Mechanical Safety Equipment Corp.

Operating Instructions for MSE Three-Way Recovery Winch Model 2005

Personal Fall Arrest Device, Self Retracting Lifeline with retrieval winch.

This instruction manual covers the installation, operation, inspection and maintenance procedures for the product listed above.

WARNING! You must read and fully understand all instructions, or have all instructions explained to you, before attempting to use this device. Equipment must not be installed, operated or inspected by anyone who does not understand this Owner's Manual. Failure to observe these instructions could result in serious injury or death. Careless or improper use of this equipment can result in serious injury or death. Training and instructions review should be repeated at regular intervals. If you have any questions regarding these instructions or need additional copies, please call **Mechanical Safety Equipment Corp. at 215-676-7828**

General

THREE-WAY RECOVERY WINCH is designed for use in confined spaces such as manholes, tanks, and other confined areas, where fall-arrest and retrieval rescue are important. The winch operates as a retractable as well, to raise and lower a worker.
In the situation where a ladder or other means of descent and ascent is in place, a worker should be attached to a Three-Way Recovery Winch.

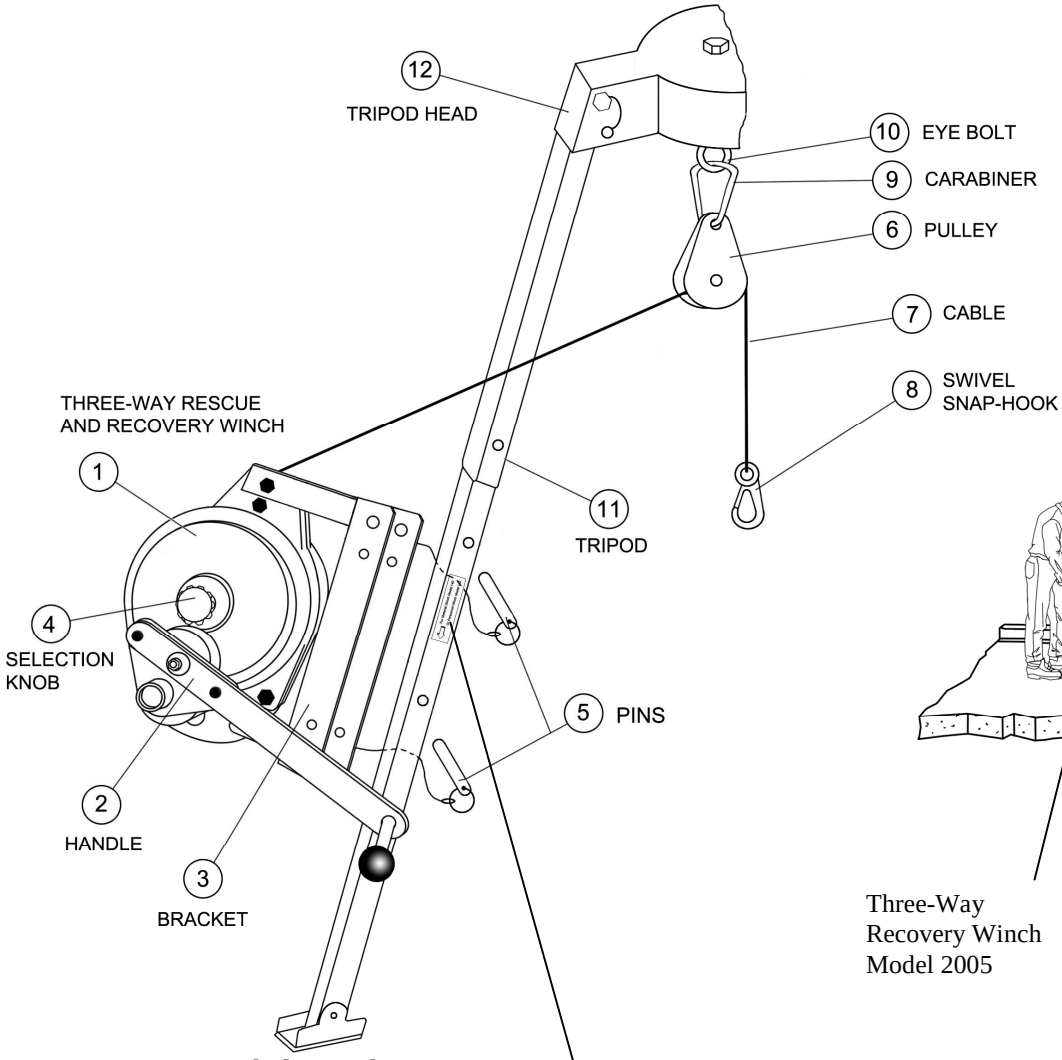
Functions:

- **Fall Arrest – a braking action if a worker falls**
- **Retrieval – a means for a topside worker to raise another worker**
- **Reverse direction - a means for the topside worker to reverse directions, if for any reason the worker becomes wedged while retrieval is in progress**

Note: A Three-Way Recovery Winch, when used in conjunction with anchors such as (Tripod, Quadpod, Monopod or Davit) with optional Personnel or Work Winch is called a Three-Way Recovery System.

WARNING: This unit is NOT meant to hold or suspend a worker. The capability to raise a worker (retrieval) should only be used for rescue operations; NOT for routine lifting. If suspension or non-rescue retrieval capabilities are required, use the Personnel Winch Model no. 142. All material will be lowered and raised with a material handling winch Model no.140

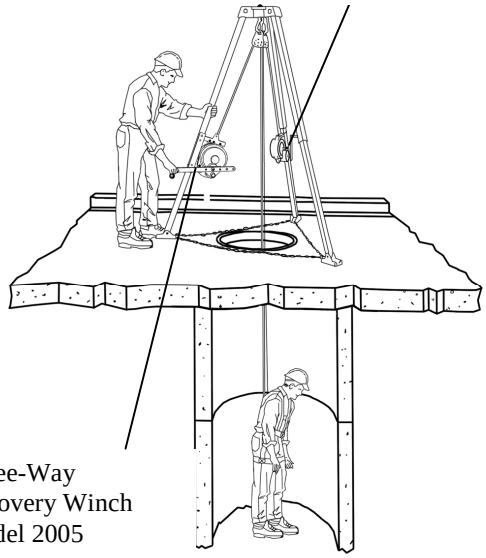
Three-Way Recovery Winch Installed on Tripod



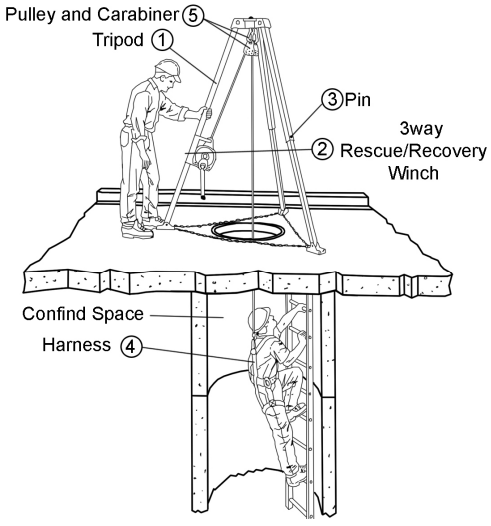
Label For Three-Way
Recovery Winch attachment

For 3 WAY Unit
Model 2005

Personnel Winch
Model 142



Three-Way
Recovery Winch
Model 2005

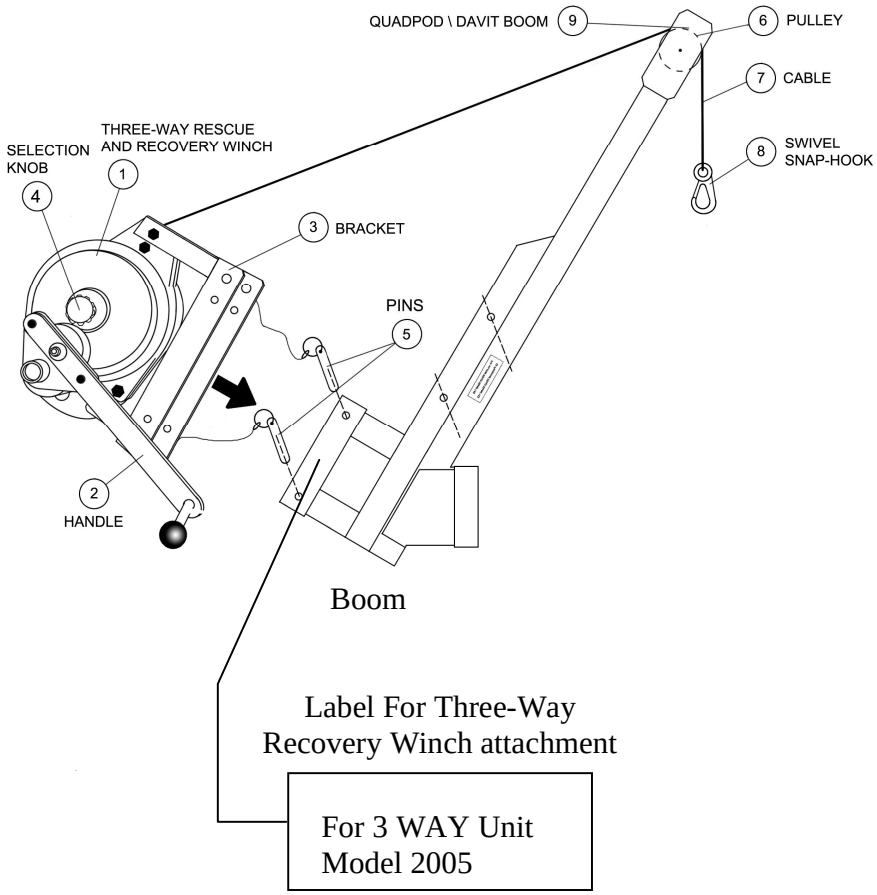


Tripod System

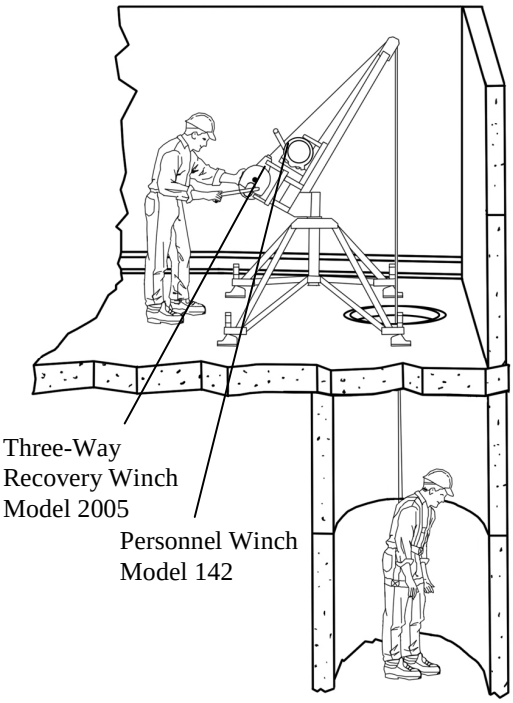
INSTALLATION PROCEDURES

Attach the Three-Way Recovery Winch to inside of one Tripod leg making sure the unit's bracket is aligned so that both locking pins can be fully pushed-in through the leg to secure the unit. Unit may be easily attached by lifting with winch handle and resting unit on one knee while inserting two locking pins. Attach a carabiner (narrow end up) to the center eye bolt of Tripod head. Release cable from unit and pull out enough cable to extend past carabiner. Place cable through a pulley (pulley halves will slide apart to accommodate cable) and attach pulley to carabiner. Make sure both halves of the pulley are attached to the carabiner and that the cable extends and retracts freely through the pulley.

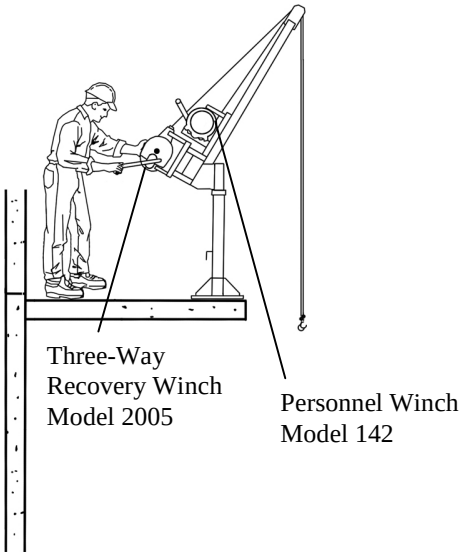
Three-Way Recovery Winch Installed on Quadpod\Davit



Quadpod System



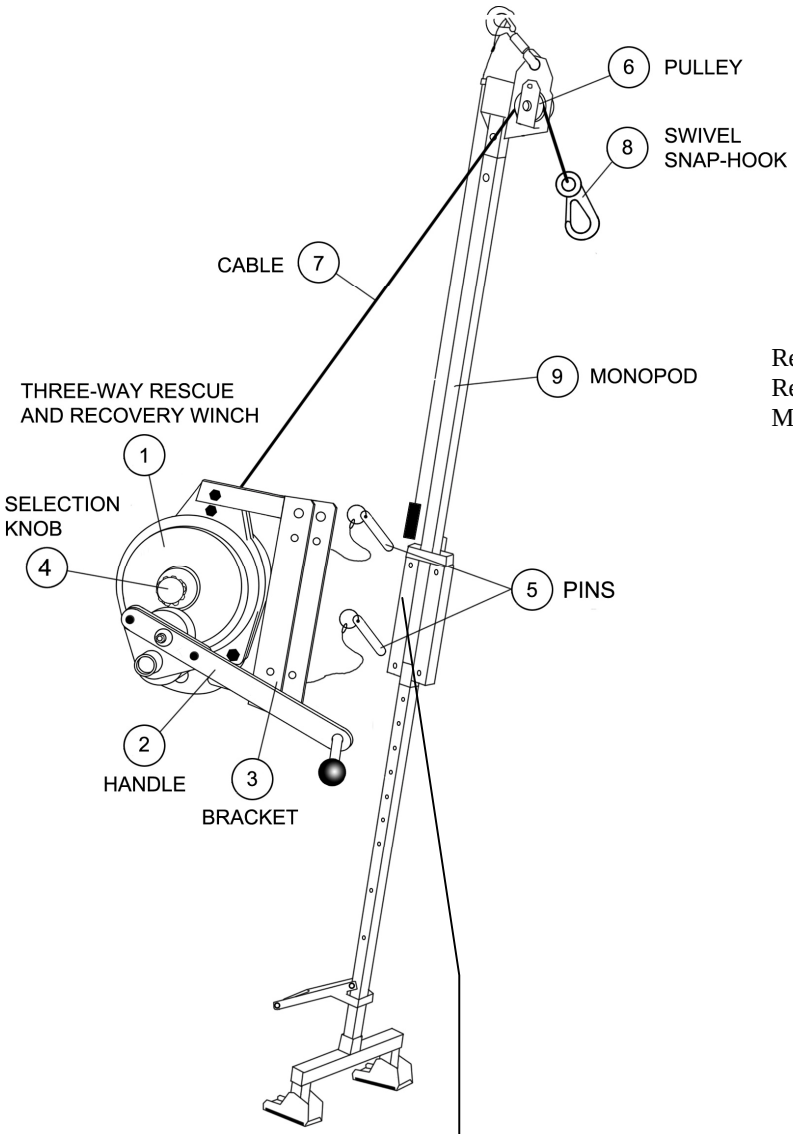
Davit System

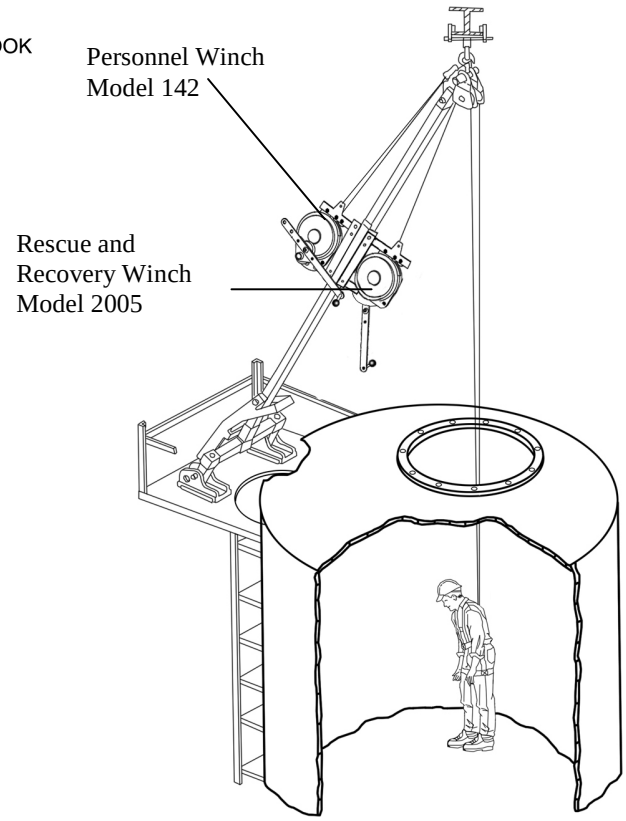


INSTALLATION PROCEDURES

Three-Way Recovery Winch attaches to a boom with two locking pins (see picture above). Attach the Three-Way Recovery Winch to the boom (the attachment point is marked with a label). Align the holes in the bracket with the holes provided on the Quadpod/Davit Boom and insert the push pins completely through the bracket and secure them with a cotter pin. Take out the pin from the pulley at the top of the boom. Pull the cable out from the unit (in retractable mode) to extend past the pulley. Place cable through a pulley and put the pin back through the top of the boom. Make sure the cable extends and retracts freely through the pulley.

Three-Way Recovery Unit Installed on Monopod





Monopod System

Label For Three-Way Recovery Winch attachment

For 3 WAY Unit
Model 2005

INSTALLATION PROCEDURES

Three-Way Recovery Winch attaches to a monopod with two locking pins (see picture above). Attach the Three-Way Recovery Winch to the monopod (the attachment point is marked with a label). Align the holes in the bracket with the holes provided on the monopod and insert the push pins completely through the bracket and secure them with a cotter pin. Take out the pin from the pulley at the top of the boom. Pull the cable out from the unit (in retractable mode) to extend past the pulley. Make sure the cable extends and retracts freely through the pulley.

INSPECTION PROCEDURES

WARNING Never use the winch without thorough inspection before each use.

Inspect the work area for debris and other material that could cause injury or interfere with the operation of the unit. Be sure that the Tripod, Quadpod, Davit and Monopod are positioned on a stable, hard ground before setting it up. The leg chains (for Tripod) and all locking pins should be checked to assure correct securing of the equipment.

Caution: Gloves should be worn when inspecting and handling cable.

Check the cable to insure it moves freely and retracts correctly. If the cable doesn't pull out smoothly – pull the cable out of the housing and allow it to retract slowly under light tension. Check the cable for cuts, kinks, broken strands, excessive wear or other damage. The cable shall be check regularly for the signs of wear. Schedule regular safety inspections based on the amount of use and working conditions.

Checking cable retraction: Test the cable retraction by pulling out at least 4 ft. (1.2 meters) of the cable and allowing it to retract slowly back into the housing, while keeping tension on the cable.

Checking Fall-Arrest Mode: To test the locking mechanism (fall arrest/suspension) of the winch - pull out approximately 2 ft. (.6 meters) of the cable from the housing and give it a quick, hard downward tug. The cable should stop and lock.

Checking Retrieval Mode: Test the rescue (retrieval) capability of the unit by pulling out approximately 2 ft. (.6 meters) of the cable from the housing and giving it a quick tug to lock it. While maintaining the downward pressure on the cable, push the selection knob (4) in and turn it clockwise ¼ turn and lock the unit into the **rescue (retrieval) mode**. Rotate the crank handle (2) clockwise to wind about 1 ft. of the cable back into the housing.

Inspect the snap hook and connecting hardware for any damages or cracks. Make sure that the hook keepers and free of burrs and clean.

Three-Way Recovery Winch should be removed from service immediately and returned to MSE Corp. 2070 Bennett Road, Philadelphia, PA 19116 if:

- **Winch has been subjected to a free fall**
- **Winch or winch components/part have not passed above described inspection**

MSE Corp. recommends annual or more frequent inspections depending of the use of the equipment.

Operation Procedures

Read and complete all instructions listed in the “Inspection Procedures” section.

Unscrew the handle from the mounting bracket and slide it outward.

After successful testing, a worker can now be attached to the winch via attaching the swivel snap hook at the end of the cable to the back center “D” Ring of a Full Body Harness that meets government standards. **Visual Check**: Swivel Snap Hook freely engages “D” Ring of the Harness. Keep the snap hook completely closed during each use. Do NOT rely solely of the feel or sound of a snap hook engaging.

Warning: Attach the locking snap hook on the fall-arrest unit only onto the back “D” Ring of a harness that meets government standards for the intended use.

Fall Arrest Operation (Lowering)

1. Unscrew the crank handle (2) from the mounting bracket (3) and slide outward. Push the selection knob (4) in and turn it clockwise ¼ turn to lock unit into the **rescue (lowering) mode**.
2. Rotate the crank handle (2) clockwise until the worker is lifted approximately 1 ft., and then start to lower him by rotating the handle counterclockwise.

Under normal working conditions the cable is released in and out of the unit as required. The centrifugal brake will engage only when the unit is under load. In this condition a worker may experience slight restraint while working. In the event of a fall, however, the braking system brings the worker to a decelerated stop and holds him in place. While this action helps prevent injury, it may be necessary to use the unit’s rescue (retrieval) capability to raise a worker safely to the surface.

Rescue Operation (Retrieval)

1. Unscrew crank handle (2) from the mounting bracket (3) and slide it outward.
   Push the selection knob (4) in and turn it clockwise ¼ turn and lock the unit into the **rescue (retrieval) mode**.
2. Rotate the crank handle (2) clockwise to raise worker to the surface.

If for any reason a worker becomes wedged while the retrieval is in progress, the topside worker can **reverse** direction by cranking counterclockwise, thus allowing the worker to be lowered and repositioned before continuing with the retrieval.

To change to fall arrest mode, the load must be removed from the cable. Then, follow instructions under “**Fall Arrest Operation”.**

Storage and Maintenance

A written log of all servicing and inspection date for this Three-Way Recovery Winch should be maintained by the company safety officer.

Always store and transport the unit in an area free of corrosive elements and excessive heat. Handle should be secured to the mounting bracket to avoid undue stress on the handle.

DO NOT leave this unit for extended periods of time in an environment where corrosion may take place (such as sewage and fertilizer plants). Additionally, avoid use in areas that contain high concentrations of ammonia. When used near sea or other similar environments, more frequent inspections may be necessary to monitor potential corrosive damage. Avoid use with acids, alkaloids or other caustic chemicals, especially at elevated temperatures.

Clean the exterior of the winch and cable with water and mild soap detergent, rinse, and thoroughly air dry. DO NOT use harsh chemicals. Clean labels are required.

Never attempt to lubricate, adjust, repair or modify any part of the winch.

Repair and recertification MUST BE performed by Mechanical Safety Equipment Corp. annually, or more frequently, depending of the use and operating conditions, or whenever subjected to a severe free fall. Check label on the winch for next inspection date.
ANSI Z359.1 E6.1.1… The frequency of periodic inspections by a competent person should be established by the user's organization based upon careful consideration of relevant factors. Such factors include the nature and severity of workplace conditions affecting the equipment and modes of use and exposure time of the equipment.
OSHA 1926.502 (d)(21) Personal Fall Arrest systems shall be inspected prior to each use for wear, damaged and other deterioration, and defective components shall be removed from service".

Return the winch to Mechanical Safety Equipment Corp. 2070 Bennett Road, Philadelphia, PA 19116 for inspection, repair and recertification.

Technical Information

Principles of Design	Combination of Fall Arrest/Retrieval Device and Self Retracting Lifeline.
Body Construction	Casted Aluminum
Cable Length	50 – 100 ft.
Cable Material	Galvanized Steel, Stainless Steel, Synthetic Rope
Cable Diameter	3/16" (4.8 mm)
Cable Breaking Strength	4,200 lbs. (1,890 kg), 3,800 lbs (1,727 kg), 5,500 lbs (2,500 kg)
Max. Working Load/ Min. Working Load	300 lbs (136 kg) / 75 lbs (34 kg)
Cable Locking Speed	4-5 ft./second
Stopping Distance	2 ft. (.6 m) or less
Speed	20 ft. per minute in rescue mode (approx.)
Gear Ratio	5.5 : 1
Mechanical Advantage	22 : 1
Weight	50 ft. Galvanized or Stainless Steel – 43 lbs (20 kg) 50 ft. Synthetic Rope – 38 lbs. (17 kg) 65 ft. Galvanized or Stainless Steel – 46 lbs (21 kg) 65 ft. Synthetic Rope – 39 lbs (18 kg) 100 ft. Galvanized or Stainless Steel – 62 lbs (28 kg) 100 ft. Synthetic Rope – 50 lbs (23kg)
Suitable for Material	No
Raise & Lower Ability	Raise (yes) Lower (yes)

Specifications of products are subject to change without notice.

WARRANTY

The MSE Corp. product (s) listed in this instruction manual, manufactured and sold for commercial or industrial uses are warranted to be free from defects in materials and workmanship for one year. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS. At its option, MSE Corp. will repair or replace, or refund the purchase price of, any product which fails to conform to this warranty under normal use and service. In no event shall MSE Corp. be liable for incidental or consequential damage.

WARNINGS

- **Read, understand and follow** all instructions and warnings, attached to and/or packed with this unit before each use. Do NOT use winch if any instruction or warning is not fully understood. Telephone MSE Corp. at 215-676-7828 for clarification.
- For use by **properly trained personnel only**.
- **Inspect Before Each Use.** All occupational protective equipment must be inspected and thoroughly tested before each use. If any part or component shows damage, excessive wear or does not functions properly, the entire system should be removed from service.
- **Never** use any occupational protective equipment for anything other than its intended use.
- **DO NOT** use the Three-Way Recovery Winch if the total working load exceeds 300 lbs. (136 kg).
- **Avoid** prolonged use in caustic or corrosive environments.
- **DO NOT** use winch if the brake does not function upon testing. **DO NOT** use winch if the cable does not retract.
- When using the tripod, **always** insure that the leg chains securing the tripod legs are attached.
- Before each use, **make sure** all locking pins are inserted completely through the attachment point on the anchor.
- **Be sure** Tripod, Quadpod, Davit and Monopod are positioned on a hard, stable surface before each use.
- **Always** work directly under the anchorage point. Workers must be vertically in line with Tripod, Quadpod, Davit and Monopod to avoid swing-fall injuries (pendulum effect).
- **Make sure** the anchorage and connective device are compatible before each use. Always use locking type connectors for attachment to anchorage.
- Use **only** locking carabiner, pulley and swivel snap hook supplied with the winch.
- Attach the swivel snap hook on the winch **only** onto the rear center "D" ring of a full-body harness meeting governmental standards for the intended use.
- **Always Visually Check that**: Swivel Snap Hook freely engages "D" Ring of the Harness. Keep the snap hook completely closed during each use. **Never** rely solely of the feel or sound of a snap hook engaging.
- **All** cables must be clean and free of foreign matter.
- **Never** allow cable to retract uncontrollably. Always use a tag line to allow slow return of the cable to housing. **Never** allow cable to pass under or get wrapped around the legs, arms, neck or torso.
- **Never** allow cable to pass under or get wrapped around the legs, arms, neck or torso of the worker.
- **Never** clamp off or stand on the cable nor allow the cable to become slack when in use.
- **Never** extend cable length by attaching extensions. Use correct length for a job. **Never** alter or add additional cable to winches.
- To insure compatibility, use **only** MSE Corp. components of this system.
- Winch **must** be attached to a fall-arrest anchorage capable of supporting 5,000 lbs (22.2 kN) per attached worker and be independent of worker support.
- For use with one person only. **Never** use winch to support multiple workers. Winch is for **personal use only**. **Not** for towing or lifting.
- The buddy system (two workers) must always be used when operating a Tripod, Quadpod, Davit or Monopod systems.
- Three-Way Recovery Winch is **NOT** to be used as a material handling device or for routine lowering and raising personnel.
- **Do NOT** use personnel and material winch at the same time. Use **only** one device per pulley assembly. Use only one pulley per eye bolt. **Never** use Three-Way Recovery Winch for positioning or suspension.
- **DO NOT** disconnect Three Way Winch swivel snap hook form "D" ring any time while working in an enclosed or confined space.
- The braking action of the Three-Way Recovery Winch requires a minimum speed to engage. Fall-arrest function will not operate if footing is on loose or sliding material such as sand or grain.

Inspection and Maintenance Log

SERIAL NO. **MODEL NO.** **DATE PURCHASED:**

Inspection Date	Inspection Items Noted	Corrective Action Taken	Maintenance Performed
Approved by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			

Recovery System

MODEL NO.	LENGTH	SERIAL NO.
2005 G S/S S	50 65 100 FEET	

Personal Fall Arrest Device, Self Retracting lifeline with retrieval winch
3/16" Diameter Galvanized, Stainless Steel Cable or Synthetic Rope
Designed Working Load 300 lbs.

PAT. 5,343,976

GENERAL INSTRUCTIONS:

- READ, UNDERSTAND and FOLLOW all instructions and cautions provided before attempting to use this device.
- DO NOT use this device near electrical lines or equipment.
- For use by properly trained personnel only!
- Devices must be only used for the specific purpose for which it is designed and intended.
- The anchorage point to which this device is attached shall be capable of supporting at least 5000 pounds. Locking type connectors shall be used for connection to anchorage point.
- ONE WORKER ONLY. Never use the device to support multiple workers.
- For personal use only.
- DO NOT adjust, repair or modify this device. All repairs must be performed by MSEC, Inc.
- DO NOT lubricate
- DO NOT use for material handling.
- ALWAYS visually check that:
  1. Each snap hook freely engages D-ring or anchor point.
  2. Keeper is completely closed with each use. NEVER rely on the feel or sound of a snap hook engaging.

CHECK attachment method to make sure it cannot bring pressure on the snap gate in a manner to permit accidental opening.

NOTICE:

Units subject to fall arrest or do not pass inspection, or are due for inspection MUST BE immediately removed from service and returned to MSEC, Inc. for inspection, repair and certification.

ALWAYS wear gloves when inspecting or handling cable.

BEFORE EACH USE:

1. Check cable for cuts, kinks, broken strands, excessive wear or foreign substances.
2. Check cable retraction by pulling out at least 4 feet of the cable and allowing it to retract slowly back into the housing, keeping tension on the cable.
3. Check locking action by pulling out approximately 2 feet of cable from housing then giving it a quick hard tug. The cable should stop and lock.
4. Check rescue winch. Unscrew crank handle from mounting bracket. Pull about 2-3 feet of cable out of the housing and give it a quick tug to lock it. Then maintain downward pressure on the cable, push knob in and turn clockwise 1/4 turn. Selection knob must be in inward position. Winch is now engaged. Crank about one-two feet of cable back into the housing.

- To change to fall-arrest mode the load must be removed from the cable. Then push the knob in and turn counterclockwise. The knob will "pop" outward.

RESCUE (RETRIEVAL) OPERATION

Once the worker's fall has been arrested:

1. Unscrew the handle from the mounting bracket and slide it outward.
2. Push the selection knob in and turn clockwise 1/4 of a turn to lock the unit into the rescue (retrieval) mode.
3. To raise a person, rotate the handle clockwise.
4. To lower a person remember; always, you have to raise him for a short distance (even up to one foot), then turn handle counterclockwise.

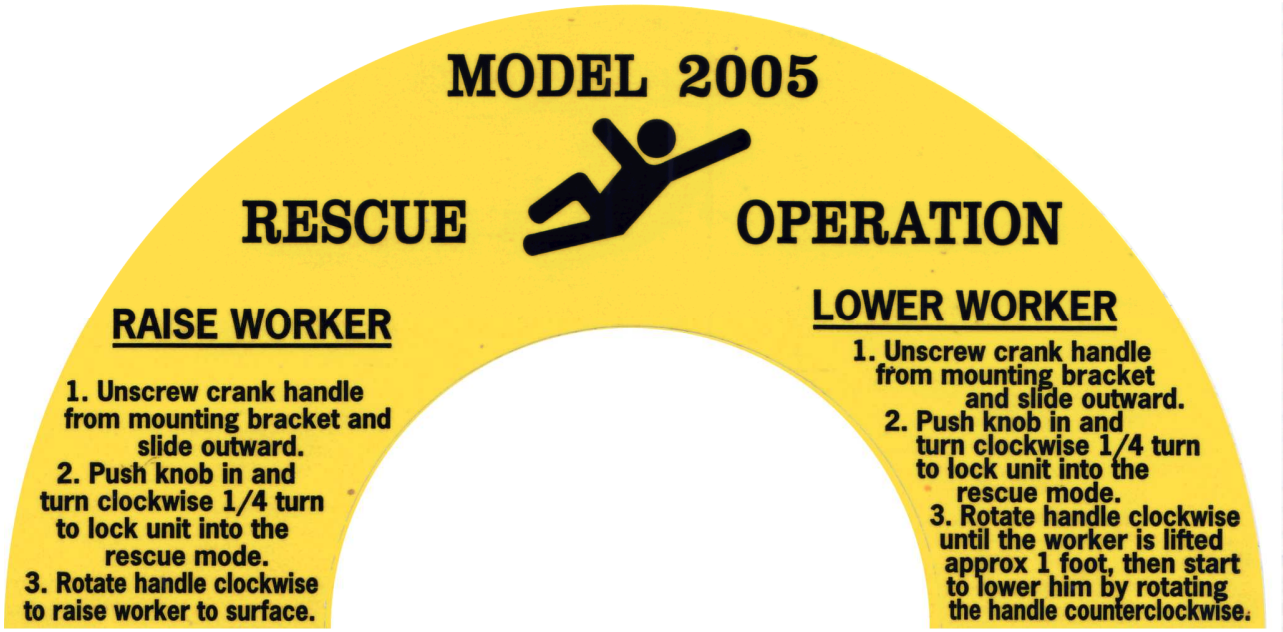
MEETS OSHA & ANSI REQUIREMENTS
CE 0086 EN 360:1992

EMPLOYER: Instruct employee as to proper use and warnings before use of the equipment.

WORKER MUST BE VERTICALLY IN LINE WITH DEVICE

MADE IN U.S.A. BY

Mechanical Safety Equipment Corp.
2070 Bennett Road
Philadelphia, PA 19116
(215) 676-7828



Manufacture Date				
☐ Jan	☐ May	☐ Sep	☐ 01	☐ 05
☐ Feb	☐ Jun	☐ Oct	☐ 02	☐ 06
☐ Mar	☐ Jul	☐ Nov	☐ 03	☐ 07
☐ Apr	☐ Aug	☐ Dec	☐ 04	☐ 08

Next Inspection Date				
☐ Jan	☐ May	☐ Sep	☐ 03	☐ 05
☐ Feb	☐ Jun	☐ Oct	☐ 04	☐ 06
☐ Mar	☐ Jul	☐ Nov	☐ 05	☐ 07
☐ Apr	☐ Aug	☐ Dec	☐ 06	☐ 08

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