate)

Raptor Inspection and Maintenance Log

PLEASE COPY THIS LOG, FILL IT OUT BEFORE EACH USE, AND KEEP IT IN YOUR RECORDS.

RAPTOR SERIAL # _____

RAPTOR MODEL # _____

DATE PURCHASED _____

Inspection Date: _____

Inspection Item Noted:	Corrective Action Needed?		Maintenace Performed:
Overall Cart Parts	Yes	No	
Approved By:			
Welded Connection	Yes	No	
Approved By:			
Safety Lifeline Tie-off Rings and Hoisting D-Rings	Yes	No	
Approved By:			
Cables	Yes	No	
Approved By:			
Labels	Yes	No	
Approved By:			
Overall Cart Corrosion	Yes	No	
Approved By:			