

# BUCKINGHAM MFG.

## P/N 105Q Series – Enclosed Space Rescue System Instructions / Warnings

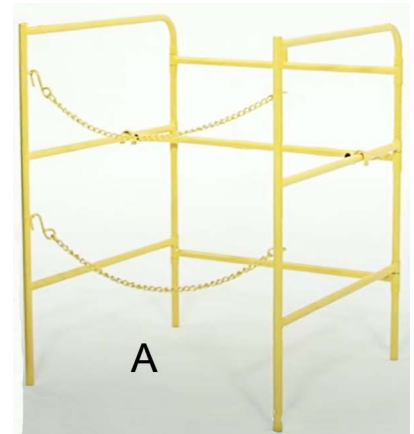
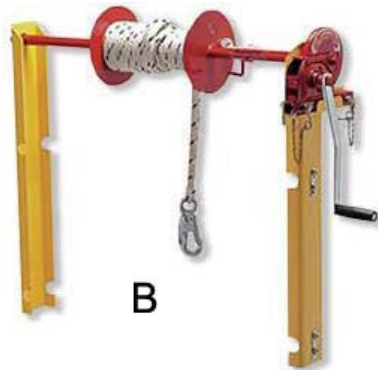
Warning: Do not use these products if you cannot understand and follow the instructions and warnings that come with it and complete all necessary functions.

These Systems are for use in ENCLOSED SPACES only (1910.269(e) & (t); 1910.268(o); 1926.953)

The Buckingham PN 105Q series systems are unique systems that allow for a rescue to be accomplished without having to send additional personnel into the hazardous area. These systems include the following components:

### 105Q1-length & 105KQ1- length Enclosed Space Rescue System-Tethered

- A- Manhole Guard, 42" (PN 491131)
- B- Manhole Guard Winch, 42" (PN 491132)
- C- Retrieval Breakaway Rope Kit-PN 39SAM13Q3- length (Contains items D through I)
- D- Storage Bag- PN 4562R
- E- Replacement Rope for PN 105Q1- length (Rope Assembly w/ snap-PN 39SAM13Q1- length)  
Replacement Rope for PN 105KQ1- length (Rope Assembly w/ snap-PN 39Y13Q2- length)
- F- Rope Grab-PN 5004A1
- G-Shackle-PN 491126
- H-Screw Link-PN 491127
- I- Lynch Clip-PN 491128

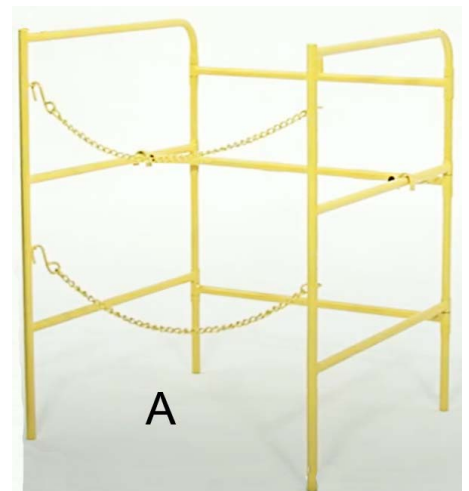


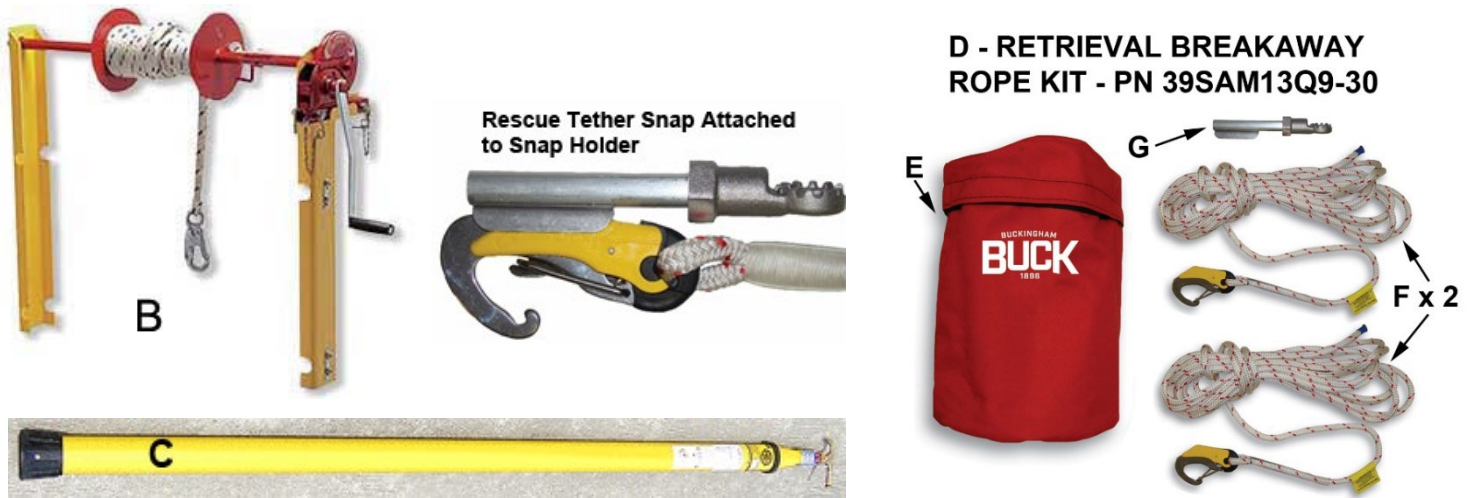
### **C - RETRIEVAL BREAKAWAY ROPE KIT - PN 39SAM13Q3-30**



### 105Q2-length Enclosed Space Rescue System-Non-Tethered

- A. - Manhole Guard, 42" (PN 491131)
- B. - Manhole Guard Winch, 42" (PN 491132)
- C. - Telescoping Pole x 16'- PN 491133
- D. - Retrieval Rope Kit-PN 39SAM13Q9-length (Contains items E through G)
- E. - Storage Bag-PN 4562R
- F. - Replacement Ropes for PN 105Q2-length (2 required) {Rope Assembly w/ snap-39SAM13Q-length}
- G. -Snap Holder for Pole- PN 40





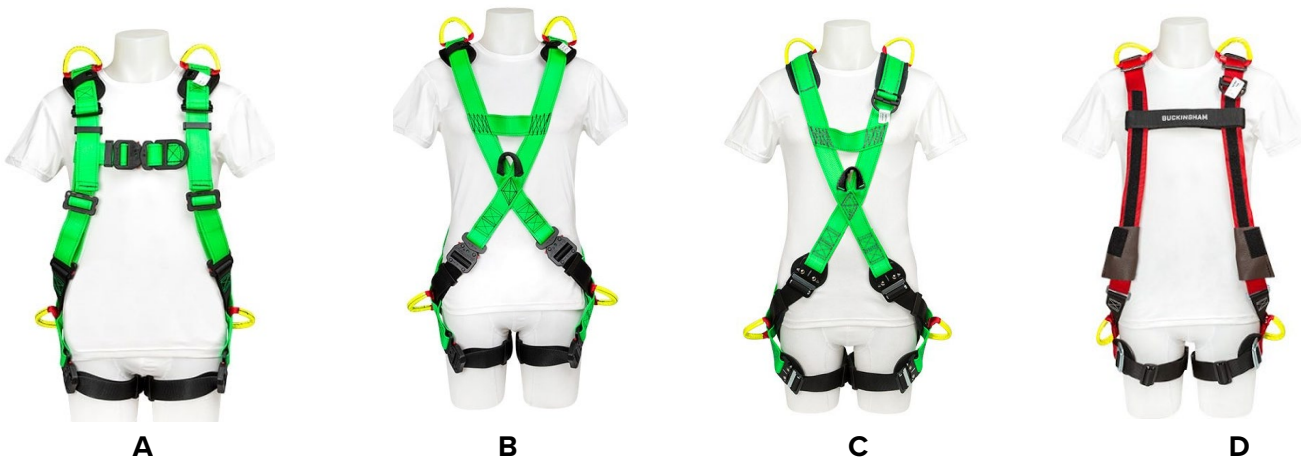
**Recommended Harnesses For Use With Both PN 105Q1, 105KQ1, & 105Q2 Series**

A - BUCKOHM ENCLOSED SPACE HARNESS-68M9EQ2

B - BUCKOHM BUCKTRIEVER HARNESS-603A8Q12

C - BUCKTRIEVER HARNESS-603S8Q211

D - BUCK RETRIEVAL HARNESS, BASIC-63936Q



**Inspection:**

Prior to each use, inspect the entire system for deficiencies, including, but not limited to the following:

**Rope**

- Inspecting your rope should be a continuous process of observation before, during, and after each use.
- Inspect rope fibers for signs of excessive wear, burns, cuts, abrasions, kinks, knots, hockling, ice buildup, broken strands in any given area of the rope.
- If ice or snow build-up is noted, remove build-up prior to use.
- Both outer and inner fibers contribute to the ropes strength. If either is worn, the rope will naturally be weakened. Open the rope strands and look for powdered fiber, which is one sign of internal rope wear.

- Inspect the rope for frayed strands and broken yarns. Check for pulled strands. A pulled strand should be re-threaded into the rope if possible, otherwise it may snag on a foreign object during use.
- Inconsistent texture or stiff areas can indicate excessive dirt / grit embedded in the rope or shock load damage. Check that rope has not become hard or compacted. A hard or compacted rope indicates reduced strength.
- Inconsistent diameter (flat areas, bumps, or lumps). This condition indicates core or internal damage from overloading or shock loading.
- With use, all ropes become dirty. Inspect for areas of discoloration that could have been caused by chemical contamination and may result in the rope becoming brittle or stiff.
- Glossy or glazed areas that generally indicate signs of heat damage.

## Winch

- Inspect the Rescue Winch for corrosion, deformation, pits, burrs, rough surfaces, sharp edges, cracking, rust, paint buildup, excessive heating, alteration, and missing or illegible labels.
- Make sure the winch is properly attached to the guard before use.
- Inspect and test for proper operation of retrieve /release functionality; crank the handle in the direction indicated on the winch label to raise / wind rope in and lower / wind rope out. The rope must completely retrieve /release with minimum resistance and without jamming.
- With the handle released, the winch must not allow rope to move.

## Hardware

- Inspect to ensure all hardware and connecting devices are clean and functioning properly, free of cracks, deformation, burrs, excessive wear, corrosion, modifications or additions.
- Ensure snaphook gates freely opens and closes without binding.
- Ensure all bolts and locking nuts, clips, pins, etc. are in place and securely tightened.
- Check that chains are in place and properly latch.
- Ensure rope grab is properly threaded with the arrow pointing towards the locking snaphook and it locks on the rope when loaded in the direction intended.

If any evidence of wear or deterioration as outlined above is observed, immediately cease use, destroy the product, and replace it with new equipment. Should any unusual conditions not outlined above be observed, or you have reasonable doubt about a particular condition, remove the equipment from service and notify your Supervisor, Safety Director, or contact Buckingham Mfg. Co. for clarification. Failure to carefully and completely inspect your equipment could result in serious injury or death.

## Assembly Of Manhole Guard And Winch (For Use With Both PN 105Q1, 105KQ1 & 105Q2)

### Manhole Guard Assembly

- Remove manhole guard assembly from box. This unit is pre-assembled, folded flat as shown in Fig. 1.
- Stand the unit up so it is resting on the legs and unwrap the chains from both sides (Fig. 2).
- Unfold the unit so the side rails (taller) are at 90° to the back rail (shorter) and form a U-shape. The lock bar on the back rail should be facing towards the inside of the guard.
- Lift the lock bar up (Fig. 3). [you may have to move the side rails out a bit in order for the lock bar to clear the side rails]. Align the U-channels of the lock bar onto the middle bar of the side rail on both sides and lower the lock bar down so the side rails cannot move (Fig. 4).
- Reattach the chains by inserting the S hooks through the attached loops on the opposite side rail.



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5

## Winch Attachment

- Remove all components from the box. Winch assembly, winch handle, two winch mounting plates, and hardware package that includes 4-U bolts, 8-nuts, and 4-washer plates.
- The winch mounting plates are to be installed centered on the outside of the side rails.
- One winch mounting plate has a hole at the top and the other has an angle bracket and is slotted at the top. The slotted mounting plate is the side the winch handle must go on and it can be attached to either side rail for the most convenient to operation.
- Align one of the mounting plates to the two top rails with the mounting plate grooves facing towards the inside of the barricade (Fig. 6).
- Attach to the rails with the U bolts installed from the inside of the barricade to the outside so it captures the rail and the threaded ends are exposed through the flat part of the mounting plate (Fig. 7).
- Place a washer plate over the U Bolt threads so it sits flat against mounting plate (Fig. 7).
- Attach one nut to each of the U Bolt threads and evenly hand tighten (Fig. 8). Repeat this step for the remaining U bolts and mounting plates, only hand tightening nuts at this point.



Fig. 6

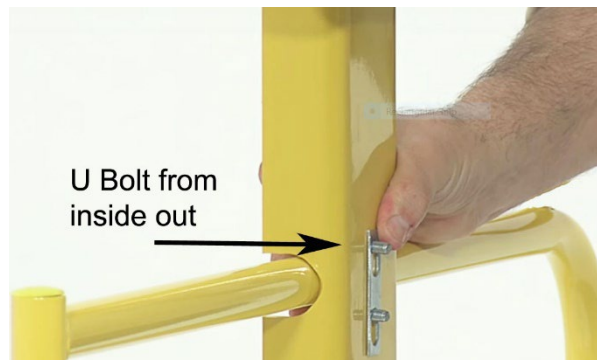


Fig. 7



Fig. 8

- Once the mounting plates are installed on the side rails and nuts are snug, align the plates so they are directly across from each other and in the middle of the side rail. Securely tighten the nuts to the U bolts with a wrench or socket. (Fig. 9).
- Install winch assembly by removing mounting pins and placing the axle end through the hole in the mounting bracket (Fig. 10).
- Set the winch end through the slot in the mounting bracket and nest the winch mount in the angle bracket (Fig. 10).
- Align the holes of the winch assembly to the holes in the angle bracket (Fig. 11).



Fig. 9



Fig. 10



Fig. 11

- Insert the locking pins through the winch assembly and angle bracket and attach the locking pin keeper (Fig. 12).
- Remove nut on end of winch handle axle (reverse/left-handed thread) and install the handle onto the axle. Replace nut and securely tighten with a wrench or socket (Fig. 12).
- Test winch to be sure it lowers and raises by turning the winch handle.
- Set the Manhole Guard near the manhole or vault but do not place the guard over it.
- Open the manhole or vault after testing and make ready for safe entry per your company's safety procedures and/or OSHA requirements.
- Move the manhole guard and center it over the opening so that entry, egress or rescue can be easily accomplished and to also prevent an accidental fall through the opening by workers or pedestrians.
- Optional leveling feet (PN 84640LE12) are available if needed for use on uneven surfaces or if the manhole guard is sitting on loose soil (Fig. 13). To attach, insert the legs of the manhole guard into the leveling feet, adjust the height as needed and align the holes in the feet with the holes in the manhole guard legs.  
Once aligned and leveled, insert the supplied pin through the hole in the foot and the leg and secure the pin with the pin keeper.
- Connect the chains at the front of the manhole guard to completely secure the opening.
- The fully assembled unit (without levelers) should appear as shown (Fig. 14).

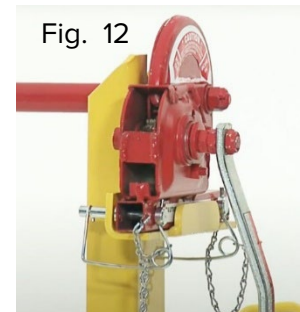


Fig. 12

Fig. 13



Fig. 14



## PN 105Q1 and 105KQ1 Series Use Instructions - Tethered Enclosed Space Rescue

### Set up for using PN 105Q1 and 105KQ1 Series

- Disconnect the safety chains from the barricade.
- The entrant dons a full body retrieval harness (See the recommended Buckingham Harnesses on page 2).
- Attach the rescue tether snap to the entrant's harness dorsal attachment (Fig, 15) and the other end of the rescue tether to the loop at the bottom of the barricade using the breakaway assembly (Fig, 16). Note: the breakaway assembly is designed to release the rescue tether from the barricade in case of an accident such as a car striking the barricade.
- The entrant then enters the space with the rescue tether attached.



Fig. 15



Fig. 16

Should an unresponsive Entrant need to be rescued the Attendant will:

- Initiate the rescue in accordance with their company's procedures.
- Ensure the Entrant has an unobstructed path to be completely extracted from the space.
- Clear any obstructions from behind the manhole guard so there is enough room to lay the Entrant down.
- Release the breakaway rescue tether assembly from the barricade (Fig, 17).
- Attach the rope grab on the rescue tether to the snaphook on the winch line (Fig, 18).

- Crank the winch handle in the "Rope In" direction as indicated on the winch label to raise the entrant (Fig, 19). (Winding this direction will make an audible clicking sound). Keep an eye on the entrant to ensure they do not get hung up on something or that the rescue tether is not rubbing against anything that could cut it. (The winch will hold the load if the handle is released. Cranking in the "Rope Out" direction as indicated on the winch label will lower the entrant if they need to be repositioned).
- Continue to crank until the entrant's buttocks is raised above the manhole or vault edge. (Fig. 20).
- The rescuer should move to the outside and back of the manhole guard and reposition the entrant, if necessary, so their back is towards the rear of the manhole guard.
- Once the entrant is in the proper position, grasp the top rear corner of the side rails with both hands and place one foot on the lowest cross brace of the rear rail and carefully tip the manhole guard backwards until the rear rail is flat on the ground and the entrant is laying face up in a supine position (Fig. 21).
- Crank the winch handle in the "Rope Out" direction as needed to create slack between the entrant and the winch.
- Lift the lock bar located on the back rail until it releases the side rails and pull the side rails far enough apart to access the entrant. If the side rail with the winch attached does not open enough, turn the winch crank handle in the "Rope Out" direction until the side rail stays open or lays on the ground.
- Begin medical assistance procedures as needed.



Fig. 17



Fig. 18



Fig. 19



Fig. 20



Fig. 21

# PN 105Q2- length Use Instructions – Non -Tethered Enclosed Space Rescue

## Set up for using PN 105Q2- length

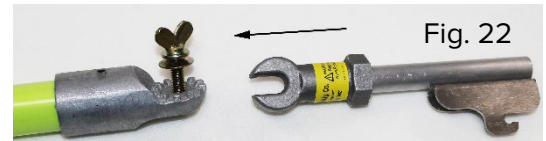
- Have the components of PN 105Q2- length ready in case a rescue needs to be performed.

- Attach the snap holder to the end of the telescoping pole by aligning the teeth of the snap holder to the teeth of the pole. (Fig. 22).

**Align the snap holder as needed and tighten** the wing nut to secure the snap holder to the pole (Fig. 23). The snap holder can be aligned to various angles to facilitate easy retrieval loop connection.

- Attach the snap on one of the rescue tethers to the snap holder by grasping the snap holder in your hand with the snap slot facing up (Fig. 24). Place the snap in the holder with the yellow locking mechanism against the snap holder slot. Push on the snaps wire gate, putting pressure on the gate will cause the yellow locking mechanism to release and the wire gate will open (Fig. 25).

Rotate the snap so the left side of the wire gate is over the hook of the snap holder and then slide the snap down. Release the wire gate so it engages the slot of the snap holder (Fig. 26). The completed assembly should appear as in figure 27.

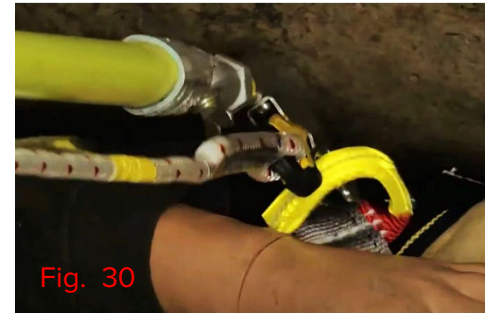


- Once the rescue tether snap is secured in the snap holder, place the rescue pole and second rescue tether nearby so it is easily accessible if needed for a rescue.
- The entrant dons a full body retrieval harness (See the recommended Buckingham Harnesses on page 2 that utilize rescue loops to facilitate proper retrieval attachment that requires no entry into the space by the rescuer.
- Disconnect the safety chains from the barricade.
- The entrant then enters the space. This system is designed for a non-tethered entry so no rescue attachment to the entrant is required until a rescue needs to be performed.

Should an unresponsive Entrant need to be rescued the Attendant will:

- Initiate the rescue in accordance with their company's procedures.
- Ensure the Entrant has an unobstructed path to be completely extracted from the space.
- Clear any obstructions from behind the manhole guard so there is enough room to lay the Entrant down.
- Access the telescoping pole with the rescue tether snap attached to it and extend the pole to the necessary length (Fig. 28). Be careful handling the rescue pole so as not to dislodge the snap from the holder.





- If the entrant is wearing one of the Buckingham harnesses as listed on Page 2 there will be rescue loops on each shoulder, a back strap located across the shoulder blades and above the dorsal attachment, and the dorsal attachment itself (Fig. 29). Any one of these loops are the only acceptable attachments for extraction of the entrant. There are also loops in the hip area of the harness, these are not to be used for extraction of the entrant. The shoulder, hip, and back strap loops have reflective material for easier visual identification.
- Based on the entrant position, choose the most accessible attachment point on the harness (shoulder, back strap, or dorsal loops) for connection of the rescue tether snap. The higher the attachment on the harness, the more upright the entrant will be when passing through the opening of the manhole/vault.
- Hold the rescue stick with two hands and capture the tail of the rescue tether in one hand against the stick. Make sure there is a slack loop in the rescue tether rope between the hand holding the rope and the end of the stick with the rescue tether snap (Fig. 28).
- Guide the rescue tether snap on the end of the rescue stick so it hooks the chosen harness retrieval loop (Fig. 30). Pull the rescue stick straight back and the rescue tether snap should release from the Snap Holder and the gate of the snap should be fully closed (Fig. 31).
- Should the entrant be in a position that the shoulder, back strap, or dorsal loops are **NOT** accessible, the hip loops can be utilized to reposition the entrant to expose the acceptable rescue loops for extraction. The Retrieval Rope Kit has two rescue tether ropes with snaps, the first one can be attached to a hip loop on the harness (as instructed above) and the entrant can be dragged or rolled over by pulling on the rope (fig. 32). Use the instructions previously stated to attach the second rescue tether rope snap to the rescue stick and hook into the shoulder, back strap, or dorsal loop.



Fig. 33

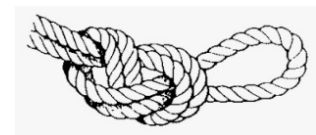


Fig. 34

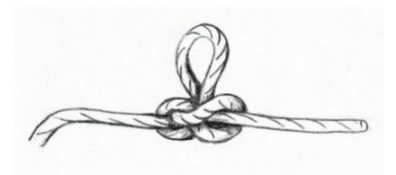


Fig. 31

Fig. 32

- Remove the rescue stick from the space while also holding the rescue tether rope so it does not get dropped into the vault/manhole space.
- After discarding the rescue stick, tie an approved midline knot in the rescue tether rope. Approved knots would be a Figure-8 on a Bight (Fig. 33) or an Alpine Butterfly (Fig. 34). Tie, dress, and set the knot.
- Take the loop (bight) that was formed from tying the knot and attach it into the snap hook on the winch (Fig. 35).



Fig. 35



Fig. 36



Fig. 37

- Crank the winch handle in the “Rope In” direction as indicated on the winch label to raise the entrant (Fig, 36). (Winding this direction will make an audible clicking sound). Keep an eye on the entrant to ensure they do not get hung up on something or that the rescue tether is not rubbing against anything that could cut it. (The winch will hold the load if the handle is released. Cranking in the “Rope Out” direction as indicated on the winch label will lower the entrant if they need to be repositioned).
- Continue to crank until the entrant’s buttocks is raised above the manhole or vault edge. (Fig. 37).
- The rescuer should move to the outside and back of the manhole guard and reposition the entrant, if necessary, so their back is towards the rear of the manhole guard.
- Once the entrant is in the proper position, grasp the top rear corner of the side rails with both hands and place one foot on the lowest cross brace of the rear rail and carefully tip the manhole guard backwards until the rear rail is flat on the ground and the entrant is laying face up in a supine position (Fig. 38).
- Crank the winch handle in the “Rope Out” direction as needed to create slack between the entrant and the winch.
- Lift the lock bar located on the back rail until it releases the side rails and pull the side rails far enough apart to access the entrant. If the side rail with the winch attached does not open enough, turn the winch crank handle in the “Rope Out” direction until the side rail stays open or lays on the ground.
- Begin medical assistance procedures as needed.



Fig. 38

## Warnings

- This equipment is intended for use by properly trained professionals only. Do not use without proper training.
- Please consult with your physician prior to using this product. Do not use this product under the influence of drugs or alcohol.
- This product is designed to be used by a person with a maximum weight of 350 lbs. when fully equipped.
- Fall protection equipment, (i.e. fall arrest, work positioning belts, retrieval, suspension, rescue etc.) should not be resold or provided to others for re-use after use by original user as assurance cannot be granted that a used product meets criteria of applicable standards and is safe for use to a subsequent user.
- Do not alter this product or any safety product in any way.
- Only Buckingham Mfg. Co. or those people authorized in writing by Buckingham Mfg. Co. may make repairs to this equipment.
- Equipment subjected to impact loading must be immediately removed from service, destroyed, and discarded.
- Attach only to compatibly sized locking carabiners / snap hooks.
- Retrieval anchor points must support your weight plus any additional job-related load.
- Always visually check that: 1) each carabiner / snap hook freely engages D-ring or anchor point, 2) keeper / gate is completely closed with each use. Never rely solely on the feel or sound of a carabiner / snap hook /engaging.

- Make sure each carabiner / snap hook is positioned so that its keeper / gate is never load bearing.
- Ensure there is no pressure on the locking mechanism sufficient to depress it as this will, due to its length, render it incompatible with currently designed rings and make it very susceptible to rollout.
- Never disable locking keeper / gate on carabiner / snap hook, punch holes in or alter a connecting device in any way.
- Never use these units where contact of the webbing with sharp edges, corners or abrasive surfaces are likely. Sharp and abrasive surfaces may include but not be limited to (sheet metal, steel, concrete, block, stone, laminated materials etc.)
- Avoid contact of this equipment with chemicals, abrasive surfaces, high temperature surfaces, welding, or other heat sources, electrical hazards, or moving machinery that may damage the material. If in doubt, contact Buckingham Mfg. Co.
- In exceptional circumstances, wear or damage could occur on the first use which reduces the lifetime of the product to that one single use.
- This product, which is only one part of a retrieval system, is intended for retrieval purposes only, not fall arrest.
- Rescue tether must be attached only to the single mounted back, sternal or both shoulder mounted D-rings / loops of your full body harness.
- The use of fall arrest back up equipment is highly recommended in addition to this product.
- Thorough employee training in the selection and proper use of retrieval equipment is imperative.
- This equipment is for personal use only, not towing or hoisting.
- Never work without independent fall arrest protection if there is danger of a fall.
- Employer - instruct employee as to proper use and warnings before use of equipment.
- Completely read, understand, and follow all instructions, warnings, and guidelines pertaining to this and all associated equipment before use. Failure to do so could result in your serious injury or death.
- Product covered under these instructions / warnings should not be resold / redistributed or re-used after use by original user.
- Activities involving the use of this equipment are inherently dangerous. You are responsible for your own actions and decisions. Before using this equipment, you must:
  - ❖ Get specific training in its proper use.
  - ❖ Become acquainted with its capabilities and limitations.
  - ❖ Understand and accept the risks involved.
- Verify that this product is compatible with the other components of your system. See the instructions to those products.

### Cleaning / Storage Instructions

A dirty product should be washed and rinsed in clean water, then dried. The use of lukewarm water with dish soap such as 'Dawn' provides the best and safest method of cleaning without having any adverse effects. Rinse rope in lukewarm water after cleaning and allow the rope to air dry. A clean dry cloth can be used to dry the hardware. Lubricate hardware, snap hooks & connectors after cleaning and at least weekly or as often as required to maintain smooth operation (no binding) with light weight lubricant such as WD-40®. Apply a small amount of multipurpose grease to the gear mechanism of the winch (Fig. 39) as needed to keep it operating smoothly. Do not apply spray lubricants to the gear mechanism or the inner areas of the winch. Do not store any parts of this system near solvents or corrosive chemicals or at extreme temperatures. This product should be stored in a clean and dry environment out of direct sunlight and away from extreme climate conditions. Ropes should be stored to provide ventilation and should never be stored on concrete or dirt surfaces.

Fig. 39



## **STATEMENT of OBSOLESCENCE:**

Precise “useful life expectancy” or “shelf life” for this product is not specified, as the degree of use, conditions of use, and the degree of care and storage determines useful life. All users maintain responsibility to select proper equipment for the job, be properly trained in its use, and ensure all personnel support equipment passes inspection before each use. Upon evidence of defects, damage or deterioration, all equipment shall be removed from service immediately and tagged or marked as unusable or destroyed. Additionally, all equipment shall be inspected on a regular basis not to exceed one year by a Competent Person, as defined by OSHA/ANSI, to verify that the equipment is safe for use. In the event of any question or concern regarding the condition of such equipment, users shall remove the equipment from service for further inspection. All users must comply with OSHA/ANSI/ASTM standards prior to and in using such equipment. For more information regarding safe and appropriate use of equipment, please contact Buckingham Manufacturing at 1-800-937-2825.

## **INTERNATIONAL USERS:**

Notwithstanding the above, please know that certain international jurisdictions require manufacturers of equipment to provide customers with a maximum useful lifespan (sometimes referred to as a “Statement of Obsolescence”). To the extent required, Buckingham personal protective equipment manufactured from synthetic fiber materials including but not limited to items such as webbing and/or rope are subject to a maximum useful lifespan of ten (10) years from the date of manufacture. As stated above proper usage, storage, maintenance, and care impacts the useful lifespan of equipment. Extreme circumstances may require that product must be retired after only one use. This statement is made in conformance and compliance with BS EN 365:2004. International users must ensure that product inspections are completed by Competent Persons as defined by international standards including but not limited to British Standard (“BS”). If equipment fails any inspections, it must be immediately withdrawn from service and destroyed. For more information regarding safe and appropriate use of equipment, please contact Buckingham Manufacturing at 1-800-937-2825.

## **OUR GUARANTEE:**

We guarantee the equipment we manufacture to be free from defects in material and workmanship. We will repair any equipment deemed to be defective which is returned to us by the original purchaser. However, this guarantee is void if any product is changed or altered in any way, or if the product is used in a manner other than for which it is intended. This express guarantee supersedes all other expressed or implied guarantees, obligations or liabilities. There are no implied warranties of merchantability or fitness for a particular purpose and as such, all implied warranties are specifically disclaimed.

## **LIMITATION ON LIABILITY:**

In no event will Buckingham or buyer be liable to the other for lost revenues, lost profits or any other indirect, consequential, special or punitive losses or damages, however caused, whether in action for breach of contract, strict liability, tort, or otherwise, even if advised of the possibility of such losses or damages. In no event will Buckingham’s liability exceed the total amount paid by the buyer to Buckingham for the product or equipment giving rise to such claim(s).

Please see other terms and conditions relating to this product at <https://buckinghammfg.com/terms-conditions/>

## **REGISTRATION:**

Before use of the product, ensure to register and confirm the product at [www.buckinghammfg.com/register](http://www.buckinghammfg.com/register).

**BUCKINGHAM MFG.**  
**BINGHAMTON, NY**  
**1-800-937-2825**  
**[www.buckinghammfg.com](http://www.buckinghammfg.com)**

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