# FS980 / FS981
# CONFINED SPACE SYSTEM
# INSTRUCTION MANUAL

**WARNING**
This product is part of a personal fall arrest, work positioning, or rescue system. The manufacturer's instructions must be provided to users of this equipment. The user must follow the manufacturer's instructions for each component of the system. The user must read and understand these instructions before using this equipment. Manufacturer's instructions must be followed for proper use and maintenance of this equipment. Alterations to this product, misuse of this product, or failure to follow instructions may result in serious injury or death.

**IMPORTANT**
Questions regarding the use, care, or suitability of this equipment for your application? Contact SAFEWAZE™.

**IMPORTANT**
Record initial usage of product on Page 2, and Page 16. Competent Person inspections are required to be documented in the Inspection Log Table on Page 16.

# TABLE OF CONTENTS



## User Information

Date of First Use: _____

Serial#: _____

Trainer: _____

User: _____

**Do not throw away these instructions!**

**Read and understand these instructions before using equipment!**

## INTRODUCTION

Thank you for purchasing the SAFEWAZE ™ FS980 / FS981 Confined Space System. This manual must be read and understood in its entirety, and used as part of an employee training program as required by OSHA or any applicable state agency.

This manual and any other instructional material must be available to the user of the equipment. The user must understand how to safely and effectively use the FS980 / FS981 system, and all fall protection eqipment used in conjuction with the FS980 / FS981 system.

## APPLICABLE SAFETY STANDARDS

When used according to instructions, this product meets or exceeds all applicable OSHA 1926 Subpart M, OSHA 1910, ANSI Z359.1-2007, and ANSI A10.32-2012 standards for fall protection. Applicable standards and regulations depend on the type of work being done, and also might include state-specific regulations. Refer to local, state, and federal (OSHA) requirements for additional information concerning the governing of occupational safety regarding Personal Fall Arrest Systems (PFAS).

## Worker Classifications

Understand the definitions of those who work in proximity of or may be exposed to fall hazards.

**Qualified Person:** A person with an accredidated degree or certification, and with extensive experience or sufficient professional standing, who is considered proficient in planning and reviewing the conformity of fall protection and rescue systems.

**Competent Person:** A highly trained and experienced person who is **assigned by the employer** to be responsible for all elements of a fall safety program, including, but not limited to, its regulation, management, and application. A person who is proficient in identifying existing and predictable hazards, and who has the authority to stop work in order to eliminate hazards.

**Authorized Person:** A person who is assigned by their employer to work around or be subject to potential or existing fall hazards.

**It is the responsibility of a Qualified or Competent person to supervise the job site and ensure safety regulations are complied with.**

## Product Specific Applications

**Rescue / Confined Space:** The FS980/FS981 Confined Space System may be used in both Confined Space and Rescue aqpplications. Rescue systems function to safely remove a worker from a confined space environment or after exposed to a fall. There are various configurations of rescue systems depending on the type of rescue required. Structure must withstand loads applied in the directions permitted by the system of at least 3,000 lbs. No free fall is permitted. Applicable D-rings are dorsal, chest, and shoulder.

## Limitations

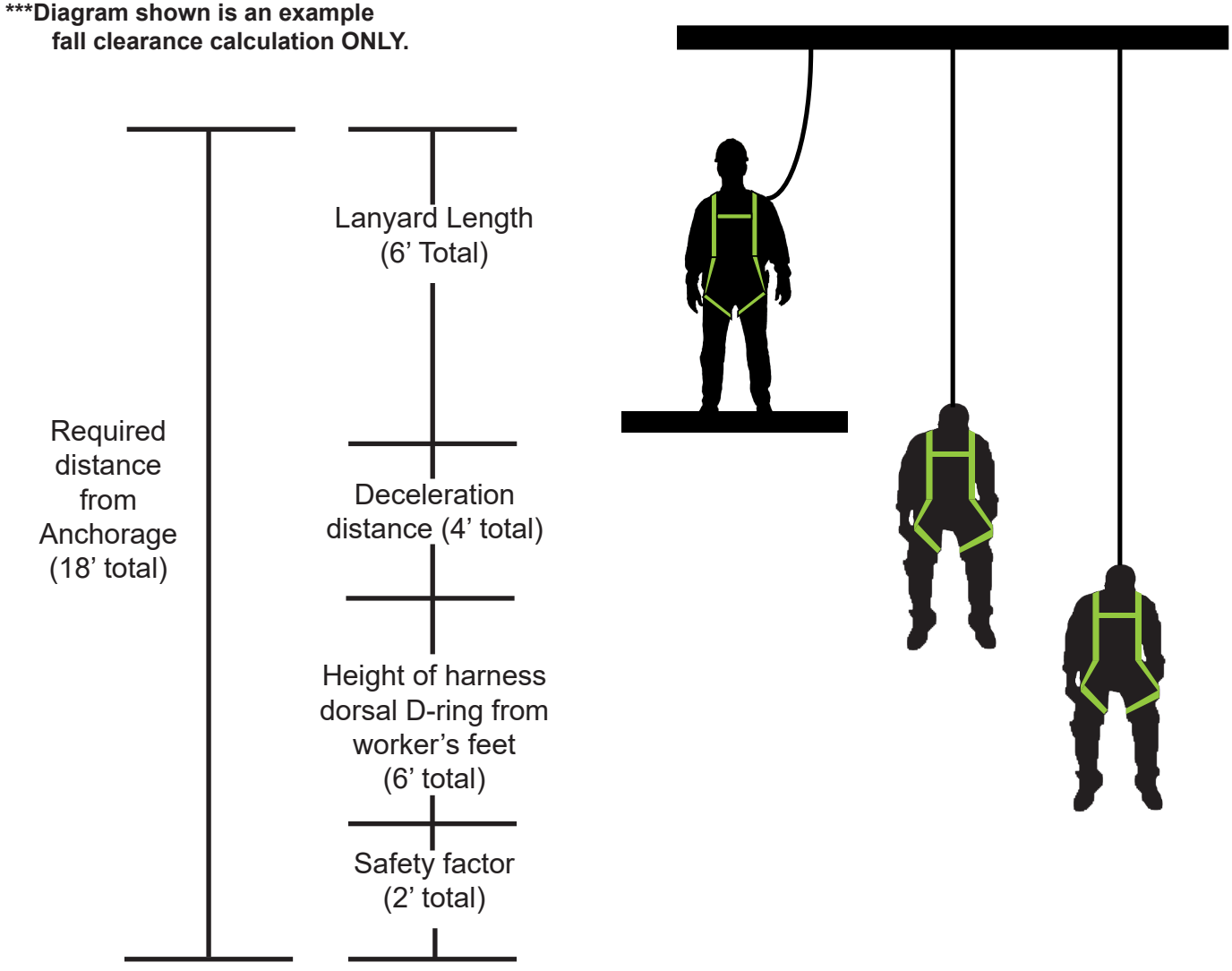
**Fall Clearance:** There must be sufficient clearance below the anchorage connector to arrest a fall before the user strikes the ground or an obstruction. When calculating fall clearance, account for a MINIMUM 2' safety factor, deceleration distance, user height, length of lanyard/SRL, and all other applicable factors. (See Figure 1)

**FIGURE 1**

**For all applications: worker weight capacity range (including all clothing, tools, and equipment) is 130-310 lbs**

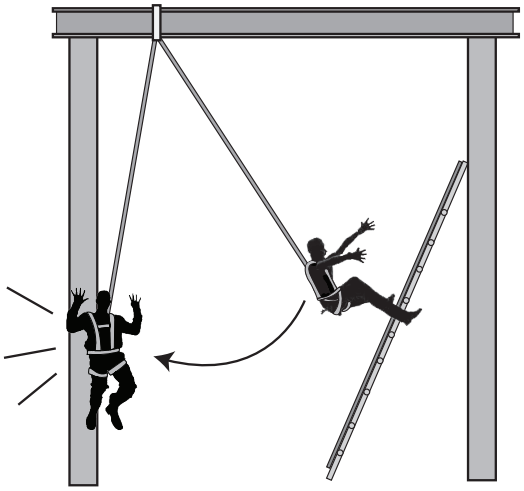
### Fall Clearance Diagram

*****Diagram shown is an example fall clearance calculation ONLY.**



**Swing Falls:** Prior to installation or use, make considerations for eliminating or minimizing all swing fall hazards. Swing falls occur when the anchor is not directly above the location where a fall occurs. Always work as close to in line with the anchor point as possible. Swing falls significantly increase the likelihood of serious injury or death in the even of a fall. (See Figure 2)

**FIGURE 2**

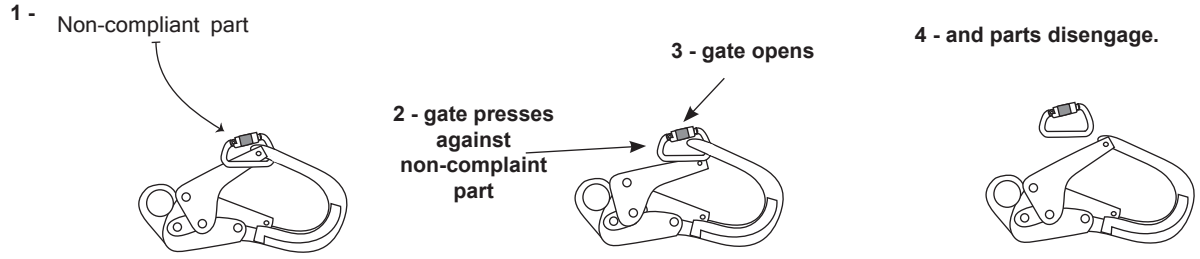


## COMPATIBILITY OF CONNECTORS

Connectors are compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open regardless of how they become oriented. Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22.2 kN). Connectors must be compatible with the anchorage or other system components (see Figure 4). Do not use equipment that is not compatible. Non- compatible connectors may unintentionally disengage (see Figure 3). Connectors must be compatible in size, shape, and strength. Self-locking snap hooks and carabiners are required by ANSI Z359 and OSHA guidelines. Contact SAFEWAZE™ if you have any questions about compatibility.

**NOTE:** SOME SPECIALITY CONNECTORS HAVE ADDITIONAL REQUIREMENTS. CONTACT SAFEWAZE™ WITH QUESTIONS.

**FIGURE 3 - UNINTENTIONAL DISENGAGEMENT**




Using a connector that is undersized or irregular in shape (1) to connect a snap hook or carabiner could allow the connector to force open the gate of the snap hook or carabiner. When force is applied, the gate of the hook or carabiner presses against the non-compliant part (2) and forces open the gate (3). This allows the snap hook or carabiner to disengage (4) from the connection point.

## MAKING CONNECTIONS

Snap hooks and carabiners used with this equipment must be double locking and/or twist lock. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

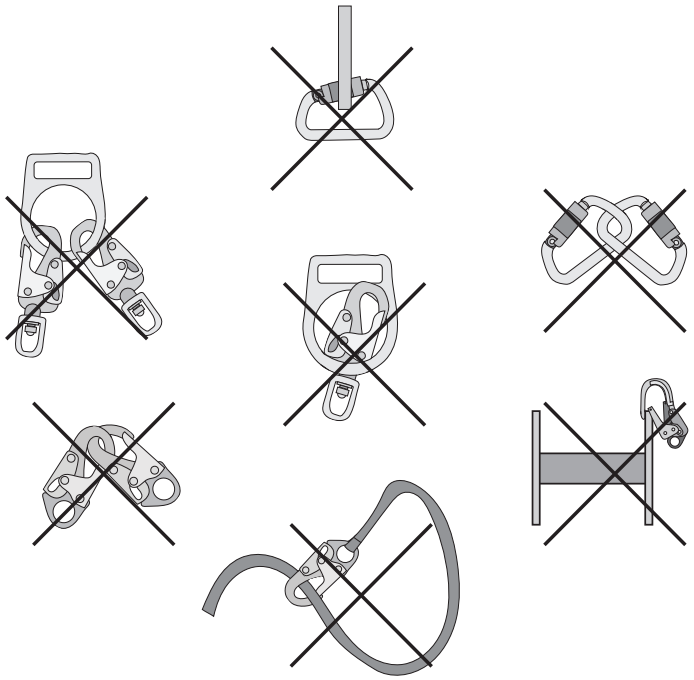
SAFEWAZE™ connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See figure 4 for examples of inappropriate connections. Do not connect snap hooks and carabiners:

- To a D-ring to which another connector is attached.
- In a manner that would result in a load on the gate (with the exception of tie back hooks).
- NOTE: Large snap hooks must not be connected to objects which will result in a load on the gate if the hook twists or rotates, unless the snap hook complies with ANSI Z359.1-2007 or ANSI Z359.12 and is equipped with a 3,600 lb (16 kN) gate. Check the marking on your snap hook to verify its compatibility.

**NOTE:** Large throat snap hooks must not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates, unless the snap hook complies with ANSI Z359.1-2007 or ANSI Z359.12 and is equipped with a 3,600 lb (16 kN) gate. Check the marking on your snap hook to verify that it is appropriate for your application.

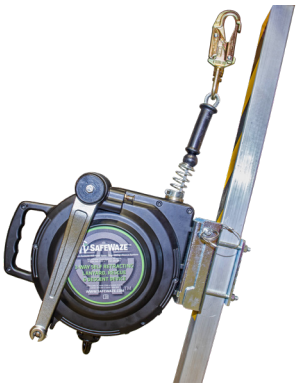
- In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor, and without visual confirmation seems to be fully engaged to the anchor point.
- To each other.
- By wrapping the web lifeline around an anchor and securing to lifeline except as allowed for Tie Back models (see section 4.5).
- To any object which is shaped or sized in a way that the snap hook or carabiner will not close and lock, or that roll-out could occur.
- In a manner that does not allow the connector to align properly while under load.

**FIGURE 4 - INAPPROPRIATE CONNECTIONS**

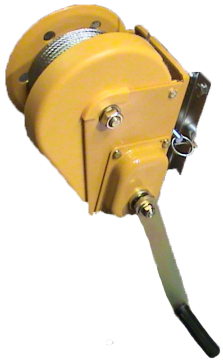


## Components and Specifications

**FS960-65**
**3-Way SRL**

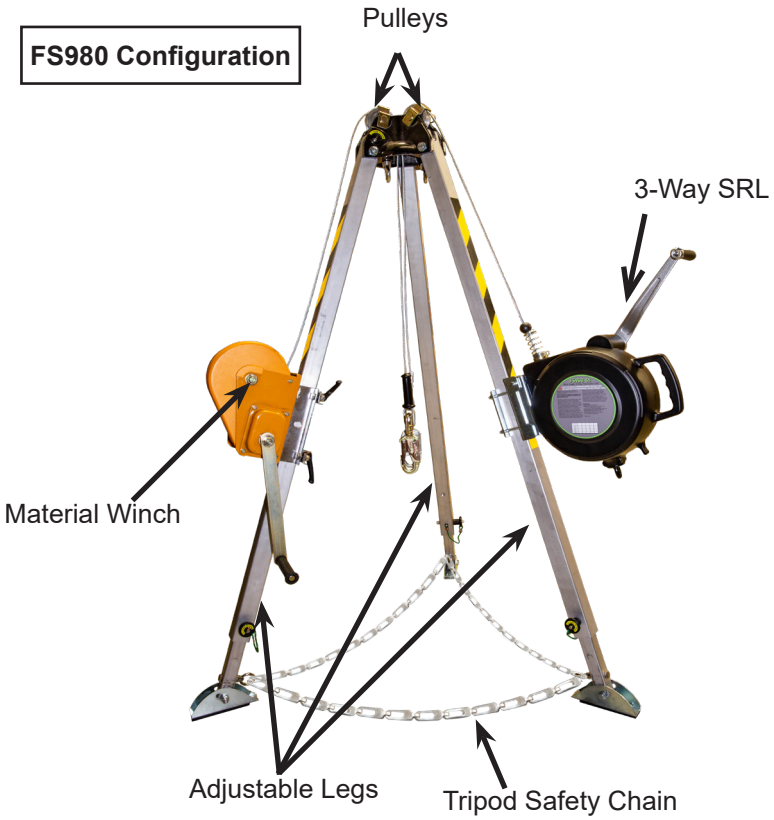


**FS958-65**
**65' Material Winch**



**FS970**
**Aluminum Tripod**

**FS980 Configuration**




**FS981 Configuration**

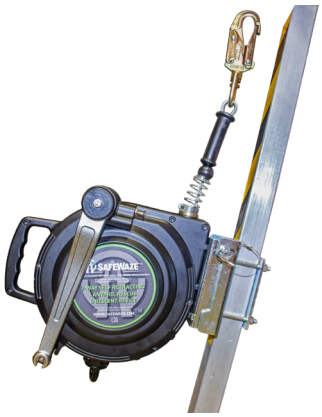
## Components and Specifications (cont)

**FS970**
**Aluminum Tripod**

| | |
|---|---|
| Interior Headroom | 81 in (2057.4 mm) |
| Distance Between Feet | 61 in (1549.4 mm) |
| Max Diameter Hole | 44 in (1117.6 mm) |
| Working Load | 350 lbs (158.76 kg) |
| Overall Height | 84 in (2133.6 mm) |
| Storage Length | 65 in (1651 mm) |
| Outside Head Diameter | 17 in (431.8 mm) |
| Leg Adjustment Increments | 6 in (152.4 mm) |
| Weight | 50 lbs (22.68 kg) |

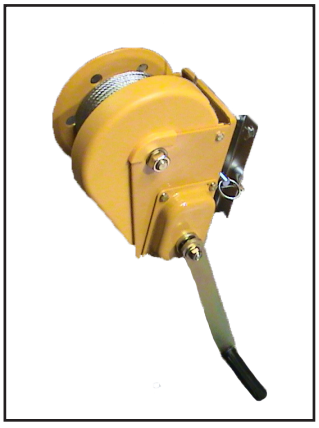
**FS960-50**
**3-Way SRL**

| | |
|---|---|
| Length/Type | 65 ft (19.81 m) Galvanized Steel |
| Breaking Strength | 4200 lbs (1905.08 kg) |
| Maximum Work Load | 310 lbs (140.61 kg) |
| Minimum Work Load | 110 lbs (49.9 kg) |
| Locking Speed | 4 - 5 ft/sec (1.22 - 1.52 m/sec) |
| Stopping Distance | < 54 in (1371.6 mm) |
| Speed Rescue Mode | Approximate 20 ft/min (6.1 m/min) |
| Gear Ratio | 5.5:1 |
| Mechanical Advantage | 29 lbs (13.15 kg) |
| Weight | 35 lbs (15.88 kg) |



**FS958-65**
**65' Material Winch**

| | |
|---|---|
| Cable | 0.19 in (4.83 mm) steel |
| Weight | 32 lbs (14.52 kg) |
| Lifting Capacity | 600 lbs (272.16 kg) |
| Size | 11 in x 8 in (279.4 mm x 203.2 mm) |
| Handle Length | 14 in (355.6 mm) |

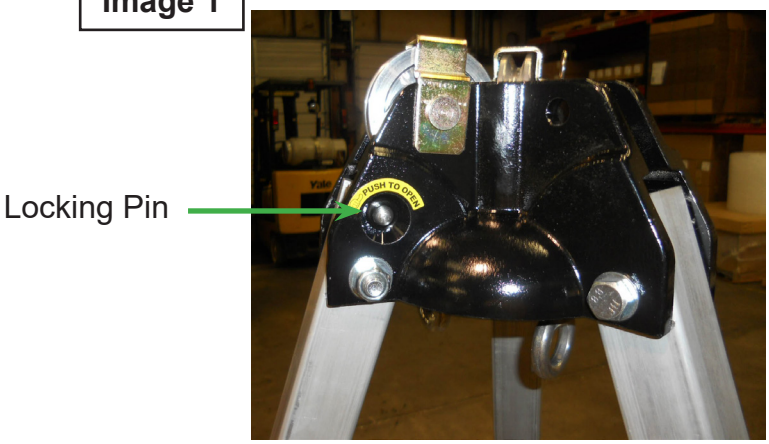


## Installation and Use

1. Remove tripod from tripod storage/carrying bag.

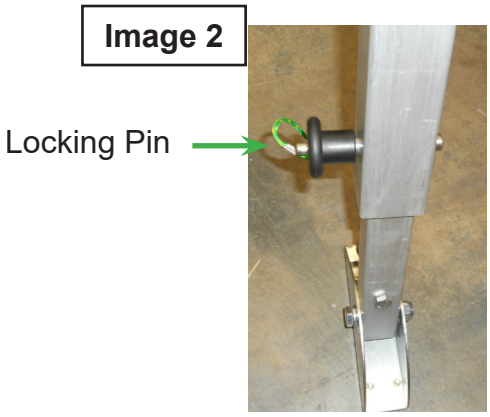
2. Tripod must be mounted on a stable level surface for each leg, when positioned over opening with a Maximum Installation Diameter of 44 inches. Lift tripod to upright position. Press locking pin above each leg in the tripod head and pull leg away from center point until locking pin locks into place. Repeat with the ramaining legs. (See Image 1)

**Image 1**




3. Remove Locking Pins above foot of tripod legs and extend legs to desired height. Re-insert locking pin at desired height, (See Image 2) and connect safety chains to bottom of tripod legs. Remove excess slack in the safety chain by adjusting the position of the twist link.

**Image 2**




4. Remove Cotter Pins, Pulley Housing, and pulleys from the top of tripod. (See Image 3 & 4)

**Image 3**

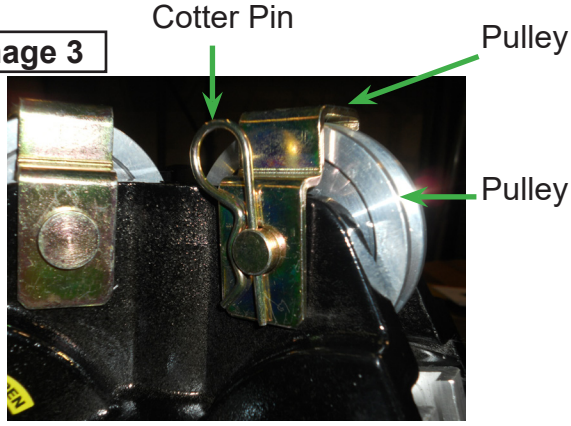
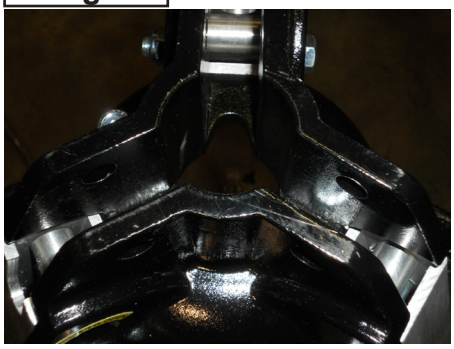



**Image 4**



(Top of tripod with pulleys removed)

## Installation and Use (cont)

5. Prepare 3-Way unit for mounting to tripod. The mounting bracket for the 3-Way unit is permanently attached to the back of the housing. With the hooks of the bracket facing downward place the 3-Way onto the tripod mounted bracket with the hooks catching the crossbar of the tripod mounted bracket, with the body facing out and the snap hook facing towards the top of the tripod. Insert retaining pin, which is cable tethered to the tripod bracket, through the holes of the 3-way and tripod mounted bracket when holes are aligned. (See Images 5, 6a-6d, & 7)

**Image 5**

View of bracket on rear of 3-Way unit

Tripod Mounted Bracket

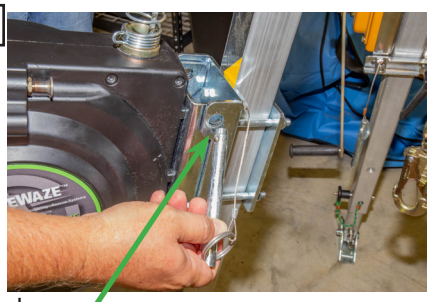
3-Way mounted bracket hooks catching crossbar of Tripod mounted Bracket

**Image 6a**

3-Way Bracket Hooks

**Image 6b**

**Image 6c**



Bracket Holes and retaining pin alignment

**Image 6d**

3-Way mounted with retaining pin inserted

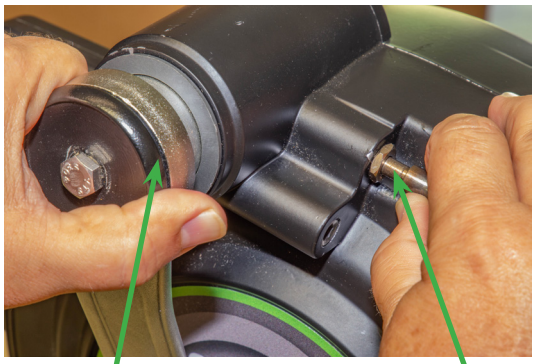
**Image 7**

Snaphook towards top of tripod with 3-Way mounted.

## Installation and Use (cont)

6. Extend cable and route through top of tripod. The FS960-65 (3-Way unit) To extend the cable from the unit, pull the function switch button out, and then pull the crank handle base outward from the 3-Way Housing.(See Image 8a) This places the 3-way unit into it's Self Retracting Device configuration. Pull out the required amount of cable to drop through the head assembly of the tripod. Pulling out once again on the function switch and pushing the base of the crank handle assembly inward places the unit into Rescue/Recovery mode.(See Image 8b) Drape the cable over the top of the tripod and slide the snap hook down through the opening in the top of the tripod where the pulley (previously removed in Step 4) is normally seated. (See Image 9)

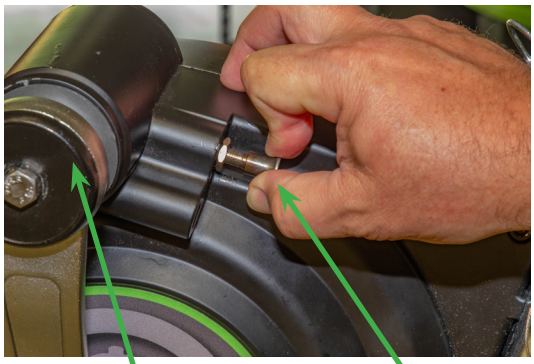
**Image 8a**



Pull out on base of crank handle assembly

Pull out on function switch button

**Image 8b**



Push in on base of crank handle assembly

Pull out on function switch button

**Image 9**

## Installation and Use (cont)

7. Material Winch Installation. Loosen the mounting bracket handles on the FS958-65 material winch and slide the brackets arms out of the way.(See Image 10) Place the winch over the tripod leg with the cable and snap hook facing towards the top of the tripod. Rotate the mounting bracket arms closed with the bracket ends over the bracket bolts. Tighten the bracket handles to secure the material winch to the tripod leg.(See Image11) Rotate the winch crank handle counter clockwise to pay out the winch cable and feed the snap hook down through the top of the tripod as done when mounting the 3-Way unit. Re-install the pulley assemblies removed in Step 4. Ensure cable(s) are routed over the top of the pulley. (See Image 12) The FS980/FS981 is now fully assembled and ready for use.

**Image 10**

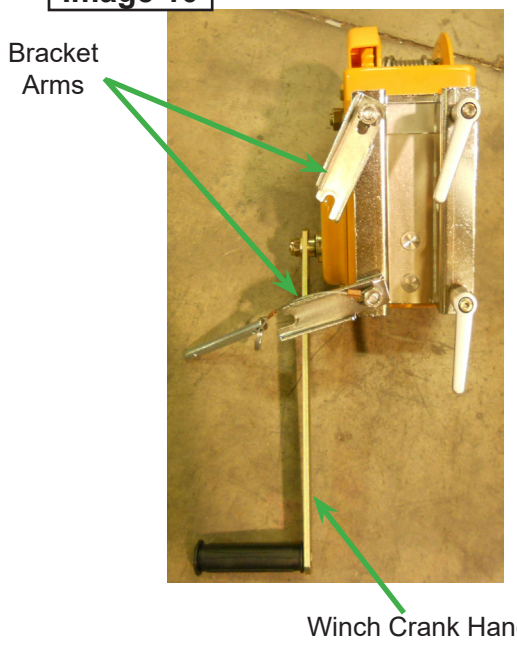



**Image 11**

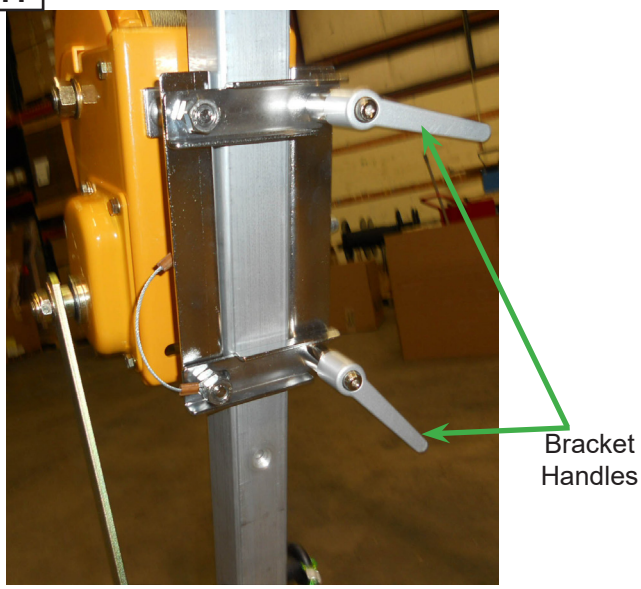
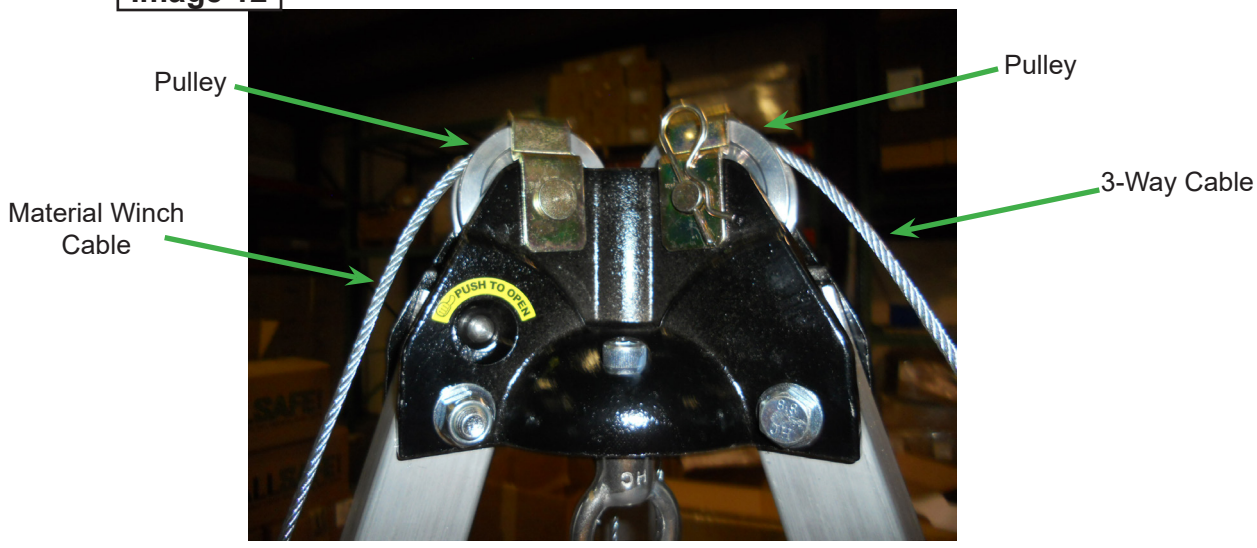



**Image 12**



## Operation

### FS960-65 (3-Way unit)

The FS960-65 (3-Way unit) allows for raising and lowering a person up to 310 lbs (140.61 kg) into, or out of, a confined space envrionment or similar working situation. The FS960-65 (3-Way unit) can also be used as a Self-Retracting Device. When being utilized as a Self Retracting Device, the snap hook must be attached to the dorsal D-ring of a full body harness. When being utilized for recovery operations, the snap hook can be attached to either the dorsal D-ring of a full body harness, or the front rescue D-ring of a full body harness if so equipped.

To operate the FS960-65 (3-Way unit) the crank handle grip should be be extended. Grasp the crank handle and crank handle grip simultaneously. Pull the crank handle grip outward from the handle and rotate the handle grip until it extends outward and away from the 3-way housing.(See images 13-15) The crank handle assembly of the unit determines which function is to be employed by either pulling the handle outward from the body of the unit or pushing it into the body. The Crank Handle Assembly position is changed by pulling out on the function switch button and either pushing in or pulling out on the crank handle assembly. The handle assembly pushed into the body of the unit places the unit in recovery mode,(See Image 16) whereas pulling the handle assembly out from the unit places in into Self Retracting Device mode.(See Image 17)

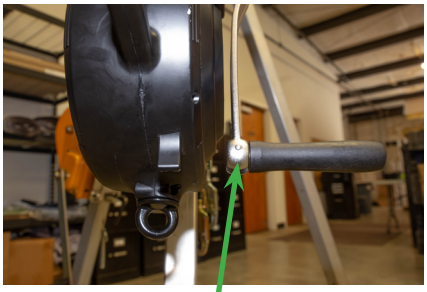
**Image 13**

Pull Out on Crank Handle Grip

**Image 14**

Rotate Crank Handle Grip

**Image 15**



Crank Handle Grip in Extended Configuration

With the handle pushed in, the unit functions in recovery mode. By turning the crank handle clockwise, the cable is lowered. Turning the crank handle counterclockwise will raise the individual up. When the crank handle is pulled out from the unit, it functions as a Self Retracting Device.

**Image 16**

Crank Handle assembly pushed in in Rescue/Recovery Configuration

**Image 17**

Crank Handle assembly pulled out in Self Retracting Device Configuration

**FS958-65 Material Winch**

Operation of the FS958-65 Materail Winch to lower or raise material into the work area is simply accomplished by use of the crank handle on the unit. Clockwise operation of the crank handle raises material, and counterclockwise operation lowers material. The FS958-56 Material Winch has a built in internal brake that will not allow the load to slip when cranking in either direction is stopped.

## Inspection

USER MUST KEEP INSTRUCTIONS AVAILABLE FOR REFERENCE. Record Date of First Use.

Prior to each use, inspect the FS980/FS981 for possible deficiencies including, but not limited to, corrosion, deformation, pits, burrs, rough surfaces, sharp edges, cracking, rust, paint buildup, excessive heating, alteration, and missing or illegible labels. User MUST IMMEDIATELY remove the FS980/FS981 from service is defects or damage are found, or if exposed to forces of fall arrest.

Inspect work area to ensure that location is free of any damage including, but not limited to, debris, cracking, rot, decay, structural deterioration, rust, and free from any hazardous materials. User must confirm that work area to be utilized will support the application specific loads as referenced within this instruction manual. Work area MUST be stable.

At least annually, a Competent Person other than the user must inspect the FS980/FS981.

Competent Person inspections must be recorded in the inspection table included in this manual as well as the inspection table labels on each product individually. The Competent Person must place his/her initials in the block which corresponds with the month and year that the inspection is performed. All individual labels on equipment will be initialed in the same manner.

While conducting inspections, the Competent Person must consider all applications and hazards that the equipment may have been subjected to while in use.

Prior to each use, the user must inspect and verify that each individual component of the FS980/FS981 system is safe for use.

**FS970 Aluminum Tripod inspection:**

1. Inspect for bent or deformed tripod legs.

2. Inspect that all locking pins for tripod legs are present and functional.

3. Inspect triopod pulley assembly for any missing for damaged components including, pulleys, cotter pins, and pulley housings.

4. Ensure that tripod feet are clear of any debris and undamaged so that they can pivot freely.

5. Inspect tripod chain for any kinks, broken links, corrosion, chemical exposure or any other damage.

6. Inspect entire unit for any bends, cracks, corrosion, chemical exposure, or any factor that may effect integrity of the tripod unit.

## Inspection (Cont)

### FS960-50 (3-Way unit) inspection:

1. Crank handle must move freely, and must not interfere with any other component.

2. With the crank handle pushed into unit in recovery mode, the cable from the unit should pay out and retract smoothly when rotating the handle in the corresonding clockwise or counterclockwise direction.

3. With the crank handle pulled out from the unit in Self Retracting Device mode:
   a. Pull the lifeline sharply to test locking function
   b. Lifeline should lock and subsequently retract smoothly and completely back into unit without hesitation or stoppage.
   c. Inspect entire length of lifeline for any damage including, but not limited to, fraying, crushing, bird caging, chemical exposure, heat/welding spatter, and kinking. User should always wear gloves when inspecting lifeline to prevent injury in the event of cable damage.

### FS958-65 Material Winch inspection (if applicable):

1. Crank handle must move freely, and must not interfere with any other component. Locking mechanism must operate properly with no slippage of cable.

2. The cable from the unit should pay out and retract smoothly when rotating the handle in the corresponding clockwise or counterclockwise direction.

3. Inspect entire length of winch cable for any damage including, but not limited to, fraying, crushing, bird caging, chemical exposure, heat/welding spatter, and kinking. User should always wear gloves when inspecting winch cable to prevent injury in the event of cable damage.

## Inspection Log

**Date of First Use:_____**

Product lifetime is indefinite as long as it passes pre-use and Competent Person inspections. User must inspect prior to each use. Competent Person other than the user must complete formal inspection at least annually. Competent person to inspect and initial table below:

| Date | Inspection Items Noted | Corrective Action | Initials |
|---|---|---|---|
| | | | |
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**If equipment fails inspection**
**IMMEDIATELY REMOVE FROM SERVICE**

## Safety Information

**WARNING**

Failure to understand and comply with safety regulations may result in serious injury or death. Regulations included herein are not all-inclusive, are for reference only, and are not intended to replace a Competent Person's judgement or knowledge of federal or state standards.

Do not alter equipment. Do not misuse equipment.

Workplace conditions, including, but not limited to, flame, corrosive chemicals, electrical shock, sharp objects, machinery, abrasive substances, weather conditions, and uneven surfaces, must be assessed by a Competent Person before fall protection equipment is selected.

The inspection of the workplace must anticipate where workers will be performing their duties, the routes they will take to reach their work, and the potential and existing fall hazards they may be exposed to. Fall protection equipment must be chosen by a Competent Person. Selections must account for all potential hazardous workplace conditions. All fall protection equipment should be purchased in new and unused condition.

Fall protection systems must be selected and installed under the supervision of a Competent Person, and used in a compliant manner. Fall protection systems must be designed in a manner compliant with all federal, state, and safety regulations. Forces applied to anchors must be calculated by a Competent Person.

Unless explicitly stated otherwise, the maximum allowable free fall distance for lanyards must not exceed 6'. No free fall allowed for non-LE SRLs. Class A SRLs must arrest falls within 24";
Class B SRLs must arrest falls within 54".

Harnesses and connectors selected must be compliant with manufacturer's instructions, and must be of compatible size and configuration. Snap hooks, carabiners, and other connectors must be selected and applied in a compatible fashion. All risk of disengagement must be eliminated. All snap hooks and carabiners must be self-locking and self-closing, and must never be connected to each other.

A pre-planned rescue procedure is required in the event a fall occurs. The rescue plan must be project-specific. The rescue plan must allow for employees to rescue themselves, or provide an alternative means for their prompt rescue. Store rescue equipment in an easily accessible and clearly marked area.

Training of Authorized Persons to correctly erect, inspect, disassemble, maintain, store, and use equipment must be provided by a Competent Person. Training must include the ability to recognize fall hazards, minimize the likelihood of fall hazards, and the correct use of personal fall arrest systems.

NEVER use fall protection equipment of any kind to hang, lift, support, or hoist tools or equipment, unless explicitly certified for such use.

Equipment subjected to forces of fall arrest must immediately be removed from use.

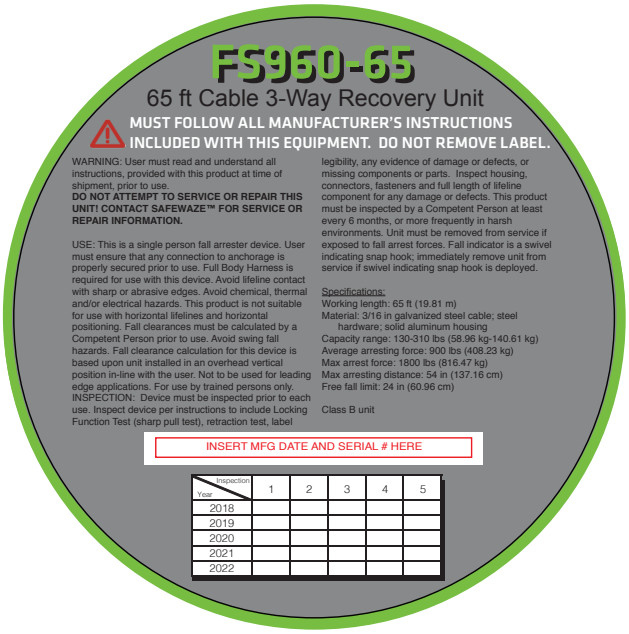
## Safety Information (cont)

Age, fitness, and health conditions can seriously affect the worker should a fall occur. Consult a doctor if there is any reason to doubt a user's ability to withstand and safely absorb fall arrest forces or perform set-up of equipment. Pregnant women and minors must not use this equipment.

Physical harm may still occur even if fall safety equipment functions correctly. Sustained post-fall suspension may result in serious injury or death. Use trauma relief straps to reduce the effects of suspension trauma.

## Labels

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | |
| 2022 | | | | | | | | | | | | |


Model: FS980 - FS981
Manufacture Date: mm/yyyy
Capacity: 310 pounds (140 kg) per user. Single user only. Two users at one time for emergency rescue applications only.
Materials: Aluminum, Cast Aluminum, Forged Steel
Standards: Meets ANSI Z359.1-07, ANSI Z359.4-07, ANSI Z117.1-09 and OSHA 29 CFR 1910.66 and 1926.502

WARRANTY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