



Model Number

FP Pro Rope Grab

User Instructions

⚠ WARNING

National standards and state, provincial and federal laws require the user to be trained before using this product. Use this manual as part of a user safety training program that is appropriate for the user's occupation. These instructions must be provided to users before use of the product and retained for ready reference by the user. The user must read, understand (or have explained), and heed all instructions, labels, markings and warnings supplied with this product and with those products intended for use in association with it. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.

1.0 MODELS AND SPECIFICATIONS

TABLE 1. FP PRO ROPE GRAB AND COMPANION COMPONENTS COVERED BY THESE INSTRUCTIONS

MODEL	DESCRIPTION	NET WEIGHT
415940	Guided-type fall arrester (Rope Grab) with integral 3 ft (0.9 m) shock absorbing lanyard	3 lbs (1.4 kg)
415941	Guided-type fall arrester (Rope Grab) with integral 1 ft (0.3 m) lanyard	2.6 lbs (1.2 kg)
415942	Guided-type fall arrester (Rope Grab) kit w/integral shock absorbing lanyard, and 50 ft (15.3 m) 5/8 in (16 mm) diameter, 3-strand polyester lifeline w/RL20 snaphook and Anchorage Connector Strap	10.8 lbs (5 kg)
415943	Guided-type fall arrester (Rope Grab) kit w/integral shock absorbing lanyard, and 100 ft (30.5 m) 5/8 in (16 mm) diameter, 3-strand polyester lifeline w/RL20 snaphook and AC Strap	15.9 lbs (7.2 kg)
415964	Guided-type fall arrester (Rope Grab) kit w/integral shock absorbing lanyard, and 50 ft (15.3 m) 5/8 in (16 mm) diameter, 3-strand polyester/polypropylene lifeline w/RL20 snaphook and AC Strap	10.8 lbs (5.0 kg)
415965	Guided-type fall arrester (Rope Grab) kit w/integral shock absorbing lanyard, and 100 ft (30.5 m) 5/8 in (16 mm) diameter, 3-strand polyester/polypropylene lifeline with RL20 snaphook and AC Strap	15.9 lbs (7.2 kg)
506253	Optional Counter Weight	6 lbs (2.7 kg)
503039	Optional polyester Shock Absorber with D-ring and RL20 snaphook	1.3 lbs (0.6 kg)
415865	25 ft (7.6 m) lifeline, 5/8 in (16 mm), 3-strand polyester with RL20 snaphook	3.5 lbs (1.6 kg)
415869	50 ft (15.3 m) lifeline, 5/8 in (16 mm), 3-strand polyester with RL20 snaphook	6 lbs (2.7 kg)
415870	75 ft (22.9 m) lifeline, 5/8 in (16 mm), 3-strand polyester with RL20 snaphook	8.6 lbs (3.9 kg)
415871	100 ft (30.5 m) lifeline, 5/8 in (16 mm), 3-strand polyester with RL20 snaphook	11.1 lbs (5 kg)
415872	150 ft (45.8 m) lifeline, 5/8 in (16 mm), 3-strand polyester with RL20 snaphook	16.2 lbs (7.3 kg)
415873	200 ft (61 m) lifeline, 5/8 in (16 mm), 3-strand polyester with RL20 snaphook	21.3 lbs (10 kg)
415958	25 ft (7.6 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with RL20 snaphook	3.5 lbs (1.6 kg)
415959	50 ft (15.3 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with RL20 snaphook	6 lbs (2.7 kg)
415960	75 ft (22.9 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with RL20 snaphook	8.6 lbs (3.9 kg)
415961	100 ft (30.5 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with RL20 snaphook	11.1 lbs (5 kg)
415962	150 ft (45.8 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with RL20 snaphook	16.2 lbs (7.3 kg)
415963	200 ft (61 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with RL20 snaphook	21.3 lbs (10 kg)
416048	25 ft (7.6 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with carabiner	3.5 lbs (1.6 kg)
416049	50 ft (15.3 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with carabiner	6 lbs (2.7 kg)
416050	75 ft (22.9 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with carabiner	8.6 lbs (3.9 kg)
416051	100 ft (30.5 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with carabiner	11.1 lbs (5 kg)
416052	150 ft (45.8 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with carabiner	16.2 lbs (7.3 kg)
416053	200 ft (61 m) lifeline, 5/8 in (16 mm), 3-strand polyester/polypropylene with carabiner	21.3 lbs (10 kg)

Note: Custom lifeline lengths are available, contact MSA. All lifelines have a spliced eye with integral RL20 self-closing, self-locking snaphook or self-closing, self-locking carabiner at one end and a whipped end at the other.

1.1 SPECIFICATIONS

- All FP Pro Rope Grab subsystem components meet ANSI Z359.1 Type 1, ANSI A10.14 Type I, CSA Z259.2.1-98, Type I, Class A and EN 353-2:1992 standards and applicable OSHA regulations. These instructions and the labels on the product fulfill the requirements of those standards and regulations.
- Maximum capacity of the final subsystem for personnel is 310 lbs (140 kg) including weight of the user plus clothing, tools and other user-borne objects. Minimum capacity is 130 lbs (59 kg).
- Free fall distance (limit) must not exceed 6.0 ft (1.8 m) in accordance with OSHA and ANSI Z359.1. Limited to 5 ft (1.5 m) by ANSI A10.14 and Canadian regulations. The user must comply with applicable standards and regulations.

1.2 SPECIFICATIONS OF COMPONENTS

1.2.1 SHOCK ABSORBING LANYARD

- The minimum breaking strength, when new, of the 1.75 in (45 mm) wide nylon lanyard webbing element is 6000 lbf (24 kN).
- The minimum breaking strength, when new, of the nylon shock absorber element webbing is 5000 lbf (22.2 kN).
- The shock absorber element webbing will withstand a 5000 lbf (22.2 kN) tensile load after deployment due to arresting a fall.
- Shock absorber limits fall arrest forces experienced by the user to 900 lbf (4 kN) and the fall arrest distance to 3.5 ft (1 m).
- The snaphook is zinc plated, forged alloy steel and 100% proof tested to 3600 lbf (16kN). Snaphooks are sample proof tested to 4000 lbf (17.8 kN) in accordance with CSA Z259.1. Minimum breaking strength when new is 5000 lbf (22.2 kN).

1.2.2 ROPE GRAB LIFELINE

- The minimum breaking strength, when new, of the 5/8" (16 mm), three-strand polyester or polyester/polypropylene lifeline rope is 5600 lbf (24.9 kN).
- The lifeline is available in custom lengths and in standard lengths of 75 ft (23 m), 100 ft (30 m), 200 ft (61 m).
- The lifeline has a spliced thimble eye with integral RL20 self-closing, self-locking snaphook on one end and a whipped end on the other.

1.2.3 ROPE GRAB DEVICE

- The minimum breaking strength, when new, of the Rope Grab device is 3600 lbf (16 kN).
- The Rope Grab component is zinc plated, high tensile alloy steel.
- Nominal dimensions of the Rope Grab device are: 4.4 in (113 mm) long x 2.5 in (64 mm) wide x 3.8 in (97 mm) thick.
- The Rope Grab device is compatible only with lifeline rope meeting the specifications set forth in section 1.2.2 of these instructions.

2.0 TRAINING

It is the responsibility of the purchaser of the Rope Grab subsystem to assure that Rope Grab subsystem users are made familiar with these User Instructions and trained by a competent person in: (1) workplace hazard awareness and hazard identification, evaluation and control; (2) how to properly select, inspect, use, store and maintain the Rope Grab and its companion components; (3) how to determine and acceptably limit free fall distance, total fall distance, and maximum arresting force; (4) proper attachment locations on the Rope Grab subsystem and proper attachment methods, including compatibility of connections to reduce the probability of accidental disengagement (“rollout”); (5) how to evacuate from a hazardous space; (6) what to do after a fall to protect the user from injury, including emergency rescue planning and execution; and (7) the consequences of improper use of the Rope Grab and associated equipment and of failure to follow instructions and training. If the Rope Grab subsystem is to be used for confined space applications, the user must also be trained in accordance with the requirements of OSHA regulation 29 CFR 1910.146 and ANSI Z117.1. Training must be conducted without undue exposure of the trainee to hazards. The effectiveness of training should be periodically assessed (at least annually) and the need for more training or retraining determined. MSA offers training programs. Contact MSA for training information.

3.0 HAZARD ID, EVALUATION & CONTROL

CAUTION

Do not use the Rope Grab subsystem unless a qualified person has inspected the workplace and determined that identified hazards can neither be eliminated nor exposures to them prevented.

Prior to selecting a Rope Grab subsystem with shock absorbing lanyard or other personal protective equipment, the user must make a workplace assessment of hazards and conditions where the equipment is required. Such assessment must, at a minimum, identify the presence of:

- Environmental contaminants
- Abrasive surfaces
- Climatic factors
- Weather factors
- Unstable/uneven surfaces
- Electrical hazards
- Moving equipment
- Moving materials
- Heat-producing operations
- Chemicals
- Slippery surfaces
- Unguarded openings
- Sharp objects
- Hot objects
- Sparks
- Flames
- Confined space hazards
- Anchorage availability/location

Foreseeable changes in any of these conditions, taken individually or collectively, must be identified, evaluated and controlled. The materials and construction of the Rope Grab subsystem and associated equipment must be considered in the selection process such that these workplace conditions are suitably addressed and responded to. The equipment must match the work situation and workplace environmental factors.

The workplace assessment must identify all paths of intended user movement and all hazards along such paths. The user must identify the required range of mobility in each hazard zone and note the location and distance to all obstructions in potential fall paths. Lateral obstructions which could be contacted in a pendular fall arrest must be noted. An assembly connecting a harness to the anchorage must be selected which will satisfactorily limit total fall distance and allow for dynamic elongation and activation distance of the assembly. If the Rope Grab subsystem is to be used for confined space entry operations, the workplace assessment must comply with the requirements of OSHA regulation 29 CFR 1910.146 and ANSI Z117.1.

4.0 DESCRIPTION

The Rope Grab subsystem with integral lanyard is primarily a component in a personal fall arrest system. It is also suitable for use in ladder climbing protection systems. The system is intended for use by only one user at a time. The Rope Grab with integral lanyard has two distinct configurations, namely: 1) personal fall arrest with shock absorption installed between the anchorage connector and the lifeline, 2) personal fall arrest with an integral shock absorbing lanyard.

The Rope Grab subsystem is designed to arrest the user's accidental fall from an elevated position. It is not intended to protect against same-surface falls due to slips, trips or loss of balance. The Rope Grab permits the worker to ascend or descend at normal climbing speed with both hands free. The Rope Grab follows the worker up or down as the lifeline remains stationary on the line when movement stops. In the event of a fall, the Rope Grab locks onto the lifeline to reduce freefall, and holds the fallen worker suspended on the line until rescue or evacuation takes place.

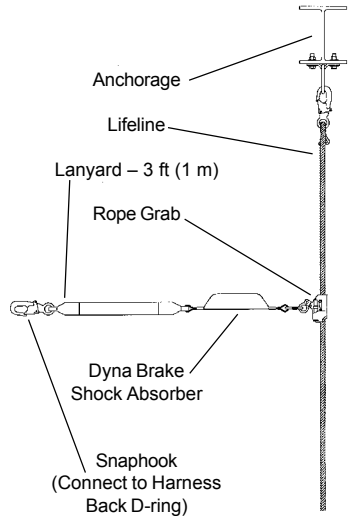
A separate, independent means of rescue is required in the event of a fall, as the user should not descend without assistance after deployment of the shock absorber. See sections 3, 6 and 7 for considerations in planning the use of the Rope Grab subsystem.

Once the Rope Grab has been subjected to the impact forces of arresting a fall, the entire system must be removed from use, labeled as "unusable" until destroyed or returned to the factory. The shock absorbing lanyard must be destroyed if it has been deployed. Minimum evidence of a deployed shock absorbing is ripped or torn stitches in the cover. The lifeline must not be used again once it has sustained a fall arrest load. Similarly, the full body harness must not be reused after a fall arrest. The Rope Grab device, connectors, and means of anchoring must be inspected by a competent person before being used again.

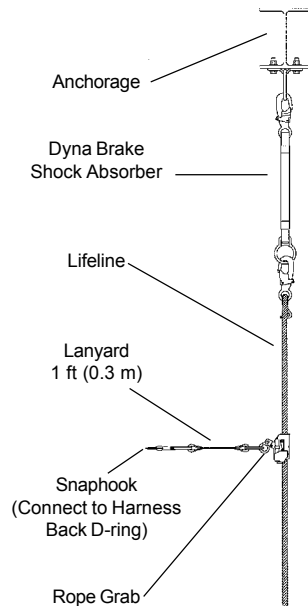
The basic components of the Rope Grab subsystem consist of:

- Full body harness with fall arrester connecting element (back D-ring)
- 5/8 in (16 mm) three-strand polyester or polyester/polypropylene rope lifeline with integral self-closing, self-locking snaphook
- Rope Grab fall arrester device with integral shock absorbing lanyard or with integral simple lanyard (both lanyard types include a self-closing, self-locking snaphook for connection to the D-ring of the full body harness)
- Anchorage connector (MSA Anchorage Connector Strap)
- Suitable overhead anchorage

ROPE GRAB WITH INTEGRAL SHOCK ABSORBER

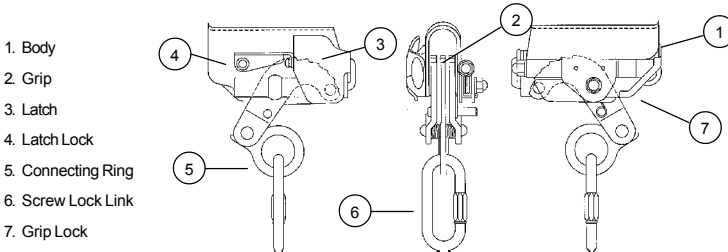


ROPE GRAB WITH SEPARATE SHOCK ABSORBER



4.1 FALL ARRESTER

Also called Rope Grab, the fall arrester is available in two configurations. The difference between the two options is the integral lanyard length and configuration. Model 415940 is a 36 in (0.9 m) lanyard with integral shock absorber. Model 415941 is a 12 in (0.3 m) simple lanyard (no shock absorbing element). System installations using model 415941 should include a shock absorbing element between the anchorage and the lifeline. Use one fall arrester per system.



FALL ARRESTER ELEMENTS

4.1.1 MODEL 415940 WITH INTEGRAL SHOCK ABSORBING LANYARD

Model 415940 has an overall length of 36 in (0.9 m). The fall arrester is used for fall arrest and is the active component of the system, linking the lanyard to the lifeline. The Rope Grab device attaches around the lifeline, and grips the lifeline when pulled downward during a fall. The Rope Grab may also be used for ladder climbing protection systems. When the rope lock is engaged, the Rope Grab grips the lifeline and will not move in either direction until the lock is disengaged. The shock absorber consists of webbing that has been stitched together and folded up inside a fabric cover. When the shock absorber is placed in sufficient tension during fall arrest, stitching on the cover and/or the cover fabric is torn and the stitching on the webbing inside rips out until the fall is stopped. Fall energy is dissipated by the ripping of stitches. In the process, the shock absorber may elongate by as much as 3.5 ft (1 m). The shock absorber has loops at both ends. One end is permanently attached to the Rope Grab device and the other is permanently attached to a webbing lanyard and self-closing, self-locking snaphook. The snaphook of the lanyard connects to the D-ring (fall arrester connecting element) of the user's full body harness. See section 6 for a discussion of Rope Grab usage in various system types and section 8 for adjustment and locking of the Rope Grab device.

4.1.2 MODEL 415941 WITH INTEGRAL LANYARD

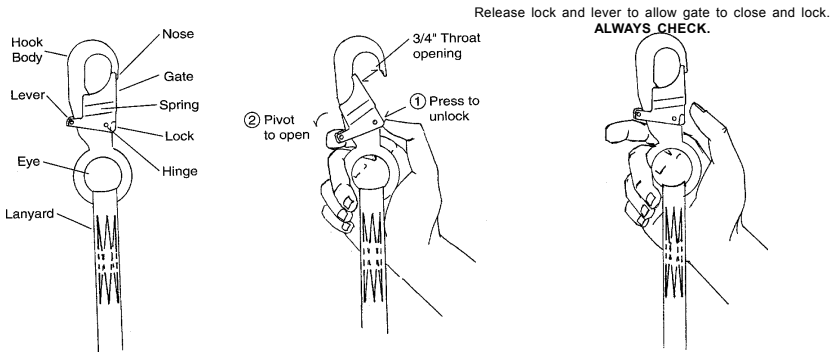
The fall arrester is used for fall arrest and is the active component of the system, linking the lanyard to the lifeline. A separate shock absorbing element is needed for use with this fall arrester model, and can be installed between the anchorage and the lifeline. The Rope Grab device attaches around the lifeline, and grips the lifeline when pulled downward during a fall. The Rope Grab may also be used for ladder climbing protection systems. When the rope lock is engaged, the Rope Grab grips the lifeline and will not move in either direction until the lock is disengaged. The snaphook of the lanyard connects to the D-ring of the user's full body harness. See section 6 for a discussion of Rope Grab usage in various system types and section 8 for adjustment and locking of the Rope Grab device.

4.2 LIFELINE

See Table 1 for models and description. Used to connect the fall arrest subsystem to the anchorage. It extends from an overhead anchorage to the user's working level. The lifeline is a 3-strand, 5/8 in (16 mm) diameter polyester or polyester/polypropylene rope with a spliced thimble eye with an integral RL20 self-closing, self-locking snaphook or self-closing, self-locking carabiner on one end for connection to an anchorage connector. The other end terminates in a whipped end, which hangs some distance below the working level. Use one lifeline per system.

4.2.1 SNAPHOOK

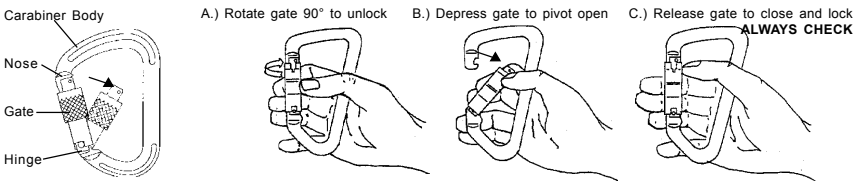
The snaphook possesses a locking feature which requires a separate and distinct hand motion to disengage the lock before the gate will open. MSA snaphooks are operable with one hand and should automatically close and lock when released. Always check to see that the gate closes and locks before use and after coupling to other compatible connectors (e.g., D-rings).



RL20 SELF-LOCKING SNAPHOOK

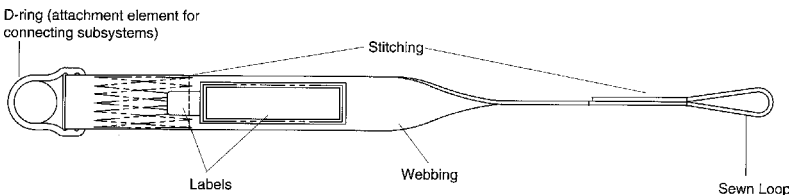
4.2.2 CARABINER

The carabiner possesses a locking feature which requires a separate and distinct hand motion to disengage the lock before the gate will open. MSA carabiners are operable with one hand and should automatically close and lock when released. Always check to see that the gate closes and locks before use and after coupling to other compatible connectors (e.g., D-rings).



4.3 ANCHORAGE CONNECTOR

MSA Anchorage Connector Strap P/N 505282 is a suitable means of attachment to an overhead anchorage such as a beam. MSA Remote Connect/Disconnect Anchorage Connector system, P/N 501443, is available for applications where access is limited and a telescoping installation pole is used to install the anchorage connector strap onto a suitable overhead anchorage. Heavy padding is necessary to protect the webbing from sharp edges. See separate instructions for use of this equipment. Use one anchorage connector for each lifeline.



ANCHORAGE CONNECTOR STRAP

4.4 OPTIONAL COUNTER WEIGHT

Model 506253. Tied via a simple knot at the whipped end of the lifeline. Used to maintain a downward pull on the lifeline, preventing the lifeline from changing position due to wind or incidental contact from others in the work area. Use one counter weight for each lifeline.

4.5 OPTIONAL SHOCK ABSORBER

The Dyna Brake shock absorber consists of webbing that has been stitched together and folded up inside a fabric cover. When the shock absorber is placed in sufficient tension during fall arrest, stitching on the cover and/or the cover fabric is torn and the stitching on the webbing inside rips out until the fall is stopped. Fall energy is dissipated by the ripping of stitches. In the process, the shock absorber may elongate as much as 3.5 feet. The Dyna Brake has an RL20 snaphook at one end for attachment to an anchorage. The other end contains a D-ring for attachment to the lifeline snaphook. Install one shock absorber per lifeline.

5.0 SELECTION AND APPLICATIONS

5.1 PURPOSE OF ROPE GRAB

The Rope Grab system is a personal fall arrest system that is also suitable for use in ladder climbing protection systems. As such it is one component of personal fall arrest systems. The Dyna Brake shock absorbing lanyard is a component of a personal fall arrest system. The intended function of the shock absorbing lanyard is to stop a fall from heights, dissipate the energy built up during the fall, and suspend the fallen user until rescued. Other components are required to make up complete systems. See section 6 for a discussion of system types.

Do not use Rope Grab system for other than fall arrest of more than one person at a time. The Rope Grab is specifically designed for arrest of an accidental fall of one person whose weight, including person, clothing, tools and other user-borne objects, is between 130 and 310 lbs (59 and 140 kg). Never connect more than one person at a time to the device. Never attempt to use Rope Grab for protection against falls of equipment or materials.

Use of the Rope Grab subsystem must comply with these User Instructions and, further, is subject to approval under the user's safety rules and regulations, safety director, supervisor, or a qualified person. Be certain the selection of the Rope Grab subsystem is suited for the intended use and work environment. If there is any conflict between these User Instructions and other directives or procedures of the user's organization, do not use the Rope Grab until such conflicts are resolved. Consult all local, state, and federal Occupational Health and Safety Administration (OSHA) requirements for personal safety equipment. Also refer to the latest revision of ANSI Z359.1 and ANSI A10.14 standards for more information on anchorages and associated system components. In Canada, refer to provincial and federal regulations and to CSA Z259.2.1.

5.2 LIFELINE LENGTH

The length of the lifeline must extend either: 1) from the anchorage to the ground, or, 2) from the anchorage a suitable distance beyond the level of the lowest working surface.

5.3 TYPICAL APPLICATIONS

The Rope Grab subsystem can be used in fall arrest systems on buildings, bridges, towers, derricks, ladders, roofs, tank cars, hopper cars, tanks, vessels, mine shafts, elevator shafts, manholes, silos and bins. These are but a few of the many applications. It can be used both above and below ground. It is suitable in most manufacturing, mining, construction, oil field, refinery, maintenance, and industrial settings. The Rope Grab subsystem is one component of multi-component systems, see section 6. The

user should always consult with a competent person or qualified person to determine if the Rope Grab subsystem is suitable for a specific intended application before placing it in use.

5.4 USAGE LIMITATIONS

The following applications limitations must be considered and planned for before using Tiger Rope Grab subsystem.

5.4.1 PHYSICAL LIMITATIONS

The Rope Grab subsystem is designed for use by one person with a combined total weight between 130 and 310 lbs (59 and 140 kg), including clothing, tools, and other user-borne objects. Persons with muscular, skeletal, or other physical disorders should consult a physician before using a personal fall arrest subsystem that includes a Rope Grab. Pregnant women and minors must never use these systems. Increasing age and lowered physical fitness may reduce a person's ability to withstand shock loads during fall arrest or prolonged suspension. Consult a physician if there is any question about physical ability to safely use this product to arrest a fall or suspend.

5.4.2 CHEMICAL HAZARDS

Acidic, alkaline, or other environments with harsh substances may damage the hardware elements of this Rope Grab subsystem. If working in a chemically aggressive environment, consult MSA to determine acceptable system components for your specific conditions. When working in the presence of chemicals, more frequent inspection of the system components is required.

5.4.3 HEAT

Do not use the Rope Grab subsystem in environments with temperatures greater than 185° F (85° C). Protect the Rope Grab subsystem when used near welding, metal cutting, or other heat producing activities. Sparks may damage the hardware or lanyard material and reduce its strength.

5.4.4 CORROSION

Do not expose the Rope Grab subsystem to corrosive environments for prolonged periods. Organic substances and salt water are particularly corrosive to metal parts. When working in a corrosive environment, more frequent inspection, cleaning and drying of the Rope Grab subsystem is required. See sections 9, 11 and 12 for cleaning and inspection details.

5.4.5 ELECTRICAL HAZARDS

Use extreme caution when working near energized electrical sources. Metal hardware on the Rope Grab subsystem and on other components connected to it will conduct electric current. Maintain a safe working distance at least 10 feet (3 m) from electrical hazards.

5.4.6 MOVING MACHINERY

When working near moving machinery parts (e.g. conveyors, rotating shafts, presses, etc.), make sure that there are no loose elements in any part of the system. Maintain a safe working distance from machinery which could entangle such elements as lifelines, lanyards, harness webbing, carrying straps, etc.

5.4.7 SHARP EDGES AND ABRASIVE SURFACES

Do not expose the Rope Grab lifeline to sharp edges or abrasive surfaces that could cut, fray, abrade or weaken the rope. When work around sharp edges or abrasive surfaces is unavoidable, use heavy padding or other protective barriers to prevent direct contact. Refer to section 3 for additional Hazards Identification considerations.

5.4.8 WEAR AND DETERIORATION

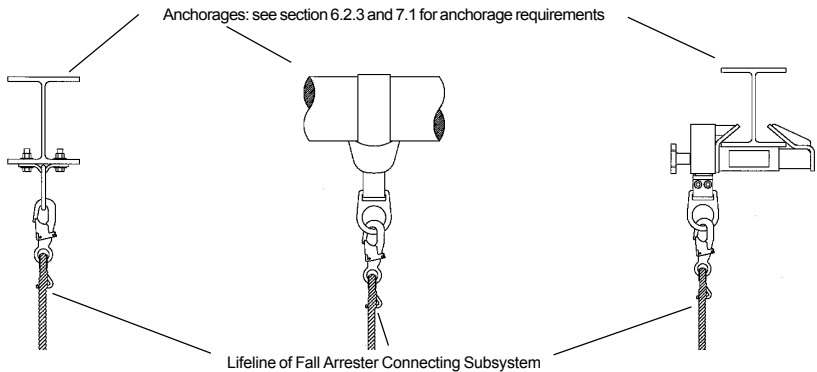
Any Rope Grab subsystem component which shows signs of excessive wear, deterioration or malfunction must be removed from use and marked “UNUSABLE” until repaired or destroyed. See sections 11 and 12 for detailed inspection procedures.

5.4.9 IMPACT FORCES

Any Rope Grab subsystem which has been subjected to the forces of arresting a fall must be immediately removed from service and marked as “UNUSABLE” until subjected to a Formal Inspection and approved for use by a competent person. See section 12 for guidelines.

6.0 SYSTEMS REQUIREMENTS

The Rope Grab is the fall arrester component of a fall arrest system. The Rope Grab may also be suitable for use in ladder climbing protection systems. Without the other necessary components of a system, the Rope Grab serves no useful purpose. The Rope Grab subsystem is intended for use as a temporary installation. There are several different types of systems for use at heights and in confined spaces.



6.1 SYSTEM TYPES

Systems are classified according to their intended purposes. There are six classifications of systems which may be used individually or in combinations. The six basic systems classifications are:

- Fall Arrest
- Personnel Riding
- Climbing Protection
- Rescue
- Restraint
- Evacuation

6.1.1 FALL ARREST SYSTEMS

A fall arrest system is an assembly of components and subsystems, including the necessary connectors, used to arrest the user in a fall from a working height and suspend the user until rescue can be effected. A fall arrest system must always include a full body harness and connecting means between the harness and a suitable anchorage or anchorage connector. See section 6.2.3. Such connecting means may consist of a lanyard, energy (shock) absorber, fall arrester (rope grab), lifeline, self-retracting lanyard or suitable combinations of these.

Fall Arrester Connecting Subsystem is the term applied to an assembly, including the necessary connectors, which is comprised of a fall arrester (Rope Grab) and a vertical lifeline. Fall arrester connecting subsystems are sometimes suitable for use in climbing protection systems. See section 6.1.2. **The FP Pro Rope Grab subsystem is suitable for use in Fall Arrest Systems.**

6.1.2 CLIMBING PROTECTION SYSTEMS

A climbing protection system is an assembly of components and subsystems, including the necessary connectors, used to arrest the user in a fall from a working height and suspend the user until rescue can be effected. Such systems are used for climbing ladders and structures that are designed for climbing. A suitable overhead anchorage (not a ladder rung or hand grip) is required for connection of the Rope Grab subsystem. Other system components are available that may be mounted to the climbing structure, such as a ladder, and do not require a separate overhead anchorage. Such systems include the MSA Dyna-Glide™ Rigid Rail Climbing Protection System. Contact MSA for more information about climbing protection systems. **The FP Pro Rope Grab may be suitable for use in Climbing Protection Systems.**

6.1.3 RESTRAINT SYSTEMS

A restraint system is an assembly of components and subsystems, including the necessary connectors, used to:

- (a) stabilize and partially support the user at an elevated work location and allow free use of both hands. This type of restraint system is referred to as a work positioning system or, simply, a positioning system.
- (b) restrict the user's motion so as to prevent reaching a location where a fall hazard exists. This type of system is referred to as a travel restriction system.

A positioning system includes a full body harness and connecting means between the harness and an anchorage or anchorage connector. Such connecting means usually consists of a positioning lanyard which is connected to both hip D-rings and wraps around or connects to an anchorage or anchorage connector. A positioning system must always be backed up by a fall arrest system. A travel restriction system consists of a full body harness and a fixed length or adjustable length lanyard connected between any one of the harness D-rings and an anchorage or anchorage connector. **The FP Pro Rope Grab is not suitable for use in Restraint Systems.**

6.1.4 PERSONNEL-RIDING SYSTEMS

A personnel-riding system is an assembly of components and subsystems, including the necessary connectors, used for lifting and lowering a worker to and from a work station which is not accessible by other preferred means, and potentially for positioning the worker while at that work station. Personnel-riding systems are of two general types, namely: (a) the mobile supported aerial platform type (e.g. manually- and self-propelled platforms and vehicle-mounted platforms), and (b) suspended personnel hoisting type (e.g. suspended scaffolds, suspension seats, and suspension harnesses). When working on mobile supported aerial platforms, the user should use a restraint system (see section 6.1.3) anchored to the platform to provide restraint against falling from the platform. When working with the suspended personnel hoisting type of system, the user must employ a fall arrest system of either the self-retracting lanyard type or the fall arrester (rope grab) type. The Lynx™ Tripod may be a suitable anchorage connector for use in personnel-riding systems. A Lynx™ Hoist in conjunction with Bosun's Chair with spreader bar are suitable for fully suspended work positioning. It is permissible to use the FP Pro Cross-Chest harness as a suspension harness for making access to the work station if the access time is of very short duration and the use of a suspension seat is not possible. The MSA Dynevac® is suitable for backup fall arrest and emergency rescue and controlled ascent and descent applications. Contact MSA for separate instructions on the associated equipment used in personnel-riding systems. **The FP Pro Rope Grab is not suitable for use in Personnel-Riding Systems.**

6.1.5 RESCUE SYSTEMS

A rescue system is an assembly of components and subsystems, including the necessary connectors, used for moving an incapacitated or isolated person from a hazardous place to a safe place under alert or emergency conditions. An isolated person is one who has no available means of access to a safe place

or is physically stranded or trapped. Rescue systems require actions of specially trained rescuers to effect the rescue of the incapacitated or isolated person. The MSA Dynevac is designed for rescue applications. Conduct the workplace assessment and system planning described in sections 3 and 7 prior to including the Dynevac in a rescue system. Ensure that all criteria are met and that a suitable anchorage exists. MSA strongly recommends that the user select a full body harness with a chest D-ring to provide for rescue. **The FP Pro Rope Grab is not suitable for use in Rescue Systems.**

6.1.6 EVACUATION SYSTEMS

An evacuation system is an assembly of components and subsystems, including the necessary connectors, employed by the user to move, unassisted by others, from a hazardous place to a safe place under alert or emergency conditions. An evacuation system consists of a full body harness and connecting means between the harness and a suitable anchorage or anchorage connector. Such connecting means may consist of: (a) the MSA Dynescape Automatic Descender, or, (b) the MSA Dynescape Manual Descender. See the separate instructions for this equipment. **The FP Pro Rope Grab is not suitable for use in Evacuation Systems.**

6.1.7 COMBINATIONS OF SYSTEMS

Systems for fall arrest, restraint, climbing protection, personnel-riding, rescue and evacuation are often used in various combinations. For example, climbing protection systems must be backed up by a separate and independent fall arrest system. Hands-on training is required to obtain the necessary information and skills needed to work with combinations of systems. Refer to the separate instructions accompanying the several components and subsystems necessary to make up these systems.

6.2 COMPATIBILITY OF SYSTEM PARTS

6.2.1 COMPATIBILITY OF COMPONENTS AND SUBSYSTEMS

The FP Pro Rope Grab subsystem is designed to be used with a vertical lifeline and other MSA approved components and connecting subsystems. Use of the Rope Grab subsystem with products made by others that are not approved in writing by MSA may adversely affect the functional compatibility between system parts and the safety and reliability of the complete system. Connecting subsystems must be suitable for use in the application (e.g. fall arrest, climbing protection, or restraint). MSA produces a complete line of connecting subsystems for each application. Contact MSA for further information. Refer to the manufacturer's instructions supplied with the component or connecting subsystem to determine suitability. For fall arrest applications using the Rope Grab, the maximum fall arrest force must not exceed 1,800 lbf (8 kN). Contact MSA with any questions regarding compatibility of equipment used with the Rope Grab subsystem.

6.2.2 COMPATIBILITY OF CONNECTORS

Connectors, such as D-rings, snaphooks, and carabiners, must be rated at 5,000 lbf (22 kN) minimum breaking strength. MSA connectors meet this requirement. Connecting hardware must be compatible in size, shape, and strength. Non-compatible connectors may accidentally disengage ("rollout"). Always verify that the connecting snaphook or carabiner and the D-ring on a full body harness or connection element of the anchorage or anchorage connector are compatible. Use only self-closing, self-locking snaphooks and carabiners (as defined and required by ANSI Z359.1) with the Rope Grab subsystem.

6.2.3 ANCHORAGES AND ANCHORAGE CONNECTORS

Anchorage for personal fall arrest systems must have a strength capable of supporting a static load, applied in directions permitted by the system, of at least: (a) 3,600 lbf (16 kN) when certification exists, or (b) 5,000 lbf (22.2 kN) in the absence of certification. See ANSI Z359.1 for definition of certification. The

FP Pro Rope Grab system is designed for connection by a single personal fall arrest system. See ANSI Z359.1, section 7.2.3. This requirement is consistent with OSHA requirements under 20 CFR 1910, Subpart F, Section 1910.66, Appendix C. In addition, it is recommended that the user of personal fall arrest systems refer to ANSI Z359.1, Section 7, for important considerations in equipment selection, rigging, use, and training. Contact MSA for information regarding custom design applications for the Rope Grab subsystem.

7.0 PLANNING THE USE OF SYSTEMS

Perform the hazard identification and evaluation described in section 3 of these instructions. Then plan the system(s) before starting work. Consider all possible paths of user movement and all factors that could affect the user's safety before, during, and after a fall anywhere along these paths. A qualified person must select the components, materials, anchorage and anchorage connectors to match the system application, the work, workplace hazards, and the environment. Consider the following points when planning the system(s).

7.1 ANCHORAGE AND CONNECTOR SELECTION

Determine the necessary locations of anchorages to assure that the user will be continuously connected when exposed to hazards of falling. Select anchorages that are stable and have the strength required by section 6.2.3 of these instructions. Carefully select the locations of the anchorages to: (a) reduce possible free fall distance, (b) prevent swing fall hazards, and (c) provide clear space in the potential fall paths to avoid striking an object. Do not select anchorage locations that will require the user to work above them as this will increase the potential free fall and total fall distances. Plan the types of anchorage connectors that will need to be selected and refer to the instructions for same.

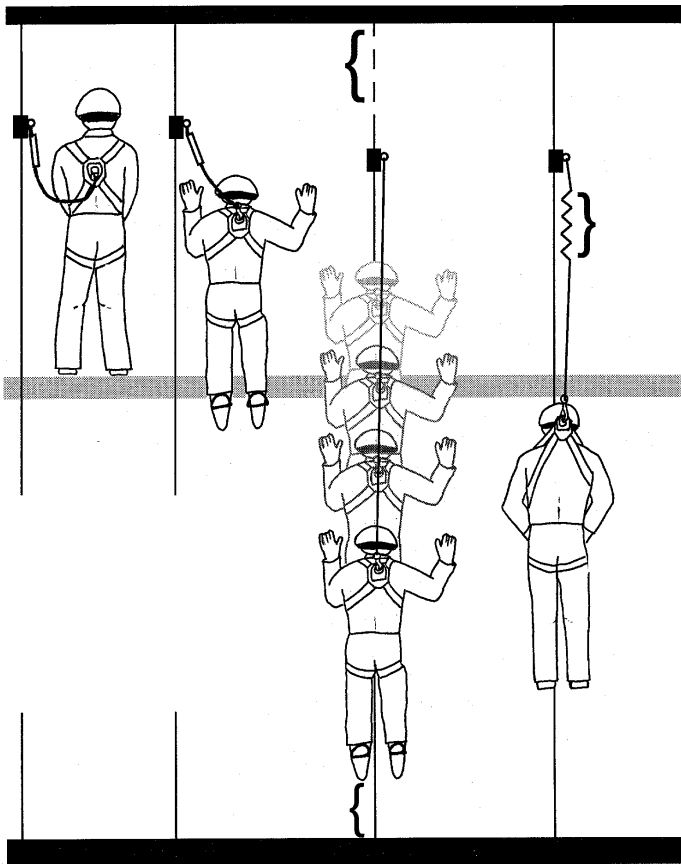
The following subsections describe considerations that should be made during the design and specification of an anchorage as part of a system (see section 6 for system definitions) that includes the Rope Grab system.

7.2 FREE FALL DISTANCE, TOTAL FALL DISTANCE AND SYSTEM ELONGATION

Personal fall arrest systems must be selected and rigged to ensure that potential free fall distances will never exceed 6 ft (1.8 m) as required by OSHA and ANSI Z359.1. [In Canada, free fall distance is limited to 5 ft (1.5 m) by regulation. ANSI A10.14 also restricts free fall distance to 5 ft (1.5 m)]. See separate instructions for connecting subsystems to determine the deceleration distance and dynamic elongation which must be allowed for in the space of potential fall paths. Total fall distance is the sum of free fall distance and deceleration distance. Dynamic elongation of the system (temporary elastic stretch of connecting components and subsystems) must be added to total fall distance and clearance allowed.

7.2.1 TABLE A

- 1 Free fall distance.** Limited to 6 ft (1.8 m) by OSHA and ANSI Z359.1. Limited to 5 ft (1.5 m) by ANSI A10.14 and Canadian regulations.
- 2 Deceleration distance.** Total deceleration permitted by the system is 54 in (1.4 m).
- 3 Dynamic Elongation.** The elastic stretch of the lifeline during the fall. Varies depending upon the length of the lifeline and lifeline material. See table below for dynamic elongation lengths for various standard lifeline lengths.



7.2.2 DYNAMIC ELONGATION

FOR STANDARD LENGTH LIFELINE POLYESTER AND POLYESTER/POLYPROPYLENE MATERIALS						
Material	25 ft (7.6 m)	50 ft (15.3 m)	75 ft (22.9 m)	100 ft (30.5 m)	150 ft (45.8 m)	200 ft (61 m)
Polyester	1.25	2.5	3.75	5	7.5	10
Poly/Polypropylene	2	4	6	8	12	16

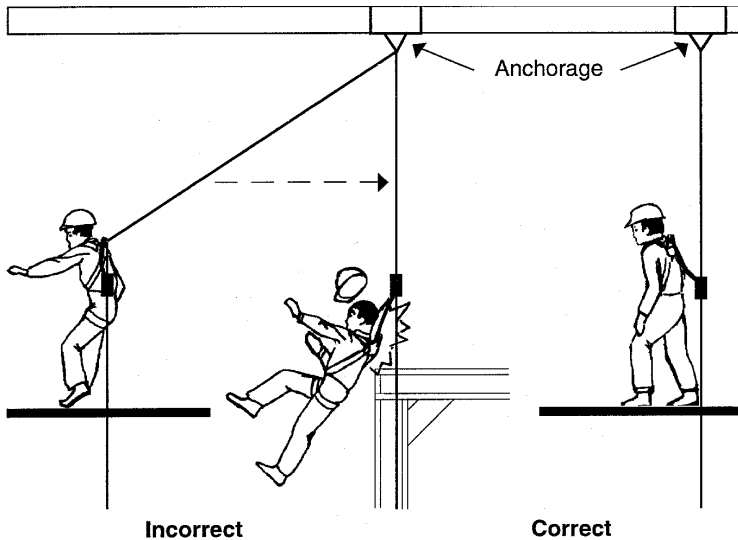
Note: Minimum Clearance = free fall distance + deceleration distance + dynamic elongation distance. Contact MSA for dynamic elongation lengths for other than standard length lifeline.

7.3 USER MOVEMENTS

Identify all necessary movements of the user and the materials and equipment needed to perform the planned work. Plan for avoidance of the crossing or tangling of connecting subsystems of two or more workers. Anticipate user movements that might introduce hazards of the connecting subsystem passing under, about or between body parts or invite the user to clamp, knot or otherwise prevent the connecting subsystem from functioning properly. Establish controls to prevent these occurrences.

7.4 PENDULUM (SWING) FALLS

Swing falls can occur when the system is not anchored directly above the user. The force of striking an object in a pendular motion can cause serious injury. Always minimize swing falls by working as directly below the anchorage point as possible. The correct position for working when using the Rope Grab is directly below the connection at the anchorage connector. See section 7.1 for considerations in selecting a suitable anchorage.



7.5 CLEAR SPACE IN FALL PATH

Make certain that enough clearance is available in all potential fall paths to prevent striking an object. The amount of clearance needed depends upon the type of connecting subsystem used, and the location of the anchorage or anchorage connector. Consult the manufacturer's instructions for the particular connecting subsystem or component for clearance needed. See section 7.2.

7.6 HAZARDS IDENTIFIED IN WORKPLACE ASSESSMENT

All hazards of the type set forth in section 3 of these instructions must be addressed and suitable controls planned and implemented. For example, if work must be performed near unavoidable sharp edges, plan to protect against cutting by use of heavy padding or other means of covering the sharp edge.

7.7 RESCUE AND EVACUATION

The user must have a rescue plan and the means at hand to implement it. The plan must take into account the equipment and special training necessary to effect prompt rescue under all foreseeable conditions. If the rescue is from a confined space, the provisions of OSHA regulation 1910.146 and ANSI Z117.1 must be taken into account. Although a rescue plan and the means to implement it must always be in place, it is a good idea to provide means for user evacuation without assistance of others. This will usually reduce the time to get to a safe place and reduce or prevent the risk to rescuers.

8.0 INSTALLATION AND INSTRUCTIONS FOR USE

8.1 ROPE GRAB INSPECTION

Before Each Use: Inspect the Rope Grab system to verify that it is in serviceable condition. Examine every inch of the Rope Grab working line for severe wear, frays or broken strands, cuts, or other damage. Examine the Rope Grab device for missing, broken, altered or damaged parts. See section 11 for inspection details. Do not use the Rope Grab if inspection reveals an unsafe condition.

WARNING

The Rope Grab will work properly only when used with a lifeline meeting the specifications supplied by MSA. Use of any substitute may result in serious injury or death.

8.2 INSTALLATION OF LIFELINE

Refer to section 3 of this User Instruction for considerations in selecting a suitable location for the Rope Grab subsystem installation. Evaluate the expected vertical and horizontal travel of the user. Install where the lifeline can easily extend vertically downward to the lowest expected work elevation. Plan for working well within the applicable lifeline length limitation of the Rope Grab system. Pay careful attention to all directions of possible horizontal movement of the user at differing elevations. It is this horizontal movement of the user which introduces swing fall hazards. See section 7.4.

Carefully consider the potential location of the entire length of the extended lifeline as the prospective user moves around. It should not pass over, under, around, or in the path of other workers, equipment or materials. If necessary, incorporate into the installation plan the use of safety barriers and signs to prevent equipment, materials and others from interfering with the Rope Grab or its working line. The line should not contact sharp edges or pass too close to objects where it can become lodged. Avoid installation sites where debris, contaminants and objects falling from above can contact the Rope Grab or its working line. NEVER install where the device or the line can encounter an electrical hazard. See section 5.4 for application limitations.

8.2.1 INSTALLATION - ROPE GRAB 415940

When using Rope Grab model 415940, with integral shock absorbing lanyard, a separate and independent means of fall arrest may be needed to install an anchorage connector, such as the MSA Anchorage Connector Strap, to a suitable overhead anchorage. Other suitable anchorage connectors may include the MSA Remote Connect/Disconnect Anchorage Connector system (P/N 501443), the MSA D-plate (P/N 506632) or the MSA BeamGlide Trolley system (P/N 506252 or 506266). See separate instructions for the use of this compatible equipment. Contact MSA for further information about suitable anchorage connectors for a specific application. When the lifeline snaphook is connected to a properly-sized attachment element of the anchorage connector, allow the free end of the lifeline to hang down into the clear space below the intended work area. The lifeline length should be sized as described in section 5.2.

8.2.2 INSTALLATION - ROPE GRAB 415941

When using Rope Grab model 415941, with integral simple lanyard (no integral shock absorber), the lifeline should be connected to a shock absorber. It is also possible to purchase as separate components the lifeline and the shock absorber and include suitable intermediate connectors to create a non-integral connecting subsystem, joining the lifeline to a suitable anchorage or anchorage connector. A separate and independent means of fall arrest may be needed to install an anchorage connector, such as the MSA Anchorage Connector Strap, to a suitable overhead anchorage. Other suitable anchorage connectors may include the MSA Remote Connect/Disconnect Anchorage Connector system (P/N 501443), the MSA

D-plate (P/N 506632) or the MSA BeamGlide Trolley system (P/N 506252 or 506266). See separate instructions for the use of this compatible equipment. Contact MSA for further information about suitable anchorage connectors for a specific application. Additional intermediate anchorage connectors, such as the MSA carabiner (P/N 506572 or 506308), may also be needed to connect the lifeline to an anchorage connector. When the lifeline snaphook is connected to a properly-sized attachment element of the anchorage connector, allow the free end of the lifeline to hang down into the clear space below the intended work area. The lifeline length should be sized as described in section 5.2.

8.3 MAKING PROPER CONNECTIONS

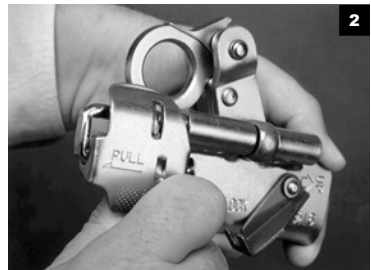
8.3.1 CONNECTING THE ROPE GRAB TO THE LIFELINE

There is a specific sequence of actions needed to properly connect the Rope Grab device to a properly installed lifeline:

Step 1: Holding the Rope Grab device firmly in one hand, move the Latch Lock (red pivot latch) down and away to disengage from the Latch.



Step 2: Press on the lower portion of the Latch. With the Latch pressed down firmly, simultaneously slide the Latch on the Latch Pin, moving it away from the rest of the device to the end of its range of motion.



Step 3: At the end of the travel of the Latch it is possible to rotate the Latch back up to its original position and lock the spring-loaded Latch and Latch Pin in place. This assembly is spring-loaded and requires practice and familiarity to engage properly. As the Latch is moved away, notice that the Latch Pin slides and finally releases the Grip assembly.



- Step 4: It is now possible to swing the Grip assembly out and away from the body of the device, exposing the interior of the body and the face of the Grip. Install the proper lifeline into this interior surface of the body. The arrow on the side of the body should be pointing upward toward the overhead anchorage.



- Step 5: Swing the Grip assembly closed toward the body of the device, aligning the path of the Latch Pin with its guide hole on the body. Check the smooth travel of the device about the lifeline.

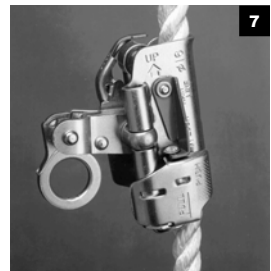
Due to the tension of the spring on the Latch, this step has a pinch hazard. Keep fingers clear of all moving parts and pinch locations. Holding the device firmly in one hand, press on the lower portion of the Latch. The Latch and Latch Pin will slide quickly back to its original closed position, with the Latch Pin preventing the Grip assembly from opening.



- Step 6: Return the red Latch Lock to its closed position, securing the Latch from unintentional opening.



- Step 7: Check the smooth travel of the device over the lifeline. If the Rope Grab does not travel smoothly, disassemble the device from the lifeline and begin again at step 1.



8.3.2 LOCKING THE ROPE GRAB ON THE LIFELINE

The Rope Grab can be locked in a stationary position on the Lifeline by following these steps:

Step 1: Grasp the Grip Lock lever and (a) pull away from the Rope Grab body to engage. Then (b) push down to lock.



Step 2: When the Grip Lock is in the *lock* position, the lever will stand out from the Rope Grab body as shown. The Rope Grab will grip the Lifeline and remain in a fixed position.



Step 3: To *unlock* the Grip Lock, reverse the procedure in Step 1. The Rope Grab will now travel up and down the Lifeline freely.



 **CAUTION**

Improper installation of the device on the lifeline will prevent free movement over the line and prevent locking of the device on the line during a fall, resulting in serious injury or death.

8.4 INSTRUCTIONS FOR USE

Understand and inspect Rope Grab subsystem before each use. Follow procedure described in section 11, inspection before each use. Read this User Instruction and the product labels and understand them prior to using Rope Grab subsystem. Read and understand all User Instructions for other system components prior to using them.

Always have a rescue plan in case of an accidental fall. When used properly the Rope Grab subsystem will arrest an accidental fall within 54 inches (1.4 m). The user will remain suspended until rescue can be affected. The user and the user's organization must therefore plan ahead for rescue, including having the necessary rescue equipment and personnel available to put a rescue plan into effect. The user should always have a co-worker in the vicinity to assist with the rescue and get help. Refer to sections 3, 6 and 7 to ensure that adequate planning is done to effect a timely rescue.

8.4.1 AUTOMATIC FALL ARREST MODE

With the Grip Lock in its closed (unlocked) position, the device will follow the user freely up or down the lifeline. In the event of a fall, the fall arrester will automatically grip the lifeline and arrest the fall.

8.4.2 MANUAL FALL ARREST MODE

With the Grip Lock in its open (locked) position, the device will NOT follow the user freely up or down the lifeline. In this mode, the user must physically release, move and lock the device upon reaching the next suitable working location. This mode is useful for positioning a worker at a specified elevation for some extended period, where it is necessary to lock the fall arrester (Rope Grab) onto the lifeline above the user. In the event of a fall, the fall arrester will automatically grip the lifeline and arrest the fall.

DO NOT use the Rope Grab for other than fall arrest or climbing protection of more than one person at a time. The Rope Grab is specifically designed for use by one person whose total combined weight including clothing, tools and other user-borne objects is between 130 and 310 lbs (59 and 140 kg). Never connect more than one person at a time to the device. Never attempt to use the Rope Grab for protection against falls of materials or equipment.

8.5 GENERAL PRECAUTIONS:

8.5.1 FREE MOVEMENT

Do not prevent the free movement of the grip and the body of the device along the length of the lifeline. The grip should pivot freely in order to engage properly and lock during fall arrest.

8.5.2 SLACK LINE

Do not permit slack line and do not lengthen the line by connecting to another line. Slack line will cause increased free fall distance, increased deceleration distance and increased decelerative forces on the body. Slack line can also present a trip hazard to the user and can allow the line to become snagged or tangled on objects in the work area which, in turn, can cause working line damage or eliminate the shock absorbing action of the system.

8.5.3 WORKING LINE

Do not pass the working line over sharp edges. This can cause cutting and fraying of rope strands. In the event of a fall it can also increase the shock loads on the body. If the line can come in contact with corners and sharp edges, protect the line by using heavy padding on such corners or edges.

8.5.4 LIFELINE

Do not cross over the lifeline of another worker. This can create a hazard because movement of one person can unbalance the other. In the event of a fall by one person, there is a likelihood that the other person will be caused to fall as well. Entanglement of lifelines or lifeline interference with the work of other persons are additional hazards which are caused by the crossing of lifelines.

8.5.5 CLAMPING OR STANDING

Do not clamp off or stand on the line. Clamping or standing on the line for the purpose of removing line tension or other reasons can cause line slack, loss of balance, swing falls and line damage.

8.5.6 LOOPING

Do not allow the line to pass beneath the neck or arms, between the legs or to wrap around the body or limbs. Keep the line taut and behind the back at all times to prevent interference with work operations and looping of line which could produce bodily injury in a fall.

8.5.7 FOREIGN MATTER

Do not allow foreign matter to enter the Rope Grab. If contamination enters the housing it can cause excessive wear and damage to the device and could impair its operation.

8.5.8 REPAIRS

Do not attempt to alter or repair the device in the field. Contact MSA.

8.5.9 MULTIPLE CONNECTIONS

Do not connect more than one Rope Grab subsystem to a single anchorage or anchorage connector.

8.5.10 ORIENTATION

Orient the Rope Grab device with the large stamped arrow pointing upwards toward the overhead anchorage.

8.5.11 GRIP LOCK

When working at a stationary location, engage the Grip Lock to capture the device at a fixed overhead position. Refer to steps in section 8.3.1.

9.0 CARE, MAINTENANCE AND STORAGE

Proper functioning and length of useful life of the Rope Grab depends on the user's proper care, maintenance and storage of the product. Inspect the Rope Grab in accordance with sections 11 and 12 of these User Instructions. Prevent denting or deformation of the body. Never drop the unit from any height. Always set it down carefully. When in use, protect the lifeline from contacting sharp corners and edges. Use a thick padding for this purpose. Prevent loops from forming in a slack line and being pulled tight causing line kinking. DO NOT permit the lifeline to snag or be crushed. Heed all caution labels and instructions as these are intended to prevent damage to the product as well as guide the user in correctly operating the Rope Grab subsystem.

9.1 CLEANING INSTRUCTIONS

To clean the body, periodically use a clean, damp (not wet) cloth to remove dirt or contamination which may cause corrosion or hamper readability of labels. Wipe off any moisture before returning the Rope Grab to service. The frequency of cleaning should be determined by inspection and by severity of the environment. In highly corrosive environs, cleaning will be required more often. Never use solvents to clean the body as they may break down the label adhesive. DO NOT use abrasives to scour the housing as they may damage the plating and the labels. To remove oil or grease use a mild dishwasher detergent on a damp cloth or sponge and follow by repeated swabbing with a clean damp cloth to remove all soap residue. Never immerse the product in water or other liquid. Questions concerning Rope Grab condition and cleaning should be directed to MSA.

9.2 MAINTENANCE AND SERVICE

Proper maintenance is both preventive and corrective in nature. Major maintenance can only be performed at the factory. If inspection reveals buildup of contaminants, use a densely bristled fiber brush (NOT wire) to remove the contaminants. Never use gasoline or kerosene as a solvent.

Refer to separate User Instructions provided with other system components for care, maintenance and storage of these additional components. Equipment which is damaged or in need of maintenance must be tagged as "UNUSABLE" and removed from service. Corrective maintenance (other than cleaning) and repair, such as replacement of elements, must be performed by the MSA factory (see section 13). Do not attempt field repairs.

9.2.1 LUBRICATION OF SNAPHOOK, CARABINER AND ROPE GRAB DEVICE

The moving parts of the snaphook that connects the Rope Grab to the user's full body harness require periodic lubrication. The moving parts of the Rope Grab device require periodic lubrication. Use a lightweight (low viscosity) penetrant oil that has good resistance to temperature extremes, moisture and corrosion. Apply the lubricant to the moving parts of the snaphook, carabiner and Rope Grab device. DO NOT over-lubricate. Wipe off excess with a clean dry cloth. DO NOT lubricate the lifeline. Follow the lubricant manufacturer's instructions. See separate instructions.

9.3 STORAGE

Store the Rope Grab subsystem in a cool, dry and clean place. Avoid areas where heat, moisture, oil and chemicals or their vapors or other degrading elements may be present. Equipment which is damaged or in need of maintenance should not be stored in the same area as usable equipment. Heavily soiled, wet, or otherwise contaminated equipment should be properly maintained (e.g. dried and cleaned) prior to storage. Never allow the Rope Grab to rest for lengthy periods of time on concrete or ash floors as the lime sulfur and ash can cause corrosion. Prior to using equipment which has been stored for long periods of time, a Formal Inspection should be performed by a competent person. See section 12.

10.0 LABELS AND MARKINGS

The following labels must be present, legible and securely attached to the Rope Grab. The Formal Inspection Grid must be punched with a date (month/year) within the last six months. If not, remove the Rope Grab from use and mark it as "UNUSABLE" until a Formal Inspection is performed in accordance with section 12. See section 4 for location of labels.

Data Card 1 of 1

P/N 623223 Rev. B



Material:
Length:
Model:
FALL ARRESTER WITH
LANYARD & INTEGRAL DYNAMIKER
SHOCK ABSORBER

Capacity: 300 lbs (140 kg) includes person + clothes + tools

Free Fall Limit: 5 ft (1.5m) COVA, ANSI Z359.1, 3.14.1.6 and ANSI A10.14 CSA Max. Extension: 4.5 ft (1.4 m)

Max. Activation Force: 600 lbf (8 kN) Max. Arrest Force: 1,820 lbf (8 kN)

Meets: OSHA Requirements
ANSI Z359.1, ANSI A10.14 Type 1; CSA Z359.1 Class AD

DATE MADE:
SERIAL NUMBER:

DO NOT REMOVE LABELS

Leaf 1 Side 1

WARNING

Attention: Consult your safety director.
Attention: Consult manufacturer for inspection.
Attention: Consult your direct supervisor.
Attention: Follow Site Safety Director's instructions.
Attention: Make inspections at 120 degree intervals.

GENERAL DANGER: This product is intended for use only by trained and experienced personnel. Improper use of this product can result in serious injury or death.

Leaf 2 Side 1

WARNING

SELECTION AND USE: Do not use rope grab on any steel or cast steel which could weaken parts. Consult manufacturer for details.

- Do not expose to sharp edges, abrasion or surfaces which could weaken rope. Do not use on steel above 180 F (80 C).
- Do not use on steel which has been heat treated above 180 F (80 C).
- Do not use on steel which has been painted with a flammable or toxic paint.
- Do not use on steel which has been treated with a flammable or toxic chemical.
- Do not use on steel which has been treated with a flammable or toxic gas.
- Do not use on steel which has been treated with a flammable or toxic liquid.
- Do not use on steel which has been treated with a flammable or toxic solid.
- Do not use on steel which has been treated with a flammable or toxic powder.
- Do not use on steel which has been treated with a flammable or toxic dust.
- Do not use on steel which has been treated with a flammable or toxic smoke.
- Do not use on steel which has been treated with a flammable or toxic vapor.
- Do not use on steel which has been treated with a flammable or toxic gas.
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- Do not use on steel which has been treated with a flammable or toxic powder.
- Do not use on steel which has been treated with a flammable or toxic dust.
- Do not use on steel which has been treated with a flammable or toxic smoke.
- Do not use on steel which has been treated with a flammable or toxic vapor.

Leaf 3 Side 1

WARNING

RIGGING AND USE: Always check connections. The product is not to be used on any steel or cast steel which could weaken parts. Consult manufacturer for details.

- Do not use on steel which has been heat treated above 180 F (80 C).
- Do not use on steel which has been painted with a flammable or toxic paint.
- Do not use on steel which has been treated with a flammable or toxic chemical.
- Do not use on steel which has been treated with a flammable or toxic gas.
- Do not use on steel which has been treated with a flammable or toxic liquid.
- Do not use on steel which has been treated with a flammable or toxic solid.
- Do not use on steel which has been treated with a flammable or toxic powder.
- Do not use on steel which has been treated with a flammable or toxic dust.
- Do not use on steel which has been treated with a flammable or toxic smoke.
- Do not use on steel which has been treated with a flammable or toxic vapor.

Leaf 4 Side 1

CAUTION

INSPECTION: Inspect for malfunction, torn or open mesh, and missing, broken, distorted, frayed, or worn webbing and hardware. Examine the webbing for fraying, tears, and other damage. See separate instructions for inspection procedures. Do not use if inspection reveals any damage or if inspection reveals any damage to the product.

FORMAL INSPECTION GRID

J	M	J	A	S	D

Data Card 2 of 2

P/N 623223 Rev. A

WARNING

Attention: Consult your safety director.
Attention: Consult manufacturer for inspection.
Attention: Consult your direct supervisor.
Attention: Follow Site Safety Director's instructions.
Attention: Make inspections at 120 degree intervals.

Leaf 1 Side 2

WARNING

Attention: Consult your safety director.
Attention: Consult manufacturer for inspection.
Attention: Consult your direct supervisor.
Attention: Follow Site Safety Director's instructions.
Attention: Make inspections at 120 degree intervals.

Leaf 2 Side 2

WARNING

SELECTION AND USE: Do not use rope grab on any steel or cast steel which could weaken parts. Consult manufacturer for details.

- Do not use on steel which has been heat treated above 180 F (80 C).
- Do not use on steel which has been painted with a flammable or toxic paint.
- Do not use on steel which has been treated with a flammable or toxic chemical.
- Do not use on steel which has been treated with a flammable or toxic gas.
- Do not use on steel which has been treated with a flammable or toxic liquid.
- Do not use on steel which has been treated with a flammable or toxic solid.
- Do not use on steel which has been treated with a flammable or toxic powder.
- Do not use on steel which has been treated with a flammable or toxic dust.
- Do not use on steel which has been treated with a flammable or toxic smoke.
- Do not use on steel which has been treated with a flammable or toxic vapor.

Leaf 3 Side 2

WARNING

RIGGING AND USE: Always check connections. The product is not to be used on any steel or cast steel which could weaken parts. Consult manufacturer for details.

- Do not use on steel which has been heat treated above 180 F (80 C).
- Do not use on steel which has been painted with a flammable or toxic paint.
- Do not use on steel which has been treated with a flammable or toxic chemical.
- Do not use on steel which has been treated with a flammable or toxic gas.
- Do not use on steel which has been treated with a flammable or toxic liquid.
- Do not use on steel which has been treated with a flammable or toxic solid.
- Do not use on steel which has been treated with a flammable or toxic powder.
- Do not use on steel which has been treated with a flammable or toxic dust.
- Do not use on steel which has been treated with a flammable or toxic smoke.
- Do not use on steel which has been treated with a flammable or toxic vapor.

Leaf 4 Side 2

CAUTION

INSPECTION: Inspect for malfunction, torn or open mesh, and missing, broken, distorted, frayed, or worn webbing and hardware. Examine the webbing for fraying, tears, and other damage. See separate instructions for inspection procedures. Do not use if inspection reveals any damage or if inspection reveals any damage to the product.

11.0 INSPECTION BEFORE EACH USE

11.1 INSPECTION FREQUENCY

The Rope Grab must be inspected by the user before each use. Additionally, the Rope Grab must be inspected by a competent person other than the user at intervals of no more than six months. The competent person inspection is referred to as Formal Inspection. See section 12 for Formal Inspection procedures.

Each Rope Grab is inspected and tested under controlled conditions at the factory before shipment. However, user inspection, maintenance and storage of the equipment takes on added importance once the device is subjected to potentially severe environmental and workplace conditions.

CAUTION

If the Rope Grab has been subjected to fall arrest forces, it must be immediately removed from use and marked as "UNUSABLE" until subjected to a Formal Inspection and approved for use by a competent person inspector.

11.2 PROCEDURE FOR INSPECTION

Before Each Use: Inspect the entire Rope Grab subsystem in accordance with the steps as described in section 11.2.1. Additional inspection requirements specifically for the snaphook and 3-strand rope are described in sections 11.2.2 and 11.2.3, respectively. Refer to sections 4 and 12 for diagrams indicating the location of the elements of the Rope Grab.

11.2.1 INSPECTION OF ROPE GRAB

Step 1: Inspect the Rope Grab labels to verify that they are present and legible. See section 4 for location of labels. See section 10 for the specific labels that should be present and the information contained on them. Check the Formal Inspection Grid to be sure a Formal Inspection has been performed within the last six months. If the Grid does not indicate that a Formal Inspection has been performed within the last six months (by being punched), or if any labels are missing or illegible, remove the Rope Grab from use and mark it as "UNUSABLE" until a Formal Inspection is performed by a competent person.

Step 2: Inspect all fabric (fibrous) parts, including shock absorber cover and stitching, webbing (straps) and their stitching, and ropes.

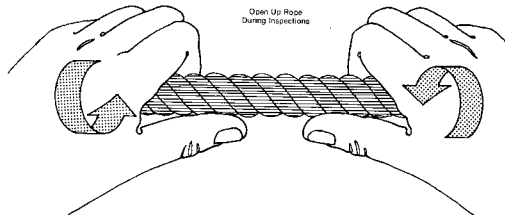
- (a) Inspect the shock absorber cover for cuts, tears, burns, alteration, broken or loose stitching, torn or open cover. Inspect for signs of exposure to excessive heat, abrasion (wear) and chemical attack. In addition, inspect the webbing and stitching in the shock absorber in accordance with (b) below.
- (b) Inspect all webbing (straps) and stitching for evidence of defects or damage, including: cuts, fraying, pulled or broken threads, loose or torn threads, abrasion, excessive wear or elongation, altered or missing straps or stitching, knots, burns, and damage from heat or chemical attack.
- (c) Inspect all fiber ropes for cuts, pulled or broken fibres, abrasion, excessive wear or aging, excessive elongation, reduction of rope diameter, altered or missing rope segments, hockling (unlaying and kinking of strands), burns, and damage from heat or chemical attack. Inspect for knots, loosening or unbraiding of splices, excessive fuzziness of fibres, and for very soft condition that easily allows the rope to unlay (unwind).

Step 3: Inspect Rope Grab device:

- (a) Check locking function by setting the lock and then attempting to pull the Rope Grab device over a length of the lifeline, upwards and downwards on the lifeline. There should be no slippage of the Rope Grab device over the lifeline.
- (b) Check Rope Grab fall arrest locking by dropping the device downwards on the lifeline. When the device locks it should maintain its lock until downward forces are removed or until the connecting ring is lifted. It should then permit normal line reeving. Repeat locking test three times. If the Rope Grab does not always lock properly on the lifeline, remove from use.
- (c) Check latch function by opening the latch, securing the latch pin, opening the grip, returning the grip to its closed position and releasing the latch to allow the latch pin to spring back and lock the grip.
- (d) Inspect all metallic parts (i.e. body, grip, grip serrations, screw lock link, snaphook, springs, spacers, pins, nuts, rivets, etc.) for deformation, fractures, cracks, corrosion, deep pitting, burrs, sharp edges, cuts, deep nicks, missing or loose parts, improper function, and evidence of excessive heat or chemical exposures. If any of these conditions exist, remove the Rope Grab from use.

11.2.2 INSPECTION OF LIFELINE

For three strand rope, inspect for cut or broken strands, kinks, unlaying of strands, severe abrasion or burns, diameter changes, loosening of thimbles or swaged fittings, and evidence of damage from heat or chemical attack. "Open up" the rope strands during detailed inspection by gripping the rope several inches apart with both hands, rotating hands in opposite directions and twisting the rope strands until they unwind and are exposed. This allows close inspection of individual strands of the lifeline.



11.2.3 INSPECTION OF SNAPHOOK OR CARABINER

For snaphooks inspect for deformation, fractures, cracks, corrosion, deep pitting, burrs, sharp edges, cuts, deep nicks, loose parts, and evidence of excessive heat or chemical exposures. Inspect snaphook and function by cycling the unlocking, opening, closing and locking features several times. Gate must automatically close and snugly seat against the nose. The locking mechanism must retain the gate tip within 1/8 inch (3 mm) of the nose when finger pressure is firmly applied to the gate in any direction. Inspect for weak springs, loose rivets and binding of the gate or lock.

11.3 CORRECTIVE ACTION

When inspection in accordance with section 11.2 reveals signs of inadequate maintenance, the Rope Grab subsystem must be immediately removed from service and marked as "UNUSABLE" until destroyed or subjected to maintenance by the user's organization in accordance with section 9. Defects, damage, excessive wear and/or aging are generally not repairable. If detected, immediately remove the Rope Grab subsystem from use and mark it as "UNUSABLE" until destroyed. For final disposition, submit the Rope Grab to a competent person who is authorized to perform Formal Inspection. If there is any question as to reparability, contact MSA or a service center authorized in writing by MSA before further use of the Rope Grab.

12.0 FORMAL INSPECTION

⚠ CAUTION

Only MSA or parties with written authorization from MSA may make repairs to the Rope Grab subsystem or components.

12.1 FORMAL INSPECTION FREQUENCY

The Rope Grab must be formally inspected by a competent person other than the user at intervals of no more than six months. (The qualifications of a competent person are established by OSHA.) If the Rope Grab is exposed to severe working conditions, more frequent formal inspections may be required. The frequency of inspection by a competent person should be established by the user's organization based on such factors as the nature and severity of workplace conditions, modes of use, and exposure time of the equipment. The competent person should perform a methodical and thorough visual and tactile inspection

by following the inspection procedure in section 12.3. The inspection results should be recorded in the Formal Inspection Log and retained for reference. In addition, if the Rope Grab passes Formal Inspection, the competent person should mark the date (month/year) of Formal Inspection on the grid supplied with the labels on each Rope Grab. The user should never punch this grid; however, the user should check it before each use to be sure a Formal Inspection has been performed within the last six months.

12.2 CONTROL OF EQUIPMENT

The user's organization should establish and enforce a policy and procedure whereby any Rope Grab subsystem that is found to be defective, damaged, or in need of maintenance be immediately removed from use, marked as "UNUSABLE" and immediately thereafter submitted to custody of the competent person responsible for Formal Inspection. This has the benefits that: 1) defective equipment is secured from further use until proper action is taken; 2) uniform standards are applied for determining whether the equipment is acceptable or not acceptable for further use; 3) uniform methods of cleaning and other maintenance are applied; and 4) there is a central point for evaluation of conditions that may be recurring and require preventive measures such as coordination with the equipment manufacturer, selection of alternate equipment, additional training of equipment users, or changes to the workplace conditions.

12.3 FORMAL INSPECTION PROCEDURE

The Formal Inspection Procedure is similar to the user's inspection before each use described in section 11. However, it differs in three important respects, namely: 1) it is performed by a competent person other than the user who is trained and authorized to perform Formal Inspection for the user's organization; 2) it is more detailed and is methodically recorded on a Formal Inspection Log that is kept on file for future reference; and 3) it results in final disposition of the equipment as either "acceptable" (indicated by the formal inspector marking the current month/year in the Formal Inspection Grid on one of the product labels) or as "not acceptable" followed by destruction of the product. The described detailed inspection record keeping is needed in order to trace detected defects to their causes. A simplified alternative procedure is also explained below.

There are three forms that are important to the Formal Inspection Procedure. They are the Formal Inspection Diagram ("DIAGRAM"), the Formal Inspection Log ("LOG"), and the Formal Inspection Checklist ("CHECKLIST"). These forms relate and refer to each other so it is necessary to understand their purposes and uses before discussing the inspection procedure.

12.3.1 DIAGRAM

This is a line drawing of the Rope Grab subsystem with numbered callouts of the parts. The numbers called out in the diagram correspond to those shown on the column titled "INSP. POINT" on the LOG.

12.3.2 LOG

This is the form to be used to record observations made during the Formal Inspection. The Model No., Serial No. and Date Made are recorded by the inspector from the information on the cover of this User Instruction and from the product label. The formal inspector's name and the inspection date are entered by the inspector. The "Disposition" entry is the last entry made on this form after all observations have been recorded. The entry is either "Acceptable" (A) or "Not Acceptable" (N). The columns on the LOG are as follows:

INSP. POINT - Inspection point. The Rope Grab part designated in the callouts on the DIAGRAM.

DESCRIPTION - Name of the Rope Grab inspection point. Inspection points are divided into three broad categories of inspection points, namely fabric parts, metallic parts and plastic parts.

QTY/R - Quantity per Rope Grab. The quantity of each Rope Grab inspection point that must be inspected.

COND. - Condition. The condition of the Rope Grab part is indicated here by entry of the appropriate Condition Code shown on the CHECKLIST (e.g. M0, N0, S0, R0 etc.). Alternatively, the inspector may simply enter "FAIL" if a defective condition exists and make no entry if no defect exists.

OVERALL ASSESS. - Overall assessment. The inspector's evaluation of the overall acceptability or non-acceptability of the part category (i.e. metallic, non-metallic, snaphook and rope). The appropriate Overall Assessment Code defined on the CHECKLIST is entered here (e.g. MA, NA, SA, RA). Alternatively, the inspector may simply enter "FAIL" if a defective condition exists and make no entry if no defect exists.

COMMENTS - Indicate pertinent inspector observations here.

12.3.3 CHECKLIST AND CODES

This is a table which categorizes the different types of Rope Grab subsystem parts into six categories (i.e. webbing, stitching, Dyna Brake, fiber rope, metallic and plastic). For each of these categories, the formal inspector checks the Rope Grab parts for each of the associated conditions (e.g. deformed, fractured, missing, loose, etc.). The codes for the detected conditions are entered in the Condition column on the LOG (e.g. M0, W2, etc.). Overall assessment codes are given, along with the criteria for assigning them, so the inspector can decide if the Dynevac is acceptable or not acceptable for further use (e.g. MA, WN). Alternatively, instead of using these codes, the inspector may simply enter "FAIL" if a defective condition exists and make no entry if no defect exists.

12.3.4 FORMAL INSPECTION PROCEDURAL STEPS

- Step 1: Record on the LOG the Model No., Serial No. and Date Made information shown on this User Instruction and from the product labels. Record the inspector's name and inspection date.
- Step 2: Arrange the Rope Grab subsystem so the parts to be inspected are readily visible.
- Step 3: Starting with the metallic fabric category of parts shown on the LOG, inspect each part (inspection point) one at a time. Refer to the DIAGRAM for identification of each Inspection Point. Each part must be inspected for the possible presence of the conditions shown on the CHECKLIST. Enter in the Condition column on the LOG the proper Condition Code (listed on the CHECKLIST) or "FAIL" if a defect exists. If there is any question whether the Rope Grab condition has materially changed since the last Formal Inspection, retrieve and review the prior Formal Inspection records for the specific Rope Grab.
- Step 4: Repeat steps 2 and 3 for the metallic and plastic categories of part types.
- Step 5: Perform a functional test of the Rope Grab device. Check Rope Grab fall arrest locking by dropping the device downwards onto the lifeline. When the device locks it should maintain its lock until downward forces are removed or until the connecting ring is lifted. It should then permit normal line reeving. Repeat locking test three times. If the Rope Grab does not always lock properly on the lifeline, remove from use. Record the results of the functional tests in the appropriate sections of the Inspection Log.
- Step 6: Determine whether the part (inspection point) is acceptable or not acceptable. If an inspection point has a defective condition, enter in the Overall Assessment column of the LOG the proper code taken from the CHECKLIST (e.g. MN, PN) or simply "FAIL."
- Step 7: Determine disposition of the Rope Grab subsystem. If in step 6 it has been determined that the Rope Grab is not acceptable, enter "N" or "FAIL" in the Disposition space on the LOG. In addition, a notation should be made in this space as to whether the Rope Grab is to be destroyed, returned to manufacturer/distributor, etc.

- Step 8: If in step 5 it has been determined that the Rope Grab subsystem is acceptable for further use, enter "A" or "PASS" in the Disposition space on the LOG. Mark the Formal Inspection Grid on the appropriate Rope Grab label with the date (month/year) corresponding to the inspection date to indicate to Rope Grab users that the product has passed inspection as of that date.
- Step 9: File the LOG for future reference.

12.4 FORMAL INSPECTION CHECKLIST AND CODES

TYPE	CONDITION	COND. CODE	OVERALL ASSESSMENT
Webbing (straps)	Cuts/fraying	W1	WA - (Webbing acceptable)
	Abrasion/wear	W2	WN - (Webbing not acceptable)
	Partially missing/altered	W3	
	Burns/heat exposure	W4	
	Chemical exposure	W5	
	Knotted/elongated	W6	
	Other	W7	
	No visible change	W0	
Stitching	Cut/pulled/loose thread	S1	SA - (Stitching acceptable)
	Abrasion/wear	S2	SN - (Stitching not acceptable)
	Partially missing/altered	S3	
	Burns/heat exposure	S4	
	Chemical exposure	S5	
	Other	S6	
	No visible change	S0	
Dyna Brake	Cut/torn/frayed	D1	DA - (Dyna Brake acceptable)
	Abrasion/wear	D2	DN - (Dyna Brake not acceptable)
	Partially missing/altered	D3	
	Burns/heat exposure	D4	
	Chemical exposure	D5	
	Cover opened	D6	

TYPE	CONDITION	COND.CODE	OVERALL ASSESSMENT
	Elongated	D7	
	Other	D8	
	No visible change	D0	
Fiber Rope	Cut/pulled/broken fibers	R1	RA - (Rope acceptable)
	Abrasion/wear/fuzziness	R2	RN - (Rope not acceptable)
	Partially missing/altered	R3	
	Burns/heat exposure	R4	
	Chemical exposure	R5	
	Hockling/knotted	R6	
	Elongated/over soft	R7	
	Reduced diameter	R8	
	Loose/unbraided splice	R9	
	Other	R10	
	No visible change	R0	
Metallic	Deformed/fractured	M1	MA - (Metallic acceptable)
	Corroded/deep pits	M2	MN - (Metallic not acceptable)
	Missing/loose	M3	
	Heat exposure	M4	
	Chemical exposure	M5	
	Burrs/sharp edges	M6	
	Cuts/deep nicks	M7	
	Malfunction	M8	
	Other	M9	
	No visible change	M0	

TYPE	CONDITION	COND.CODE	OVERALL ASSESSMENT
Plastic	Cut/broken/deformed	P1	PA - (Plastic acceptable)
	Wear damage	P2	PN - (Plastic not acceptable)
	Missing/loose	P3	
	Burns/heat exposure	P4	
	Chemical exposure	P5	
	Other	P6	
	No visible change	P0	

LEGEND

Disposition:

A - (Acceptable)

N - (Not acceptable)

Enter "A" (or "PASS") or "N" (or "FAIL") in "Disposition" blank on Formal Inspection Log.

Criteria for disposition of "N" (Not acceptable):

(1) If there is one or more Overall Assessment Code of "N" type (e.g. MN, NN, SN or RN) on an item.

12.4 FORMAL INSPECTION LOG

Model No. _____ Inspector _____

Serial No. _____ Inspection Date _____

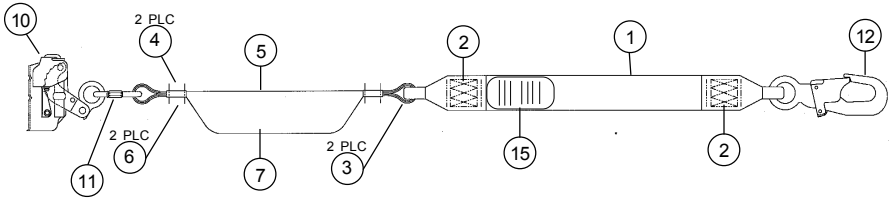
Date Made _____ Disposition _____

INSP. POINT	DESCRIPTION	QTY/R	PASS/FAIL COMMENTS
FABRIC (FIBROUS) PARTS			
Webbing (straps)			
1	Lanyard leg	1	
Stitching			
2	Lanyard leg	2	
Dyna Brake (if present)			
3	Webbing loop	2	
4	Stitching, strap loops	2	
5	Stitching, cover	1	
6	Binding tape	2	
7	Cover	1	
Fiber Rope			
8	Lifeline	1	
9	Splice	1	
METALLIC PARTS			
10	Fall arrester	1	
11	Screw lock link	1	
12	Snaphook, lanyard	1	
13	Snaphook, lifeline	1	
14	Carabiner, lanyard	1	
PLASTIC PARTS			
15	Labels, fall arrester	5	
16	Labels, lifeline	4	
17	Thimble eye	1	

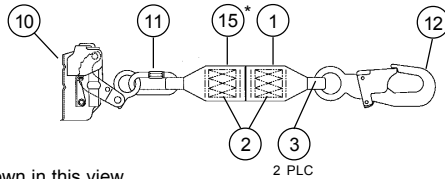
- (a) Optional simplified PASS/FAIL inspection format: Whenever an acceptable condition is found, the entry in the COND. and OVERALL ASSESS. columns may be left blank. Whenever a defective condition is found enter "FAIL." The inspection may end upon detection of a single Priority 1 defect.
- (b) Blank copies of the LOG, with associated CHECKLIST and DIAGRAM, are available from MSA. Call Toll Free (800) 722-1231.

12.6 FORMAL INSPECTION DIAGRAM

FALL ARRESTER (ROPE GRAB) WITH LANYARD AND DYNA BRAKE SHOCK ABSORBER

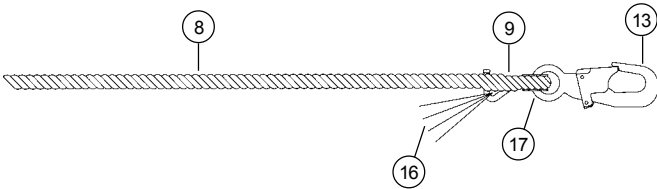


FALL ARRESTER (ROPE GRAB) WITH LANYARD

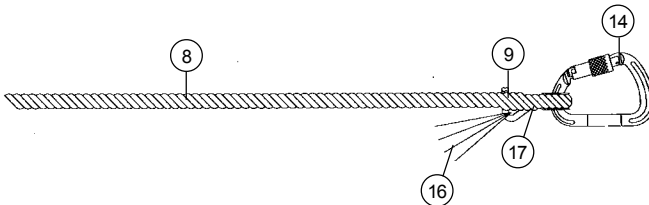


* Opposite side, not shown in this view.

LIFELINE, 5/8 INCH DIAMETER (POLYESTER OR POLYESTER/POLYPROPYLENE BLEND)



LIFELINE, 5/8 INCH DIAMETER (POLYESTER OR POLYESTER/POLYPROPYLENE BLEND)



WARRANTY

Express Warranty – MSA warrants that the product furnished is free from mechanical defects or faulty workmanship for a period of one (1) year from first use or eighteen (18) months from date of shipment, whichever occurs first, provided it is maintained and used in accordance with MSA's instructions and/or recommendations. Replacement parts and repairs are warranted for ninety (90) days from the date of repair of the product or sale of the replacement part, whichever occurs first. MSA shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own authorized service personnel or if the warranty claim results from misuse of the product. No agent, employee or representative of MSA may bind MSA to any affirmation, representation or modification of the warranty concerning the goods sold under this contract. MSA makes no warranty concerning components or accessories not manufactured by MSA, but will pass on to the Purchaser all warranties of manufacturers of such components. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF. MSA SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. For additional information please contact the Customer Service Department at 1-800-MSA-2222 (1-800-672-2222).

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