

**MODEL NO.**

**SERIAL NO.**

# USER INSTRUCTIONS

## MSA DYNESCAPE®

### Automatic

### Retractable Descender



#### 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 DYNESCAPE PE MODELS AND SPECIFICATIONS

**TABLE 1. DYNESCAPE MODELS COVERED BY THESE INSTRUCTIONS**

### 1.1 SPECIFICATIONS

MODEL	DESCRIPTION	STEEL LINE (WIRE ROPE)	LINE LENGTH	HOUSING SIZE	APPROX. NET WEIGHT
506630	STANDARD MODEL	STAINLESS STEEL	52ft. ( 16m)	16 x 9.5 x 7.5 in (41 x 9.5 x 7.5 in)	34.5 lbs (15.6 kg)
506262	STANDARD MODEL	STAINLESS STEEL	105ft.( 32m)	19 x 12 x 7.5 in (48 x 30 x 19 cm)	54.3 lbs (24.6 kg)



For More Information, call 1-800-MSA-2222 or Visit Our Website at [www.MSAafety.com](http://www.MSAafety.com)

**1000 Cranberry Woods Drive**  
Cranberry Twp. Pennsylvania, U.S.A. 16066

TWP 513 (L) Rev. 10 © MSA 2007 Prnt. Spec. 10000005389 (R)

Mat. R622081

Doc. R622081

- All MSA Dynescape Automatic Retractable Descender meet applicable OSHA regulations. These instructions and the labels on the product fulfill the requirements of those standards and regulations.
- The rate of descent is 1.6 (minimum) to 6.6 (maximum) ft./sec (0.5 to 2 m/s).
- The Dynescape Descender may be used to carry out up to 50 successive descents, corresponding to a maximum cumulative descent energy of 1.1 x 10<sup>6</sup> ft-lb (1.5 x 10<sup>6</sup> joules).
- Maximum capacity for personnel is 310 lbs (140 kg) including weight of the user plus clothing, tools and other user-borne objects. Minimum capacity is 75 lbs (34 kg).
- Materials: Housing--Carbon Steel; Drum--Cast Aluminum; Brake Drum Maganese Bronze; Brake Pads--Metal Impregnated Fiber; Lifeline--Stainless Steel wire rope, 3/16 in (5 mm), minimum breaking strength 3000 lbf (13.3 kN).

## 2.0 TRAINING

It is the responsibility of the purchaser of the Dynescape Descender to assure that Dynescape Descender 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 Dynescape Descender; (3) how to identify and remove obstructions in the path of descent; (4) proper attachment locations on the Dynescape Descender 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 an evacuation to protect the user from injury, including emergency rescue planning and execution; and (7) the consequences of improper use of the Dynescape Descender and associated equipment and of failure to follow instructions and training. If the Dynescape Descender 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 IDENTIFICATION, EVALUATION AND CONTROL

Prior to selecting a Dynescape Descender 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:

- |                          |                              |                                   |                     |
|--------------------------|------------------------------|-----------------------------------|---------------------|
| • Hot objects            | • Unstable/uneven surfaces   | • Abrasive surfaces               | • Climatic factors  |
| • Sparks                 | • Electrical hazards         | • Moving equipment                | • Weather factors   |
| • Flames                 | • Environmental contaminants | • Moving materials                | • Chemicals         |
| • Sharp objects          | • Heat-producing operations  | • Unguarded openings              | • Slippery surfaces |
| • 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 Dynescape Descender 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.

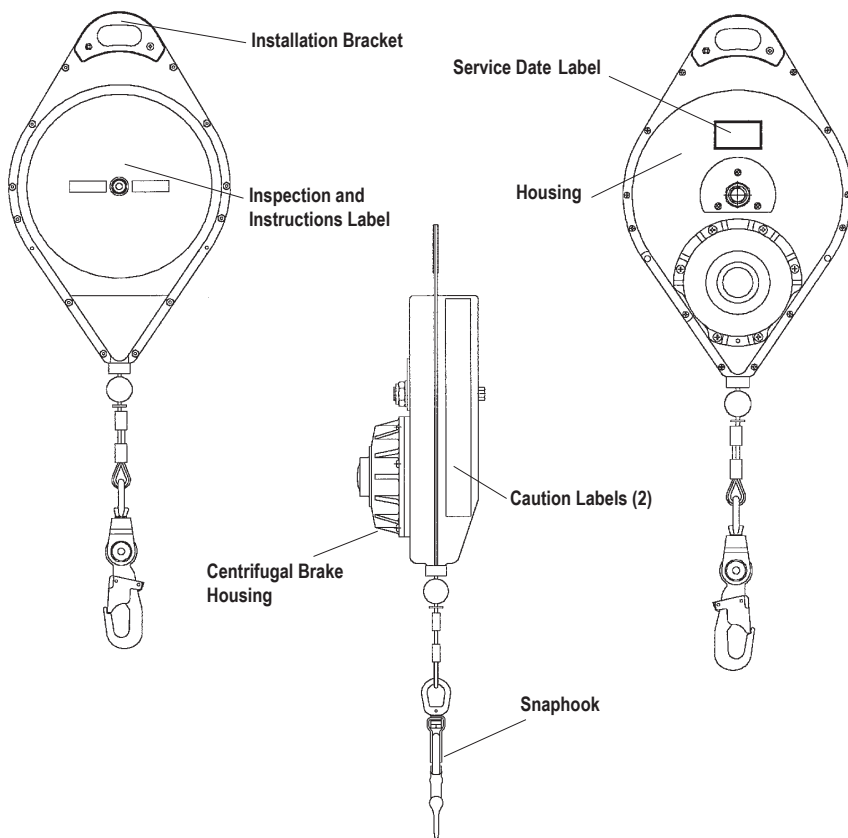
The workplace assessment must identify all paths of intended user movement and all hazards along such paths. The user must identify the required range of mobility in each hazard zone and note the location and distance to all obstructions in potential fall and evacuation paths. Lateral obstructions which could be contacted in a pendular swing during initial descent must be noted. A full body harness must be selected which will satisfactorily support the user during descent.

Consideration must be given and provision made for the exposure of personnel to fall hazards while attaching the Dynescape Descender to a suitable anchorage. The path of descent should be carefully studied in advance of any actual system usage, to eliminate any obstruction in the path of the descent.

## 4.0 DESCRIPTION OF MSA DYNESCAPE DESCENDER

The MSA Dynescape Automatic Retractable Descender is a controlled descent device for the emergency evacuation of personnel. The Dynescape Descender consists principally of a steel housing with installation bracket, an internal spring-loaded drum on which wire rope (line) is wound, and a snaphook on the line for attachment to the user's body support. Attached to the housing is a centrifugal brake mechanism which acts upon the drum to limit the rate of descent. The Dynescape Descender is intended to be used in conjunction with compatible components, including: a suitable anchorage connector, an intermediate anchorage connector (such as a MSA carabiner) and a body support (such as the MSA Pullover harness with front D-ring).

The Dynescape Descender is capable of lowering personnel weighing from 75 lbs (34 kg) to 310 lbs (140 kg) at an average controlled rate, continuously over the length of the line (see Table 1 for available line lengths for the different Dynescape models). The rate of descent varies depending upon the weight of the individual, 1.6 ft/s (0.5 m/s) minimum to 6.6 ft/s (2 m/s) maximum. The lifeline automatically retracts into the unit, permitting multiple descents. The Dynescape Descender is designed to evacuate many users, one at a time. Each user must be equipped with a suitable body support for descent.



### 4.1 DYNESCAPE HOUSING ELEMENTS

#### 4.1.1 INSTALLATION BRACKET

Connection point for anchorage connector attachment of Dynescape Descender to anchorage. Formed as an integral part of the housing material. Black ABS plastic hand grips on both sides provides for handling during transport.

#### **4.1.2 HOUSING**

Formed steel, zinc plated and corrosion resistant cover for the Dynescape Descender assembly.

#### **4.1.3 CENTRIFUGAL BRAKE HOUSING**

A bronze housing which shields the brake mechanism of the Dynescape Descender and absorbs the frictional energy of the descent.

#### **4.1.4 SECURITY RIVETS (2)**

Serve as evidence that the unit has been tampered with by other than authorized factory representatives.

#### **4.1.5 LINE COLLAR**

This white ABS plastic line collar fits into the opening of the Dynescape Descender through which the working line is extracted and retracted, and serves to remove contaminants that would prevent proper functioning of the unit.

### **4.2 DYNESCAPE DESCENDER LINE ELEMENTS**

#### **4.2.1 SLEEVES (2)**

These swaged ferrules crimp around the loop of the working line and prevent the snaphook from becoming detached from the line.

#### **4.2.2 THIMBLE**

The thimble is a teardrop-shaped formed steel piece that protects the wire rope from abrasive wear from the eye of the snaphook during normal use.

#### **4.2.3 SNAPHOOK**

A self-closing, self-locking snaphook equipped with swivel base.

#### **4.2.4 BALL STOPPER**

A black rubber ball that is inserted onto the working line acting as a cushion to reduce impact wear as the line is retracted into the housing.

#### **4.2.5 WASHER**

Prevents the ball stopper from excessive wear and abrasion from contact with the top sleeve (ferrule).

#### **4.2.6 LINE**

Galvanized wire rope (see Table 1 for models and section 1.1 for specifications), in varying lengths depending upon unit selected, connects a snaphook to the user's attachment element for descent on one end and connected to the drum of the Dynescape Descender at the other end.

### **4.3 DYNESCAPE DESCENDER LABELS AND MARKINGS**

#### **4.3.1 CAUTION LABELS (2)**

These two long, narrow labels are located on the flat edge of the Dynescape housing and indicate important cautionary notices that the user should be familiar with during use of the Dynescape Descender. This information is also contained within the text of these User Instructions and reading the product labels is not a substitute for reading and understanding these User Instructions. See sections 7 and 8.

### 4.3.2 INSPECTION AND INSTRUCTIONS LABEL

This round label is located on the front face of the Dynescope housing and explains the Inspection Before Each Use procedure that is required of each user prior to each use of the Dynescope Descender. Also discussed on this label are additional instructions for installation of the Dynescope Descender to an appropriate anchorage or anchorage connector. The details of user inspection are discussed in sections 11 & 12. A complete discussion of the installation and use is given in section 8.

### 4.3.3 SERVICE DATE LABEL

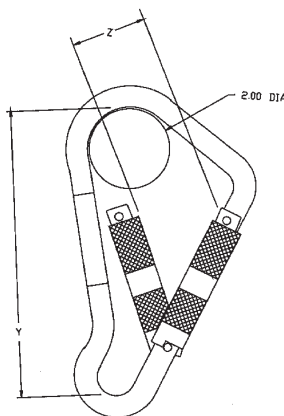
This rectangular label is completed by the manufacturer and provides the user and competent person with information vital to the inspection and factory service procedures as explained in sections 11, 12 and 13 of these User Instructions.

## 4.4 DYNESCAPE DESCENDER COMPATIBLE COMPONENTS

Refer to the individual User Instructions for each of these components for information regarding integration with the Dynescope Descender or other system components. Contact MSA for further information on these compatible components and their use in integrated systems.

### 4.4.1 INSTALLATION CARABINER

Model 506308 is used as an intermediate anchorage connector when linked between an anchorage connector such as an anchorage connector strap and the installation bracket of the Dynescope Descender. It can also be used as an anchorage connector when placed and locked securely around a suitable anchorage such as a beam or pipe. See separate instructions P/N 10008580.



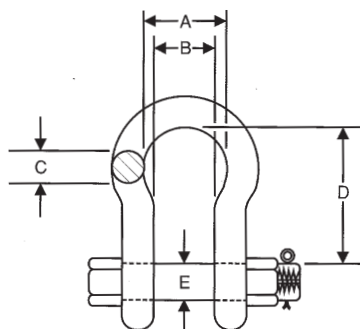
### 4.4.2 ANCHOR SHACKLE

Model 506212 is used as an installation linkage. The MSA anchor shackle is a bolt-type design of weldless forged steel construction complying with U.S. Federal Specification RR-271. See separate instructions P/N R621628.

### 4.4.3 EYEBOLT

An eyebolt is a user supplied hardware of weldless forged alloy steel construction with a shoulder pattern and threaded shank for a nut. The length of the shank and the diameter of the cross section of the eye material shall be appropriate for the specific installation. The breaking strength must be at least 5000 lbf (22.2 kN) for any loading direction permitted by the system. Be sure that intermediate anchorage connectors are compatible to prevent accidental disengagement ("rollout"). Proper selection and installation must be performed under the supervision of a qualified person.

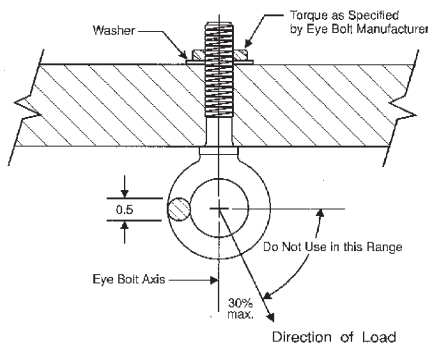
DIMENSIONS		
	IN.	CM.
A	1.2	3.1
B	0.8	2.1
C	0.5	1.3
D	1.9	5.0
E	0.6	1.6



Weldless forged alloy steel.

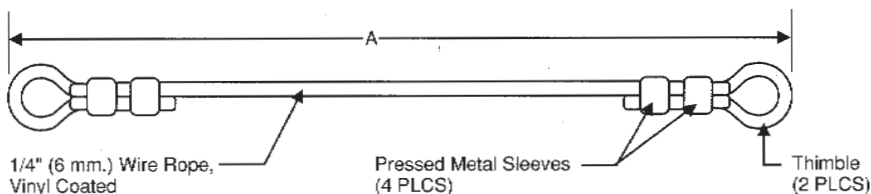
Nut and cotter pin must be securely in place.

Min. Breaking strength = 14,000 lbs. (62.3 kN).



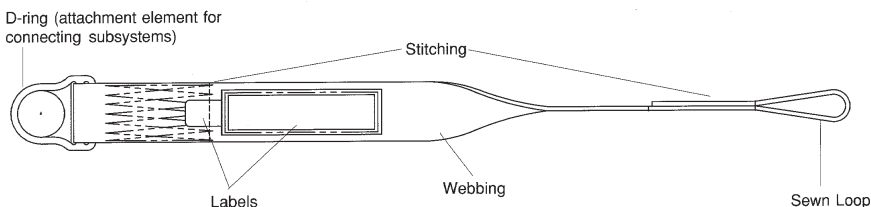
#### 4.4.4 INSTALLATION CABLE

Model SFP3267504 (4 ft. length) or SFP3267506 (6 ft. length) are 5/16 inch diameter installation cables that can be used as either an intermediate anchorage connector when connected to an anchorage connector strap or other suitable anchorage connector and used to extend the attachment point of the connection to a user elevation, or it can function as an anchorage connector when wrapped around a suitable anchorage such as a beam or pipe.



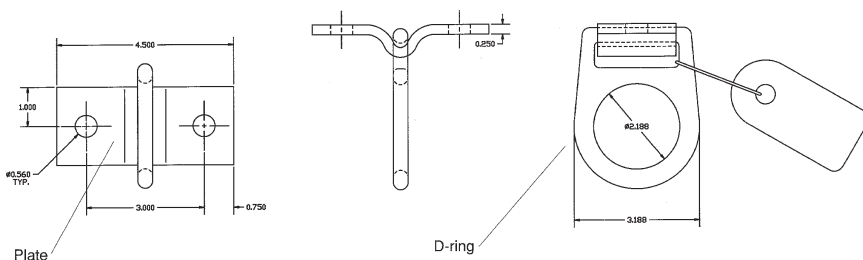
#### 4.4.5 ANCHORAGE CONNECTOR STRAP

Model 505282 nylon or model 505298 polyester anchorage connector straps can be used as an anchorage connector when wrapped around a suitable anchorage such as a beam or pipe. The MSA Remote Connect/Disconnect System is a means by which an anchorage connector strap can be installed to a suitable anchorage from a user location as much as 20 ft (6.1 m) below the anchorage. A means to elevate the Dynescape Descender to the anchorage connector location or to further lower the connection point of the anchorage connector by use of an intermediate anchorage connector must be planned in advance of system use. As an intermediate anchorage connector these anchorage connector straps function to lower the connection point to the elevation of the user when joined together by suitable connectors such as an anchor shackle or installation carabiner. See separate instructions P/N R622792.



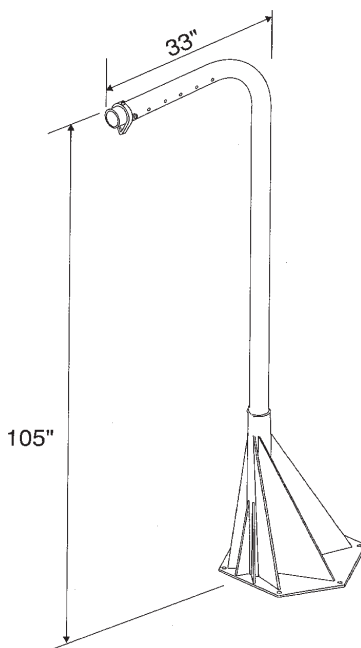
#### 4.4.6 D-PLATE ANCHORAGE CONNECTOR

Model 506632 (Zinc Plated Steel) or 506633 (Stainless Steel) are anchorage connectors consisting of a D-ring and a mounting plate. The D-Plate is intended to be mounted permanently to a beam or girder meeting the anchorage strength requirements explained in these instructions. An intermediate anchorage connector, such as the MSA installation carabiner is required to link the Dynescape Descender to the D-Plate. See separate instructions P/N R622898.



#### 4.4.7 COLUMN DAVIT

Model 506568 is a rigid steel arm measuring 77 inches (2.0 m) high with a reach out from its center of 30 inches (0.8 m) that mounts to a suitable anchorage and extends over a work area as the anchorage connector. The Davit arm is portable in that it can be moved between one or more pre-installed Mounting Receptacles as part of a system. See separate instructions P/N R622311.



## 5.0 DYNESCAPE DESCENDER SELECTION AND APPLICATIONS

### 5.1 PURPOSE OF MSA DYNESCAPE DESCENDER

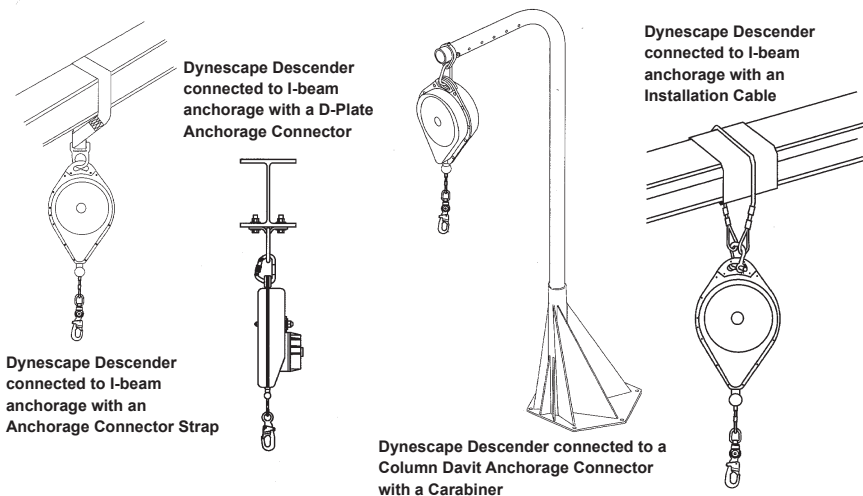
#### THE DYNESCAPE AUTOMATIC RETRACTABLE DESCENDER

Is a controlled descent device designed for emergency evacuation of persons working at heights. The descender provides a means by which one person at a time can, at a limited velocity, descend from a higher to a lower position. This descent can be accomplished by the person alone (evacuation) or assisted by a second person (rescue). The MSA Dynescope Descender is one component of emergency rescue or evacuation systems, other components are required to make up complete systems. See section 6 for a discussion of system types.

Use of the Dynescope Descender 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 Dynescope Descender 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 Dynescope Descender until such conflicts are resolved. Consult all local, state, and federal Occupational Health and Safety Administration (OSHA) requirements for personal safety equipment. In Canada, refer to provincial and federal regulations and to CSA Z259.2.

### 5.2 TYPICAL APPLICATIONS

The Dynescope Descender can be used in rescue and evacuation systems on buildings, bridges, towers, derricks, ladders, roofs and tanks. These are but a few of the many applications. It is suitable in most manufacturing, construction, oilfield, refinery, maintenance, and industrial settings. The Dynescope Descender 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 Dynescope Descender is suitable for the specific intended application before placing it in use.



### 5.3 USAGE LIMITATIONS

The following applications limitations must be considered and planned for before using the Dynescope Descender.

#### 5.3.1 PHYSICAL LIMITATIONS

The Dynescope Descender is designed for use by one person with a combined total weight between 75 and 310 lbs (34 and 140 kg), including clothing, tools, and other user-borne objects. Individuals weighing less than 75 lbs (34 kg) may descend at a rate less than 1.6 ft/sec (0.5 m/s) and could be exposed to a hazard during the descent due to the time required to reach safety. Individuals weighing more than 310 lbs (140 kg) may descend at a rate more than 6.6 ft/s (2 m/s) and could be exposed to a hazard upon impact due to the velocity of the descent.



### 5.3.2 CHEMICAL HAZARDS

Acidic, alkaline, or other environments with harsh substances may damage the hardware elements of this Dynescape Descender. 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.

### 5.3.3 HEAT

Do not use Dynescape Descender in environments with prolonged temperatures greater than 185° F (85° C). Protect the Dynescape Descender when used near welding, metal cutting, or other heat producing activities. Sparks may damage the lifeline and reduce its strength.

### 5.3.4 CORROSION

Do not expose Dynescape Descender 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 Dynescape Descender is required. See sections 9, 11 and 12 for cleaning and inspection details.

### 5.3.5 ELECTRICAL HAZARDS

Use extreme caution when working near energized electrical sources. Metal hardware on the Dynescape Descender 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.

### 5.3.6 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 the lifeline, harness webbing, clothing, etc.

### 5.3.7 SHARP EDGES AND ABRASIVE SURFACES

Do not expose the Dynescape Descender line to sharp edges or abrasive surfaces that could cut, fray, abrade or weaken the wire 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.

### 5.3.8 WEAR AND DETERIORATION

Any Dynescape Descender which shows signs of excessive wear, deterioration or malfunction must be removed from use and marked "UNUSABLE" until repaired. See sections 11 and 12 for detailed inspection procedures and section 13 for factory service information.

### 5.3.9 REDEPLOYMENT AFTER USE

Any Dynescape Descender which has been subjected to the forces of rescue or evacuating personnel must be immediately removed from service and marked as "UNUSABLE" until submitted to, and released from, the Formal Inspection procedures described in section 12.

## 6.0 SYSTEMS REQUIREMENTS

The Dynescape Automatic Retractable Descender is a controlled descent device for use in emergency rescue and evacuation systems. Without the other necessary components of a system, the Dynescape Descender serves no useful purpose. 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 SYSTEM

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. The Dynescape Descender is not suited for use in fall arrest systems. Contact MSA for separate instructions on the associated equipment used 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. The Dynescape Descender is not suited for use in climbing protection systems. Contact MSA for separate instructions on the associated equipment used 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 or, (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. The Dynescape Descender is not suited for use in restraint systems. Contact MSA for separate instructions on the associated equipment used 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). The Dynescape Descender is not suited for use in personnel-riding systems. Contact MSA for separate instructions on the associated equipment used 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 Self-Retracting Lanyard is designed for rescue applications. Conduct the workplace assessment and system planning described in sections 3 and 7 prior to including the Dynevac Self-Retracting Lanyard 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 Dynescape Descender is suited 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 the MSA Dynescape Automatic Descender. See the separate instructions for this equipment. MSA strongly recommends that the user select a full body harness with a chest D-ring to provide for evacuation. The Dynescape Descender is suited 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, a rescue system or evacuation system may be available as backup to a 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 MSA Dynescape Automatic Retractable Descender is designed to be used with MSA approved components and connecting subsystems. Use of the Dynescape Descender with products made by manufacturers other than 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, evacuation, rescue or personnel-riding). 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. Contact MSA with any questions regarding compatibility of equipment used with the Dynescape Descender.

### **6.2.2 COMPATIBILITY OF CONNECTORS**

Connectors, such as D-rings, snaphooks, and carabiners, should 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. It is recommended to use only self-closing, self-locking snaphooks and carabiners (as defined by ANSI Z359.1) with the Dynescape Descender.

### **6.2.3 ANCHORAGES AND ANCHORAGE CONNECTORS**

Anchorage for personnel rescue and evacuation systems should have a strength capable of supporting a static load, applied in directions permitted by the system, of at least 3600 lbf (16 kN). If the anchorage may be used for personal fall arrest systems, it 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, standard for personal fall arrest systems, for definition of certification. The MSA Dynescape Descender is designed for connection by a single person for emergency rescue or evacuation.

## 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 an evacuation 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. Evaluate the expected vertical travel of personnel during the evacuation to identify areas of obstruction and danger. The Dynescape Descender must be able to extend downward to the lowest expected landing area. The line should not contact sharp edges or pass too close to objects where it can become lodged, burned or cut. Never plan a rescue path close to an electrical hazard. The Dynescape Descender must be placed in a location accessible to the user, enabling the user to connect the descender lifeline to the front D-ring of the harness without exposing the user to a fall hazard. Consider the following points when planning the system(s).

### 7.1 ANCHORAGE AND ANCHORAGE CONNECTOR SELECTION

MSA strongly recommends against any installation of a Dynescape Descender which would permit movement of the Dynescape Descender and its anchorage connector along a fixed anchorage (such as beams, pipes, trolley or horizontal lifeline subsystems). See section 3 for hazards identification considerations. The following subsections describe suitable anchorage connectors and 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 Dynescape Automatic Retractable Descender.

#### 7.1.1 INSTALLATION SNAPHOOK (CARABINER)

MSA model 506308 Installation Snaphook is self-closing, self-locking snaphook meeting ANSI Z359.1. It has a throat opening of 2 inches (50.8 mm) and a nominal body diameter of 0.57 inches (14.5 mm) and should be connected to compatible connectors to avoid accidental disengagement ("rollout"). Contact MSA for information and separate User Instructions for the selection and use of this equipment.

#### 7.1.2 ANCHOR SHACKLE

If used, a bolt-type anchor shackle that is of weldless forged alloy steel construction must be selected that meets the requirements of section 6.2.3. These are also referred to as safety anchor shackles because the shackle pin is secured with a nut and a cotter pin to reduce the possibility of the pin coming out. The shackle should comply with U.S. Federal Specification RR-271.

It is recommended that a shackle with a nominal size of 0.5 inches (12 mm) be used. Shackles are sized by the diameter of the cross section of the material forming the bow of the shackle. MSA model 506212 safety anchor shackle has a 0.5 in (12 mm) diameter and is of the proper size for compatible connection with other MSA components.

The shackle bolt must be straight and the threads in good condition. Never replace an original shackle bolt with a regular bolt. Replace the entire shackle if the original bolt is damaged or lost. Replace any shackle if the dimensions do not conform to those specified by the shackle manufacturer. Always be certain that both the nut and the cotter pin are securely in place on the bolt.

#### 7.1.3 EYE BOLT

Eyebolts will usually require drilling a hole in the anchorage structure to mount the eyebolt. It is absolutely essential that the eyebolt connection is designed under the supervision of a qualified person to evaluate these effects on the anchorage.

The eyebolt must be of weldless forged alloy steel construction with a shoulder pattern and threaded shank for a nut. A shoulder pattern is necessary because any load applied at an angle to the eyebolt axis subjects the eyebolt to bending, and the load it can carry is thereby severely reduced. This is true for all eyebolts but is less severe for shoulder eyebolts.

Select an eyebolt with a shank length suitable for the installation, allowing for anchorage structure thickness, washers and nut. Eyebolts are sized by the diameter of the cross section of the metal forming the eye. The eyebolt must have a breaking strength as described in section 6.2.3. Note that the axial breaking strength of the eyebolt must be much greater than 5000 lbf (22.2 kN) in order to withstand 5000 lbf (22.2 kN) at 30 degrees off-axis (if system use permits loading in that direction). Be sure that intermediate anchorage connectors are compatible to prevent accidental disengagement ("rollout"). Refer to User Instructions for intermediate anchorage connectors that will be used to connect to an eyebolt to ensure compatibility.

When installed, the eyebolt shoulder must be perpendicular to the axis of the receiving hole of the anchorage and the shoulder must be fully and firmly in contact with the anchorage surface. The eyebolt nut must be torqued to the level specified by the eyebolt manufacturer. An appropriate washer should be used under the eyebolt nut and the eyebolt threads must fully engage all threads on the nut. The axis of the eyebolt shaft must be oriented such that no forces are ever imposed at an angle greater than 30 degrees from the eyebolt shaft, to avoid excessive bending stresses on the eyebolt.

### 7.1.4 INSTALLATION CABLE

The installation cable can be wrapped around an anchorage without any special adaptation of the anchorage or use of special fittings. It is always used in conjunction with the installation snaphook (model 506308) or the safety anchor shackle (model 506212). 5/16 inch installation cables are available in standard 46 inch (1.2 m) or 72 inch (1.8 m) lengths or custom lengths upon request from MSA. These cables have an eye and a thimble at each end, are vinyl coated and meet the strength requirements set forth in section 6.2.3 of these User Instructions. This cable can be used as an anchorage connector where it is necessary to make a wrap around an anchorage in order to suspend the Dynescape Descender. The installation cable should never be wrapped around a sharp anchorage unless heavy padding is used to cover the sharp areas under the cable. It can also be used in combination with other elements of installation hardware. Never stretch the installation cable between two points of attachment so as to form a horizontal anchorage from which to suspend any fall arrest system. This may excessively amplify forces transmitted to the points of cable attachment.

### 7.1.5 ANCHORAGE CONNECTOR STRAP

Anchorage Connector Straps made of nylon (model 505282) and polyester (model 505298) in standard and custom lengths are available from MSA. The standard models have a sewn loop at one end and a D-ring on the other end. Another anchorage connector strap is available (model 505314) which is specifically designed for use with the MSA Remote Connect/Disconnect (RCD) system. The RCD system allows the anchorage connector strap to be installed on an anchorage while the installer is standing up to 20 feet below the anchorage. The RCD system (model 501443) can also be used to connect and disconnect a lanyard with snaphook to the D-ring of the anchorage connector strap. Contact MSA for information and separate User Instructions for the selection and use of this equipment.

### 7.1.6 D-PLATE ANCHORAGE CONNECTOR

MSA models 506632 (zinc plated steel) and 506633 (stainless steel) D-Plate anchorage connectors. The D-Plate is a user-installed anchorage connector element consisting of a plate and a D-ring. The D-Plate is a permanent, overhead anchorage connector that can be welded or bolted to a suitable beam or girder anchorage. Contact MSA for information and separate user instructions for the selection and use of this equipment.

### 7.1.7 DAVIT

Davits are used when it is necessary to gain access to large openings, from sides of buildings or from a ledge where other anchorage connectors are not suitable. The MSA Column Davit is mounted on structural anchorages by means of permanent, fixed base receptacles.

The components necessary to make up a complete Column Davit system include:

- 1) Dynescape Automatic Retractable Descender,
- 2) Column Davit (P/N 506568),
- 3) Column Davit mounting receptacle: (a) base receptacle for surface mount (P/N 506487), (b) base receptacle for subsurface mount (P/N 506488), or, (c) base receptacle for vertical mount (P/N 506486),
- 4) MSA steel carabiner (P/N 506572).

## 7.2 ELIMINATING FREE FALL

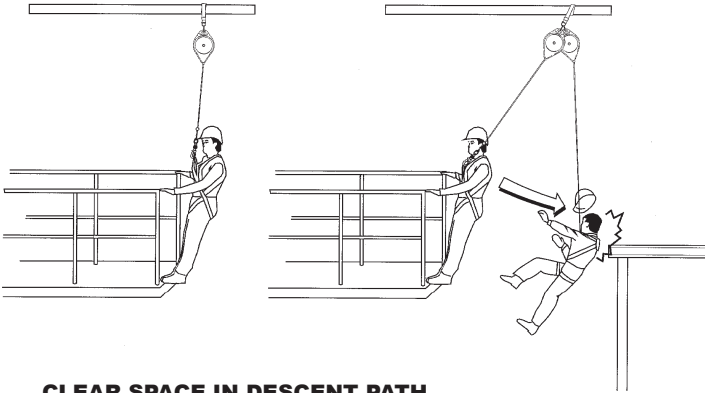
Care should be taken to mount the Dynescape Descender in a location that will eliminate a free fall condition. The Dynescape Descender must be mounted above the attachment point of the user's body support. Never attempt to use the Dynescape Descender as a fall arrester.

### 7.3 USER MOVEMENTS

Identify all necessary movements of the user and the materials and equipment needed to perform the evacuation. 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.

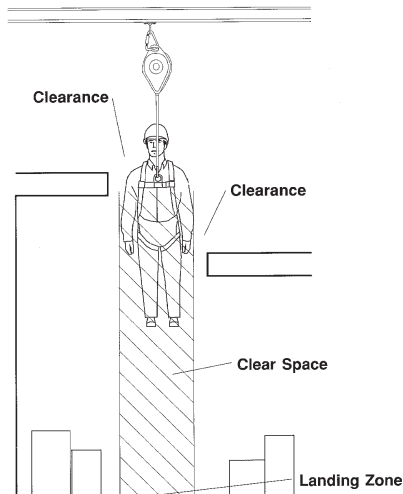
### 7.4 PENDULUM EFFECT

Proper installation requires mounting the Dynescape Descender above the descent path, not directly above the user's working surface. As a result a pendulum effect will be imparted to the user. This effect must be minimized by locating the anchorage and the Dynescape Descender as close as practical to the step-off point. The amount of clearance needed increases as the distance between the anchorage location and the step-off point increases. MSA recommends a minimum horizontal clearance of 18 in (46 cm) between the step-off point and the anchorage location.



### 7.5 CLEAR SPACE IN DESCENT PATH

Make certain that enough clearance is available in the descent path to prevent striking an object. Due to the pendulum effect, the amount of clearance required at the beginning of the descent is greater than that near the bottom of the descent. An allowance of adequate space for the user's body to pass by the step-off point during descent should be determined by a competent person.



## 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, the descent path and landing area must remain clear at all times.

## 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. 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.

## 7.8 FULL BODY HARNESS

The user must have an appropriate full body harness to connect the snaphook of the Dynescape lifeline. It is strongly recommended that the user select a harness equipped with a chest (front) D-ring for attachment of the snaphook of the lifeline during evacuation. Refer to separate User Instructions for the selection of the appropriate MSA full body harness for the specific application.

# 8.0 INSTALLATION AND INSTRUCTIONS FOR USE

## 8.1 DYNESCAPE DESCENDER INSPECTION BEFORE BEGINNING WORK

Inspect the Dynescape Descender to verify that it is in serviceable condition. Gloves should be worn to prevent injury while handling the wire rope lifeline. Examine the termination of the lifeline around the snaphook and ferrules and the first several feet of the Dynescape Descender lifeline for severe wear, frays or broken strands, corrosion, cuts, or other damage. Examine the function of the Dynescape Descender by slowly pulling the line and verify smooth and even deployment of the line. The lifeline should automatically retract smoothly back into the housing. See section 11 for inspection details. Do not use the Dynescape Descender if inspection reveals an unsafe condition.

Never attempt to use the Dynescape Descender as a fall arrester. The Dynescape Descender is designed to be used during consecutive descents of a single user at a time. After an emergency situation is completed, where the Dynescape Descender has been used for personnel evacuation or rescue, remove the Dynescape Descender from use. Mark it as "UNUSABLE" until it has been subjected to, and released from, the competent person inspection described in section 12 of these User Instructions.

## 8.2 INSTALLATION

Refer to section 3 of this User Instruction for considerations in selecting a suitable location for the Dynescape Descender installation. Install the Dynescape Descender over the descent path vertically suspended with the snap hook down. All labels must be visible. Install where the lifeline can easily extend vertically downward to the lowest expected landing area. The anchorage should be positioned as close as possible to the step-off point to reduce the pendulum effect. 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 Dynescape Descender or its lifeline. 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 Dynescape Descender or its lifeline. Never install where the device or the line can encounter an electrical hazard. See section 5.3 for application limitations.

The installation plan is not complete until a method is devised for transporting the Dynescape Descender and anchorage connector to the anchorage. Because of the weight and bulk of the unit, it is recommended that material handling equipment be used to move the device to the installation point and support it until it is secured to the anchorage. It is preferable to use two persons to effect the installation - one to steady the device and the other to make the couplings. The installers must always use an appropriate fall arrest system, work positioning system or travel restriction system when installing the Dynescape Descender near a fall hazard zone. The Dynescape Descender, the anchorage connector and all installation tools should be secured against falling while the installation is being performed.

Couple the Dynescape Descender to the anchorage so it cannot work loose. Be sure it is free from any obstructions which could affect its evacuation functions. It is extremely important that the Dynescape Descender is linked to an anchorage or anchorage as defined in section 6.2.3 of this User Instruction, and of a design which secures the coupling against accidental disengagement. It is easiest to attach the intermediate anchorage connector (such as a MSA installation carabiner) first to the mounting bracket of the Dynescape Descender. Then lift the entire assembly into position linking the intermediate anchorage connector to the anchorage or anchorage connector.

There are many elements of installation hardware (see section 4) which are suitable for Dynescape Descender installation. The section which follows discusses a few which are in general use and readily available. Most Dynescape Descender installations can be accomplished using these hardware elements individually or in combination as described. All installation hardware must meet the minimum requirements set forth by these instructions and by the applicable standards and regulations. Never use installation hardware and installation methods other than those recommended by MSA unless such other hardware and methods have been determined to be suitable by a qualified person.

It is possible to interconnect in many ways the different elements of installation hardware described in section 4, and only those combinations discussed herein are recommended. These methods span a wide range of installation situations. It is impossible to describe all installation methods due to the widely differing geometries, materials and construction in the many workplaces into which the Dynescape Descender may be placed. It is, therefore, absolutely essential that the installation be performed only by or under the direct supervision of a competent person or qualified safety engineer at the workplace. Only a qualified person can properly evaluate factors such as anchorage strength and location, movement range of the user, location and nature of hazards, presence of physical obstacles, etc.

It is possible that special means of anchorage may need to be fabricated and installed at the workplace. It is also possible that special installation hardware and anchorage connectors may be necessary. Furthermore, special precautionary measures may need to be developed and implemented in differing situations in order to properly install and use the Dynescape Descender. These special measures may include use of barriers, warning devices, work procedures, tests and special instructions to work supervisors and users, to mention only a few considerations. Any specialized installation of a Dynescape unit, as well as development of specialized precautionary measures, must only be carried out under the supervision of a qualified person.

## **8.2.1 INSTALLATION WITH EYEBOLT AND SHACKLE**

This linkage method is very similar to the method described in section 8.2.2 using the eyebolt and installation snaphook. The Dynescape installation bracket should bear on the shackle bow. Use packing washers to center the eyebolt loading on the shackle pin. Use the shackle described in section 7.1.2 or one of greater strength. Always use a safety anchor shackle and be certain the nut and cotter pin are secured in the shackle pin.

## **8.2.2 INSTALLATION WITH EYEBOLT AND INSTALLATION SNAPHOOK**

This type of installation may appear quite obvious, however, there are some major pitfalls which must be carefully avoided. First, the axis formed by the shank of the eyebolt must be as closely aligned with the direction of expected loading of the Dynescape Descender as possible. The competent person must not use the eyebolt discussed in section 7.1.3 if the expected force applied to the Dynescape Descender can make an angle greater than 30 degrees with the eyebolt axis. Eyebolts are commonly found on columns and other vertical structures. In these instances, the eyebolt often is oriented with its axis in the horizontal plane. Do not link the Dynescape Descender to such an eyebolt because the forces on the eyebolt could be applied at an angle of up to 90 degrees with respect to the eyebolt axis. Most eyebolts are not designed to take such severe bending loads.

A second pitfall to avoid is the use of just any eyebolt that happens to be available on a structure in the workplace. Even if the eyebolt axis seems suitably aligned, many other factors must be analyzed. Determine if the eyebolt meets the requirements of section 6.2.3. Determine if it has a suitable collar and is properly seated and the eye nut is properly torqued. Eyebolts with screw-type shanks (without a nut) are not recommended because they can work loose. Finally, determine if the anchorage to which the eyebolt is coupled is of sufficient strength and in sound condition. This is particularly important in older structures.

Once the competent person determines that the eyebolt and anchorage are suitable for Dynescape Descender installation, couple the installation snaphook to the Dynescape Descender installation bracket and then open the snap gate and make the final linkage to the eyebolt. Be sure the snaphook is closed and locked and that there is no binding of the snaphook gate by either the eyebolt or the Dynescape Descender. Refer to separate User Instructions for use of the installation snaphook.



### 8.2.3 INSTALLATION WITH ANCHORAGE CONNECTOR STRAP

The Dynescape Descender may be installed to a suitable anchorage by means of an anchorage connector strap, of appropriate material and length, with an additional intermediate connector such as the MSA installation snaphook or carabiner. The anchorage connector strap must be installed without risk of exposure to an unprotected fall from height and provision made for installation of each element of the system to be installed without exposure to a hazard. The MSA Remote Connect/Disconnect (RCD) System is a means by which an anchorage connector strap may be installed while the user is up to 20 ft (6.1 m) below the chosen anchorage. Provision must be made to install the other system components to the connection point of the anchorage connector strap without exposing the user to a hazard. An installation cable may be installed (also using the RCD System) at the connection point of the anchorage connector strap and thereby lowering the connection point to which the Dynescape Descender may be attached. If the anchorage is within reach, first install the anchorage connector strap, the intermediate linkage (carabiner) and then the Dynescape Descender. It is usually easier to attach the carabiner to the Dynescape Descender installation bracket and then lift the device up to the connection point (D-ring) of the anchorage connector strap. Heavy padding may be necessary to protect the anchorage connector strap if the anchorage has exposed sharp edges. See separate User Instructions for specific details regarding the selection of a MSA anchorage connector strap as part of a work system.

### 8.2.4 INSTALLATION WITH D-PLATE ANCHORAGE CONNECTOR

Assemble the D-Plate anchorage connector to the flange of a suitable I-beam anchorage as described in the separate D-Plate user instructions P/N 622898. Connect the snaphook of the Dynescape Descender lifeline to the D-ring of the D-Plate with a MSA installation snaphook or carabiner.

### 8.2.5 INSTALLATION WITH INSTALLATION CABLE AND INSTALLATION SNAPHOOK

Because the installation cable is flexible (within limits) it can be wrapped around horizontal anchorages and then be coupled to the Dynescape Descender via an installation snaphook. First couple the installation snaphook to the Dynescape Descender and seat the Dynescape Descender in the narrow end of the installation snaphook. Next, wrap the installation cable around the anchorage with the thimbles down. Finally, connect the installation snaphook through both thimbles and lock the installation snaphook gate.

Note that heavy padding must be placed between the anchorage and the installation cable at all points where the cable can contact a sharp radius or edge. Do not use the installation cable unless the anchorage is horizontal and has no free end. To prevent lateral movement of the installation cable and Dynescape Descender, securely clamp suitable collars to the anchorage on each side of the installation cable. See section 7.1.4 for a description of a suitable installation cable.

### 8.2.6 INSTALLATION WITH INSTALLATION CABLE AND SHACKLE

This installation method is the same as that described in section 8.2.5 except that the shackle is used in place of the installation snaphook. Read and observe the precautionary measures described in section 8.2.5. If the shackle described in section 7.1.2 is used, the Dynescape Descender must be seated on the shackle bolt because the two thimbles of the wire rope ends will not fit in the space between the bolt and the bearing points. However, if a larger shackle is used, the Dynescape Descender may bear either on the shackle bow or bolt. Be sure the nut and cotter pin of the safety shackle are securely in place.

### 8.2.7 INSTALLATION WITH MSA DAVIT

The Davit anchorage connector system facilitates access to a lower working level where a single edge is available for anchorage support. Examples of such conditions include: reaching over the edge of a building parapet, over the side of a concrete ledge or embankment or over a balcony or mezzanine.

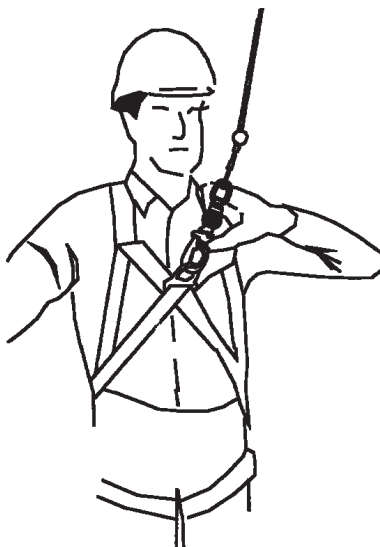
The Column Davit is an anchorage connector that requires a permanently mounted base receptacle for installation. The Column Davit is assembled to the base receptacle. The Dynescape Descender is connected to a load ring at the end of the davit arm by means of a MSA installation snaphook or carabiner. The snaphook at the end of the lifeline of the Dynescape Descender is connected to the compatible descent attachment element of the user's body support. Refer to separate User Instructions P/N 622311 for the Column Davit.

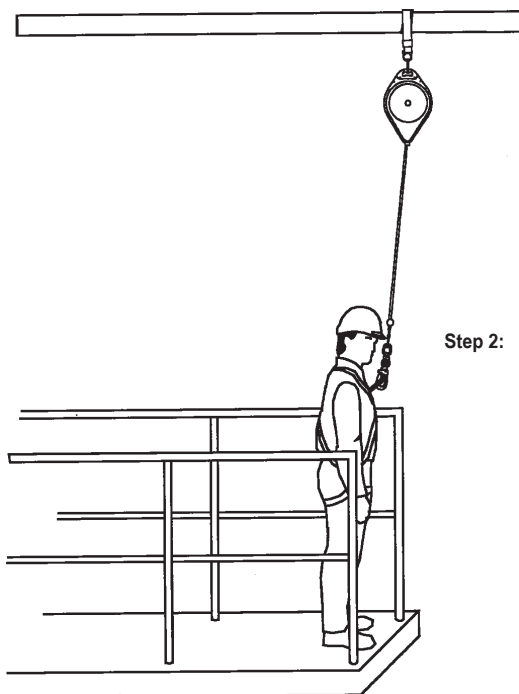
### 8.3 INSTRUCTIONS FOR USE

Understand and inspect the Dynescape Descender before beginning work. It is important that understanding and training in the use of this equipment take place prior to use under emergency conditions. Continuously monitor the descent path and verify that obstructions do not temporarily enter the path or that the user has not moved to a position where new obstructions in the descent path are present. Follow the inspection before use instructions in section 11. Read this User Instruction and the product labels and understand them prior to using the Dynescape Descender. Read and understand all User Instructions for other system components prior to using them. In particular, inspect the line extraction and retraction mechanism. Follow this sequence of steps to prepare for emergency rescue or evacuation using the Dynescape Automatic Retractable Descender:



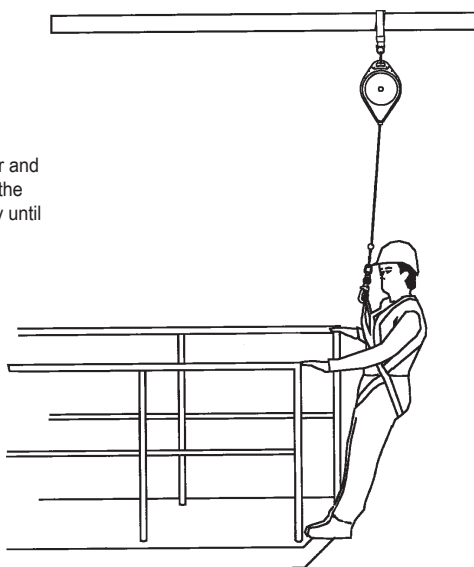
**Step 1:** Begin by donning the full body harness with chest (front) D-ring attachment element. Attach the swivel snaphook of the Dynescape Descender lifeline to the chest D-ring. Be certain the snaphook gate is completely closed and locked securely.



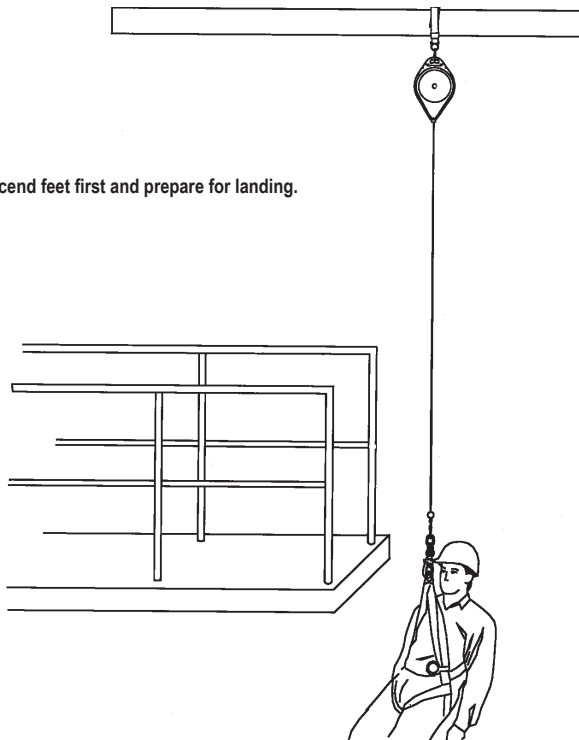


**Step 2:** Check to verify a clear vertical path and a clear landing area is available.

**Step 3:** Transfer weight to the descender and begin descent. Push away from the step-off point and guide the body until it is clear of the platform



**Step 4:** Descend feet first and prepare for landing.



If more than one person must be evacuated the descender lifeline must be permitted to retract automatically back into the unit. The unit will not retract with the additional weight of a body support still attached to it. Each user must be equipped with their own body support (such as the MSA full body harness with front D-ring). The Dynescape Descender design includes a feature to automatically control the rate at which the lifeline is re-reeled back onto the drum inside the housing. Once the lifeline has rewound back into the drum, the next person may connect to the Dynescape Descender and descend.

**Note** that the Dynescape Descender will descend continuously at a constant rate. The descent will stop only when the user reaches a landing surface. If the Dynescape Automatic Retractable Descender is to be used to rescue a disabled person, provisions must be made to attach the person safely and securely to the lifeline, clear the person free of obstacles during descent and cushion the impact of the person upon reaching the landing area.

**DO NOT** attempt to alter or repair the device in the field. Contact MSA. The Dynescape housing must never be opened by anyone other than MSA. Special tools are required and nothing internal to it can be repaired or replaced by the user. Do not attempt to substitute parts. A powerful, high-tension spring is housed in the device. Attempts to open the device could result in serious injury.



#### **CAUTION**

***Descend one person at a time. Do not try to descend with two or more persons connected to the device. Do not use the descender for fall arrest, work positioning, or in ways other than specifically described in this user instruction.***

## 9.0 CARE, MAINTENANCE AND STORAGE

Proper functioning and length of useful life of the Dynescape Descender depends on the user's proper care, maintenance and storage of the product. Annual factory service (see section 13) is required to keep the product in good working condition and will prolong its useful life. Proper care and maintenance of the product by the user is essential during the one year intervals between factory servicing.

Inspect the Dynescape Descender in accordance with sections 11 and 12 of these User Instructions. Prevent denting or deformation of the housing. 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 lifeline kinking. DO NOT allow foreign matter to enter the housing. 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 Dynescape Descender.

### 9.1 CLEANING INSTRUCTIONS

To clean the housing, 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 Dynescape Descender to service. The frequency of cleaning should be determined by inspection and by severity of the environment. In highly corrosive environments, cleaning will be required more often. Never use solvents to clean the housing 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 dishwater 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. If water gets into the housing, hang the device from the installation bracket and slowly extract all the lifeline allowing the water to run out of the lifeline orifice. Use a clean dry cloth to wipe the lifeline dry as it is slowly re-reeled back into the device. Leave the device hanging in a warm dry room with the lifeline slightly extended to keep the ball stopper from plugging the orifice. Repeat the lifeline extraction and drying operation after a few hours and return to use when the internal drying is complete. If necessary, lubricate the lifeline after this operation (see section 9.2). Questions concerning Dynescape Descender 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. Routine maintenance, including cleaning, wire rope lubrication and removal of broken wire ends is all that is permissible for the user to perform. Lubrication must only be applied to a clean, dry lifeline because it is effective only when the dressing comes in contact with metal. 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. Pay particular attention to cleaning the gaps between the wire rope strands so lubricant can penetrate into the core and fill these gaps to seal out moisture and foreign particles.

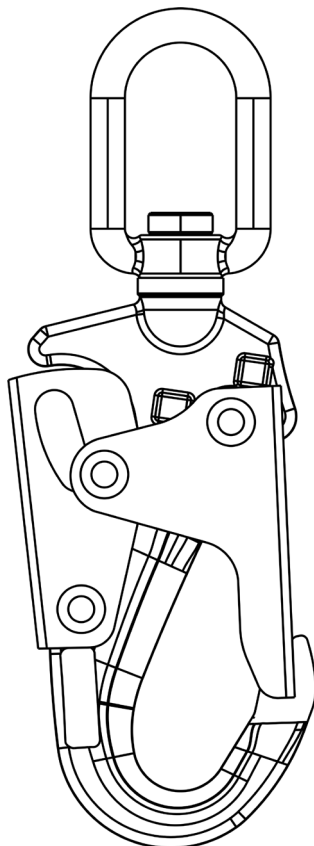
Use a low viscosity lubricant having moisture resistant, noncorrosive properties. It may be applied by brushing on or swabbing with a cloth saturated with the lubricant. Wipe off excess lubricant with a clean dry cloth.

It is impossible to specify the time intervals between lubrications. The lifeline should be properly lubricated at all times and thorough periodic inspections will indicate when it must be done. In corrosive environments the line should be cleaned and lubricated more frequently. If the Dynescape Descender is taken out of service for an appreciable length of time, the lifeline should be cleaned and lubricated before storage.

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

The moving parts of the snaphook at the end of the Dynescape Descender lifeline 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 points of the snaphook as shown. DO NOT over-lubricate. Wipe off excess with a clean dry cloth. Follow the lubricant manufacturer's instructions.

**CAUTION**

***The gate should not open under any circumstances unless it is unlocked. If the locking mechanism fails or any other inspection step fails, remove the snaphook from use.***

### **9.3 STORAGE**

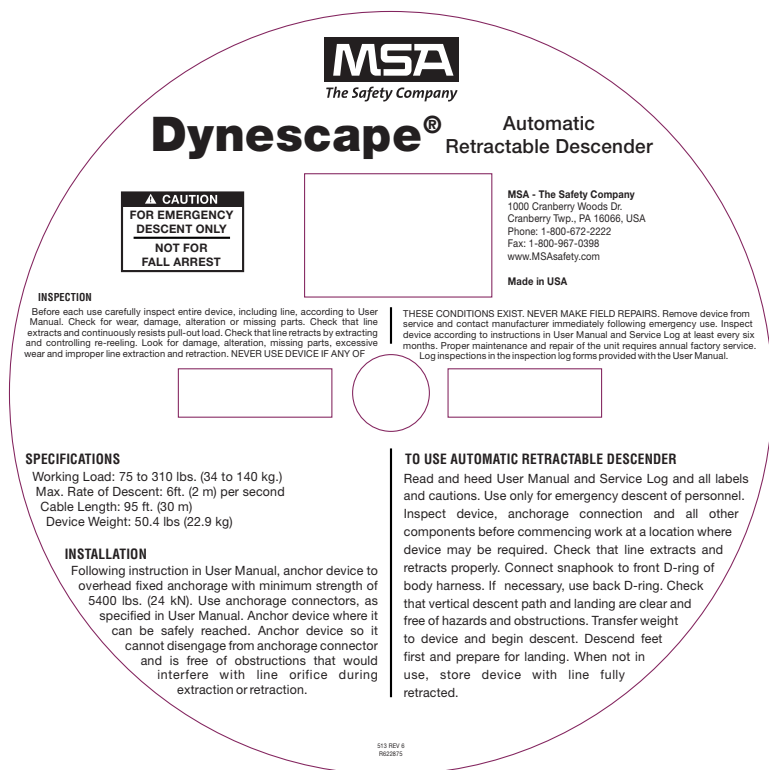
Store the Dynescope Descender hanging by the handle in a cool, dry and clean place. Avoid areas where heat, moisture, oil and chemicals or their vapors or other degrading elements may be present. Equipment which is damaged or in need of maintenance should not be stored in the same area as usable equipment. Heavily soiled, wet, or otherwise contaminated equipment should be properly maintained (e.g. dried and cleaned) prior to storage. Never allow the Dynescope Descender to rest for lengthy periods of time on concrete or ash floors as the lime sulfur and ash can cause corrosion. Store the device with the lifeline fully retracted. 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

### 10.1

The following labels must be present, legible and securely attached to the Dynescape Descender. If not, remove the Dynescape Descender 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.

#### Inspection and Instructions Label, 32 m Dynescape Descender



#### Service Date Label

Part #:	_____
Serial #:	_____
Date of Manufacture:	_____
Last Factory Service:	_____

## Caution Labels (2)

⚠ CAUTION	⚠ CAUTION	⚠ CAUTION	⚠ CAUTION	⚠ CAUTION
<ul style="list-style-type: none"> <li>Read User Manual and inspect device before each use. Read and heed all product labels and instructions.</li> <li>Failure to observe instructions may result in serious or fatal injury.</li> <li><b>DO NOT</b> use for other than emergency descent of one person at a time.</li> <li><b>DO NOT</b> use as a positioning device.</li> <li>Install under direction of a competent person or qualified engineer.</li> </ul>		<ul style="list-style-type: none"> <li><b>DO NOT</b> install or use where device or descending person may encounter electrical hazard.</li> <li><b>DO NOT</b> clamp off or stand on line. <b>DO NOT</b> permit kinks in line.</li> <li><b>DO NOT</b> allow line to pass beneath neck or arms, between legs, or wrap about body or limbs.</li> <li>Wear gloves when inspecting line or controlling re-reeling with hands.</li> <li><b>DO NOT</b> allow foreign matter to enter housing. Do not obstruct line orifice.</li> <li><b>DO NOT</b> attempt to alter or repair device in field. Contact manufacturer for service and repair.</li> </ul>		<small>150222001-1 4/04/15 (USA)</small>

⚠ CAUTION	⚠ CAUTION	⚠ CAUTION	⚠ CAUTION	⚠ CAUTION
<ul style="list-style-type: none"> <li>Install device so it cannot disengage from anchorage connector and is free of obstructions.</li> <li>Install so that line will not abrade line orifice during extraction or retraction.</li> <li>Use with anchorage connector and body harness recommended by manufacturer.</li> <li>Connect to harness at chest D-ring or, if necessary, back D-ring of harness.</li> <li>Always check to ensure a safe path is available for vertical descent.</li> <li>Always check to ensure the landing area is clear of hazards.</li> </ul>			<ul style="list-style-type: none"> <li>Install and use device vertically overhead to minimize swing hazards. Never begin descent from above device.</li> <li><b>DO NOT</b> permit line slack. <b>DO NOT</b> lengthen by connecting to another line.</li> <li>Always have an emergency rescue and evacuation plan.</li> <li><b>DO NOT</b> release line and allow it to re-reel freely back into device.</li> <li><b>DO NOT</b> pass line over sharp edges.</li> </ul>	<small>15022001-1 4/04/15 (USA)</small>

## Inspection and Instructions Label, 16 m Dynescape Descender



**Dynescape®** Automatic Retractable Descender

**⚠ CAUTION**  
**FOR EMERGENCY DESCENT ONLY**  
**NOT FOR FALL ARREST**

**INSPECTION**

Before each use carefully inspect entire device, including cable, according to User Manual. Check for wear, damage, alteration or missing parts. Check that cable extracts and continuously resists pull-out load. Check that line retracts by extracting and controls re-reeling. Look for damage, alteration, missing parts, excessive wear and improper cable extraction and retraction. **NEVER USE DEVICE IF ANY OF THESE**

**MADE IN USA**

**MSA - The Safety Company**  
1000 Cranberry Woods Dr.  
Cranberry Twp., PA 16066, USA  
Phone: 1-800-672-2222  
Fax: 1-800-967-0398  
www.MSAafety.com

**CONDITIONS EXISTS, NEVER MAKE FIELD REPAIRS.**  
Remove device from service and contact manufacturer immediately following emergency use. Inspect the device according to instructions in User Manual and Service Log at least every six months. Proper maintenance and repair of the unit requires annual factory service. Log inspections in the inspection log forms provided with the User Manual.

**SPECIFICATIONS**

Working Load: 75 to 310 lbs. (34 to 141 kg.)  
Max. Rate of descent: 6ft. (2 m) per second  
Cable length: 52 ft. (16 m)  
Device Weight: 34.0 lbs (15.4 kg)

**INSTALLATION**

Following instructions in User Manual, attach device in overhead fixed anchorage with minimum strength of 5000 lbs. (22.2 kN). Use anchorage connections, as specified in User Manual. Install device where it can be safely reached. Install device so it cannot disengage from anchorage connector and is free of obstructions that would interfere with line orifice during extraction or retraction.

**TO USE AUTOMATIC RETRACTABLE DESCENDER**

Read and heed User Manual and Service Log and all labels and cautions. Use only for emergency descent of personnel. Inspect device anchorage means and all other components before commencing work at a location where device may be required. Check that line extracts and retracts properly. Connect snaphook to front D-ring of body harness. If necessary, use back D-ring. Check that vertical descent path and landing are clear and free of hazards and obstructions. Transfer weight to device and begin descent. Descend feet first and prepare for landing. When not in use, store device with line fully retracted.

513 REV 6  
R622083



## 11.0 INSPECTION BEFORE BEGINNING WORK

### 11.1 INSPECTION FREQUENCY

The Dynescape Descender must be inspected by the user before beginning work. Additionally, the Dynescape Descender 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 Dynescape Descender 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 Dynescape Descender has been subjected to emergency evacuation or rescue service, 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 BEGINNING WORK

Inspect the entire Dynescape Descender in accordance with the steps as described in section 11.2.1. Additional inspection requirements specifically for the snaphook and wire rope are described in sections 11.2.2 and 12.3.5, respectively. Refer to sections 4 and 12 for diagrams indicating the location of the elements of the Dynescape Descender.

#### 11.2.1 INSPECTION OF DYNESCAPE DESCENDER

- Step 1:** Inspect the Dynescape Descender 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. If any labels are missing or illegible, remove the Dynescape Descender from use and mark it as "UNUSABLE" until a Formal Inspection is performed by a competent person.
- Step 2:** Check extraction by pulling out the first five to six feet (1.5 to 2 m) of the lifeline in a hand-over-hand manner. During the extraction of the line, ensure that there is a continuous resistance to pull out. This is the brake engaging. **WEAR GLOVES.** Release the end of the lifeline and observe the automatic retraction of the lifeline back into the housing. If the line does not easily extract or retract, remove the Dynescape Descender from use.
- Step 3:** Using fingers, check all bolts and nuts on the housing to be sure they are tight. Check to see if any bolts, nuts or other parts are missing or have been improperly substituted or altered in any way. In particular, check the axle nut in the center of the housing. If any parts are loose, missing, altered, damaged or substituted, remove the Dynescape Descender from use.
- Step 4:** Check to see that the two security rivets (one on each side of the housing, see section 4) are in place and bear the stamp "R". If these are absent it is evidence that the Dynescape Descender has been tampered with outside the factory. If missing, remove the product from use and submit for factory service according to section 13.
- Step 5:** Check that the housing is not damaged or dented. In particular, check that the dome cover in the center of the housing is present and not damaged. Check that the installation bracket (handle) is not bent or damaged.
- Step 6:** Inspect all metallic parts (i.e. housing, snaphook, lifeline, handle, 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 Dynescape Descender from use and submit for factory service according to section 13. In addition, inspect snaphook and wire rope in accordance with section 11.2.1.

**Step 7:** Inspect all nonmetallic parts (i.e. installation bracket handle, ball stopper, lifeline collar and labels) for cut, broken, excessively worn, missing and loose parts. (Labels are to be additionally checked in accordance with Step 1 above.) Inspect for evidence of burns and excessive heat and chemical exposures. If the inside of the lifeline collar has grooves of more than 0.1 inches (2.5 mm) that may hamper line extraction and retraction, remove the Dynescape Descender from use and submit for factory service according to section 13.

### 11.2.2 INSPECTION OF SNAPHOOK

**Step 1:** Check all parts of the snaphook for signs of alteration, distortions, cracks, deep nicks, dents or cuts. Also check for indications that the snaphook has been subjected to intense heat, corrosion or excessive wear which could affect its strength. If there is evidence of these conditions, remove the Dynescape Descender from use.

**Step 2:** Examine snaphook in open position to be sure the locking mechanism spring is free from dirt, sand, grease, paint, ice or any foreign material that might hamper gate freedom of operation. When the gate is released the spring should automatically close the gate. Once the gate is closed, examine the snaphook to be sure the trigger moves forward under the gate to lock gate in closed position. If the trigger fails to lock the gate, remove the Dynescape Descender from service.



#### CAUTION

***The gate should not open under any circumstances unless it is unlocked. If the locking mechanism fails or any other inspection step fails, remove the Dynescape Descender from use.***

**Step 3:** Check for presence of the roll pin and washer. If either is absent, remove the Dynescape Descender from use.

**Step 4:** Check to see that the snaphook body swivels freely around the bolt connecting it to the snaphook eye. If it does not, lubricate with light machine oil. If swiveling is not free after lubrication, remove the Dynescape Descender from use.

### 11.3 CORRECTIVE ACTION

When inspection in accordance with section 11.2 reveals signs of inadequate maintenance, the Dynescape Descender 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. Damage, excessive wear and/or aging are generally not repairable. If detected, immediately remove the Dynescape Descender from use and mark it as "UNUSABLE" until destroyed. For final disposition, submit the Dynescape Descender 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 Dynescape Descender.



#### CAUTION

***Only MSA or parties with written authorization from MSA may make repairs to the Dynescape Descender.***

## 12.0 FORMAL INSPECTION

### 12.1 FORMAL INSPECTION FREQUENCY

The Dynescape Descender 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 Dynescape Descender 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.

## 12.2 CONTROL OF EQUIPMENT

The user's organization should establish and enforce a policy and procedure whereby any Dynescape Descender that is found to be 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) damaged 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 beginning work 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" or as "not acceptable" followed by destruction of the product. The described detailed inspection record keeping is needed in order to trace detected damage 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 Dynescape Descender 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:

<b>INSP. POINT -</b>	Inspection point. The Dynescape Descender part designated in the callouts on the DIAGRAM.
<b>DESCRIPTION -</b>	Name of the Dynescape Descender inspection point. There are four broad categories of inspection points, namely, metallic parts, nonmetallic parts, snaphook parts and lifeline (wire rope/cable) parts.
<b>QTY/D -</b>	Quantity per Dynescape Descender. The quantity of each Dynescape Descender inspection point that must be inspected.
<b>PTY -</b>	Priority. A Priority "1" indicates a critical part. If one or more not acceptable conditions are found by inspection of Priority 1 parts, the Dynescape Descender is not acceptable for use. A Priority "2" indicates a noncritical part. If three or more not acceptable conditions are found by inspection of Priority 2 parts, the Dynescape Descender is not acceptable for use.
<b>COND. -</b>	Condition. The condition of the Dynescape Descender part is indicated here by entry of the appropriate Condition Code shown on the CHECKLIST (e.g. M0, N0, S0, C0 etc.). Alternatively, the inspector may simply enter "FAIL" if a damage condition exists and make no entry if no damage exists.
<b>OVERALL ASSES. -</b>	Overall assessment. The inspector's evaluation of the overall acceptability or non-acceptability of the part category (i.e. metallic, nonmetallic). The appropriate Overall Assessment Code defined on the CHECKLIST is entered here (e.g. MA, NA, SA, CA). Alternatively, the inspector may simply enter "FAIL" if the unit is damaged and make no entry if no damage exists.

**COMMENTS -** Indicate pertinent inspector observations here.

### 12.3.3 CHECKLIST AND CODES

This is a table which categorizes the different types of Dynescape Descender parts into four broad categories (i.e. metallic, nonmetallic, snaphook and wire rope). For each of these categories, the formal inspector checks the Dynescape Descender 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, N2, S0, C0 etc.). Overall assessment codes are given, along with the criteria for assigning them, so the inspector can decide if the Dynescape Descender is acceptable or not acceptable for further use (e.g. MA, NN, SA, CA). Alternatively, instead of using these codes, the inspector may simply enter "FAIL" if a damaged condition exists and make no entry if no damage exists.

### 12.3.4 FORMAL INSPECTION PROCEDURAL STEPS, HOUSING

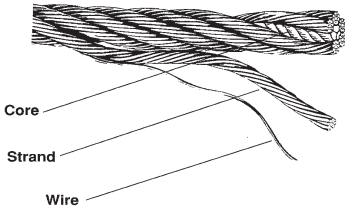
- Step 1:** Record on the LOG the Model No., Serial No. and Date Made information shown on this User Instruction and from the product labels. Record the inspector's name and inspection date.
- Step 2:** Arrange the Dynescape Descender so the parts to be inspected are readily visible.
- Step 3:** Starting with the metallic 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 damage exists. If there is any question whether the Dynescape Descender condition has materially changed since the last Formal Inspection, retrieve and review the prior Formal Inspection records for the specific Dynescape Descender.
- Step 4:** Repeat steps 2 and 3 for the nonmetallic categories of part types.
- Step 5:** Repeat steps 2 and 3 for the snaphook categories of part types.
- Step 6:** Perform a functional test of the Dynescape Descender line extraction and retraction features. Upon completion of these functional tests, note the performance for extraction and retraction in the comments section on the Inspection Log. The extraction functional test is performed by slowly pulling the line, with gloved hands, completely out of the Dynescape Descender housing. Note as the line is reeled from the drum if there is any sticking, hesitation, or other hindrances to the smooth deployment of the line. The retraction functional test is performed by allowing the automatic retraction of the device to re-reel the line back into the Dynescape Descender. The tension of the drum on the line as it draws the line into the Dynescape Descender should be constant, the line should not snag or catch and there should not be any grinding noise throughout the entire retraction of the line. Record the results of the functional tests in the appropriate sections of the Inspection Log.
- Step 7:** Determine whether the part (inspection point) is acceptable or not acceptable. If a Priority 1 inspection point has a damaged condition, enter in the Overall Assessment column of the LOG the proper code taken from the CHECKLIST (e.g. MN, NN) or simply "FAIL." For Priority 2 inspection points, count the number of damaged conditions identified in the Condition column of the LOG. If there is a total of three or more damaged conditions for Priority 2 inspection points the Dynescape Descender is not acceptable for further use.
- Step 8:** Determine disposition of the Dynescape Descender. If in step 7 it has been determined that the Dynescape Descender 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 Dynescape Descender is to be destroyed, returned to manufacturer/distributor, etc.
- Step 9:** If in step 7 it has been determined that the Dynescape Descender is acceptable for further use, enter "A" or "PASS" in the Disposition space on the LOG.
- Step 10:** File the LOG for future reference.

### 12.3.5 FORMAL INSPECTION PROCEDURAL STEPS, LIFELINE

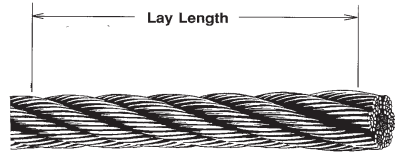
- Step 1:** Arrange the Dynescape Descender lifeline so the parts to be inspected are readily visible by deploying the entire length of the line. Note that as the line is pulled faster, there is a greater resistance imposed by the braking mechanism. It will take some time to completely extend the lifeline and care should be taken to avoid damage to the wire rope during this inspection.

- Step 2:** 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 any damage exists. If there is any question whether the Dynescape Descender lifeline condition has materially changed since the last Formal Inspection, retrieve and review the prior Formal Inspection records for the specific Dynescape Descender.
- Step 3:** Check the two pressed metal sleeves (ferrules) and the metal thimble. Remove the Dynescape Descender from use if there is any evidence of cracks, distortion, excessive corrosion, wear, loosening or biting into the wire rope.
- Step 4:** Check for the presence of the ball stopper and washer and remove the product from use if either is absent.
- Step 5:** Wear gloves during inspection to prevent cuts and slivers when running hands over the wire rope. Check for broken wire strands over the entire length of the line. Flexing the line can reveal hidden breaks. Remove broken wire ends as soon as possible by bending them back and forth (with fingers if possible) in the direction of the line length. In this way the wire strand will usually break inside the line and leave a sharp end jutting out. DO NOT tug on the broken wire ends with pliers as this will leave jagged ends and can cause damage elsewhere to the strand. Record the location of the broken wire strand in the Inspection Log.
- Step 6:** Carefully review the Dynescape Descender Inspection Log for the location of previously detected broken wire strands which, cumulatively, may require removing the product from use. Remove from use if there are six or more randomly distributed broken wire strands in one wire lay, or three or more broken wire strands in one strand in one lay. [A wire lay is the length along the line in which one strand makes a complete revolution around the wire rope. This is about 1.5 inches (38 mm) for the Dynescape line.] Remove from use if there are any broken wire strands within 1 inch (25 mm) of the two ferrules or the thimble.
- Step 7:** Check for worn or abraded wire strands. These areas are caused by friction and are usually brighter in appearance. Remove the Dynescape Descender from use if any of the surface strands in one area are worn by a third or more of their diameter.
- Step 8:** Check for bulges or reduction wire rope diameter. This is an indication of serious internal line damage. An increase or decrease in diameter of 0.05 inches (1.3 mm) in any area is cause for removing the product from use.
- Step 9:** Check for corrosion characterized by discoloration of the wire strands. There is no simple way to tell when corrosion has excessively weakened the line. The user inspector must keep in mind that corrosion will usually develop inside the line before evidence is visible on the surface. The judgment of a competent person should be sought when signs of corrosion are evident. Pitting is a particularly serious sign of advanced corrosion. The presence of rust along with broken wires in a given area (particularly in the vicinity of end fittings) is cause for removal of the product from use.
- Step 10:** Check for insufficient lubrication and excessive contamination in the grooves between strands of the line. Packed grease, dirt, paint or other contaminants in these grooves keeps the lubricant from penetrating to prevent internal friction and corrosion.
- Step 11:** Check for snagged wires and crushed or flattened strands. Remove from use if any of these conditions exists.
- Step 12:** Check for unlaying and bird-caging of strands. This condition is characterized by the formation of gaps, loops and excessive clearance between strands. Remove from use if any of these conditions are detected.
- Step 13:** Check for kinks or bends in the line. Once a kink has been made by improper handling (allowing slack), the damage is permanent. A bend is evidence that a kink was once formed. Remove from use if this is detected.
- Step 14:** Check for heat damage, torch burns and electric arc strikes. If any evidence of these conditions exists, remove the Dynescape Descender from use.

**Composition of Wire Rope (Lifeline)**

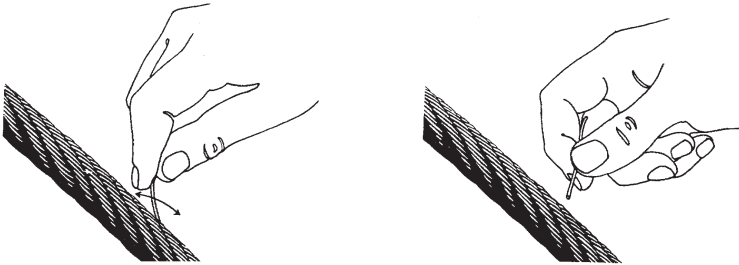


**Measurement of Lay Length**



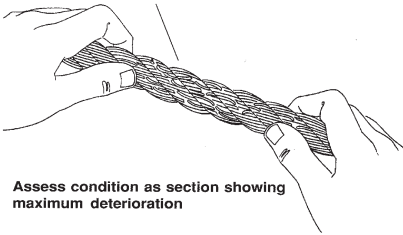
One revolution of a strand about the core

**Correct Way to Remove Broken Wires**

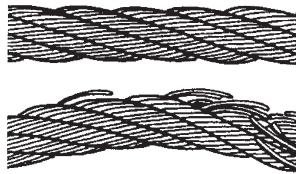


**Assessment of Broken Wires**

Replace wire rope if there are:  
-6 or more broken wires in on lay,  
-3 or more broken wires in one strand in one lay

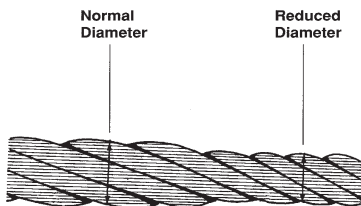


**Flex Wire Rope During Inspection**



Flexing can reveal hidden breaks

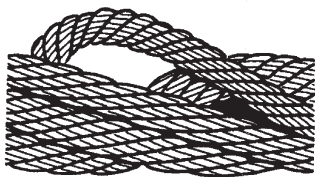
Change in Wire Rope Diameter



Crushed Wire Rope



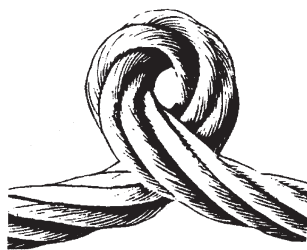
Unlaying of Wire Rope



Bird-caging of Wire Rope



Kinked Wire Rope



Bent Wire Rope



## 12.4 FORMAL INSPECTION CHECKLIST AND CODES

TYPE OF PART INSPECTED	CONDITION	COND. CODE	OVERALL ASSESSMENT CODE	LEGEND
Metallic	Deformed/fractured	M1	MA- (Metallic acceptable)  MN- (Metallic not acceptable)	<b>Disposition:</b> A - (Acceptable) N - (Not acceptable)  Enter "A" (or "PASS") or "N" (or "FAIL") in "Disposition" blank on Formal Inspection Log.
	Corroded/deep pits	M2		
	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		
Non-Metallic	Cut/broken	N1	NA- (Non-Metallic acceptable)  NN- (Non-Metallic not acceptable)	<b>Criteria for disposition of "N"</b> <b>(Not acceptable):</b>  (1) If there is one or more Overall Assessment Code of "N" type (e.g. MN, PN, SN or CN) on a Priority 1 item.
	Wear damage	N2		
	Missing/loose	N3		
	Burns/heat exposure	N4		
	Chemical exposure	N5		
	Cracked/Split	N6		
	Other	N7		
	No visible change	N0		
Snaphook	Deformed/fractured	S1	SA- (Snaphook acceptable)  SN- (Snaphook not acceptable)	
	Corroded/deep pits	S2		
	Missing/loose	S3		
	Heat exposure	S4		
	Chemical exposure	S5		
	Burrs/sharp edges	S6		
	Cuts/deep nicks	S7		
	Malfunction	S8		
	Other	S9		
	No visible change	S0		
Wire rope (cable)	Cut/broken wire	C1	CA- (Cable acceptable)  CN- (Cable not acceptable)	
	Abrasion/wear/corrosion	C2		
	Partially missing/altered	C3		
	Burns/heat exposure	C4		
	Chemical exposure	C5		
	Kinked/unlaid strands	C6		
	Reduced diameter	C7		
	Malfunction	C8		
	Other	C9		
	No visible change	C0		



**12.5 FORMAL INSPECTION LOG**

Model No.: 506630 Inspector: J. W. Doe  
 Serial No.: 437581 Inspection Date: 12/13/92  
 Date Made: 5/92 Disposition: N - See item 20. Return for factory repair.

INSP. POINT	DESCRIPTION	QTY/D	COND PTY	OVERALL (a)	ASSESS.(a)	COMMENTS
<b>Dynescape Body</b>						
<b>METALLIC PARTS</b>						
1	Housing, Front	1	1	M0	MA	
2	Housing, Back	1	1	M0	MA	
3	Security Rivets	2	1	M0	MA	
4	Housing Fasteners (c)	12	1	M0	MA	
5	Axle Nut, Front	1	1	M0	MA	
6	Axle Nut, Back	1	1	M0	MA	
7	Installation Bracket	1	1	M1	MA	Bracket bent
8	Serial Number Tag	1	1	M0	MA	
9	Brake Housing Screw	6	1	M0	MA	
10	Bearing Cover	1	1	M0	MA	
11	Brake Cover	1	1	M0	MA	
<b>Nonmetallic PARTS</b>						
12	Cable Collar	1	1	N0	NA	
13	Labels	4	1	N0	NA	
<b>Wire Rope</b>						
14	Wire Rope (lifeline)	1	1	C0	CA	
15	Ball Stopper	1	1	C0	CA	
16	Washer	1	2	C0	CA	
17	Thimble	1	1	C0	CA	
18	Sleeves	2	1	C0	CA	
19	Extraction, Functional Test	-	1	C0	CA	
20	Retraction, Functional Test	-	1	C8	CN	Does not retract smoothly ,sticks
<b>Swivel Snaphook</b>						
21	Hook Body	1	1	S0	SA	
22	Swivel Eye	1	1	S0	SA	
23	Gate	1	1	S0	SA	
24	Trigger	1	1	S0	SA	
25	Snaphook Functional Test	-	1	S0	SA	

- (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 damage is found enter "FAIL." The inspection may end upon detection of a single Priority 1 damage.
- (b) Blank copies of the LOG, with associated CHECKLIST and DIAGRAM, are available from MSA. Call Toll Free 1-800-672-2222.
- (c) Qty of 12 on 95 ft (30 m) models. Qty of 8 on 50 ft (16 m) models.

## 12.5 FORMAL INSPECTION LOG

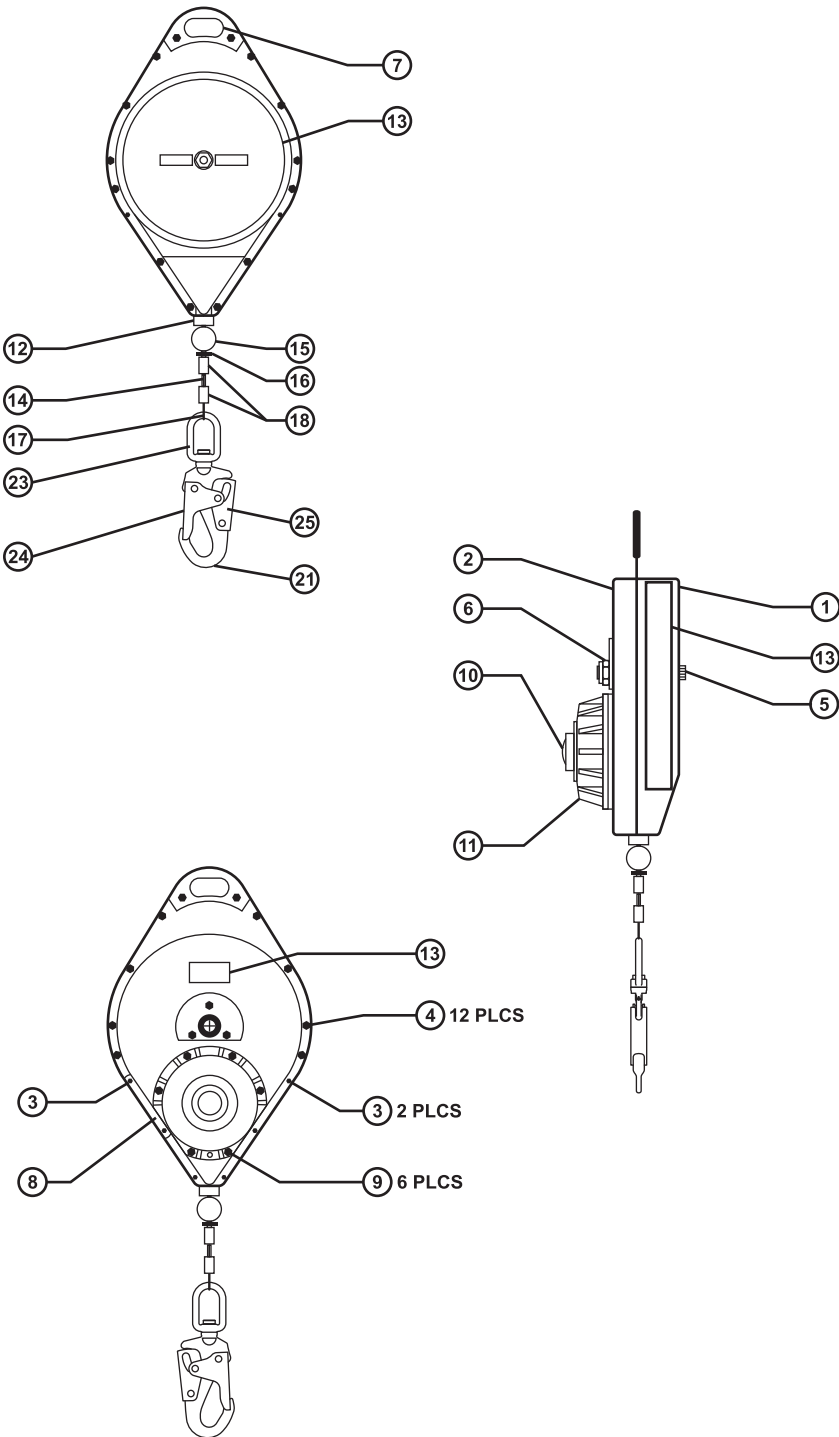
Model No.: \_\_\_\_\_ Inspector: \_\_\_\_\_

Serial No.: \_\_\_\_\_ Inspection Date: \_\_\_\_\_

Date Made: \_\_\_\_\_ Disposition: \_\_\_\_\_

INSP. POINT	DESCRIPTION	QTY/D	COND PTY	OVERALL (a)	ASSESS.(a)	COMMENTS
<b>Dynescape Body</b>						
<b>METALLIC PARTS</b>						
1	Housing, Front	1	1			
2	Housing, Back	1	1			
3	Security Rivets	2	1			
4	Housing Fasteners (c)	12	1			
5	Axle Nut, Front	1	1			
6	Axle Nut, Back	1	1			
7	Installation Bracket	1	1			
8	Serial Number Tag	1	1			
9	Brake Housing Screw	6	1			
10	Bearing Cover	1	1			
11	Brake Cover	1	1			
<b>Nonmetallic PARTS</b>						
12	Cable Collar	1	1			
13	Labels	4	1			
<b>Wire Rope</b>						
14	Wire Rope (lifeline)	1	1			
15	Ball Stopper	1	1			
16	Washer	1	2			
17	Thimble	1	1			
18	Sleeves	2	1			
19	Extraction, Functional Test	-	1			
20	Retraction, Functional Test	-	1			
<b>Swivel Saphook</b>						
21	Hook Body	1	1			
22	Swivel Eye	1	1			
23	Gate	1	1			
24	Trigger	1	1			
25	Snaphook Functional Test	-	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 damage is found enter "FAIL." The inspection may end upon detection of a single Priority 1 damage.
- (b) Blank copies of the LOG, with associated CHECKLIST and DIAGRAM, are available from MSA. Call Toll Free 1-800-672-2222.
- (c) Qty of 12 on 95 ft (30 m) models. Qty of 8 on 50 ft (16 m) models.



## 13.0 FACTORY SERVICE

### 13.1 FACTORY SERVICE

Proper maintenance and repair of the Dynescape Descender requires return of the unit to MSA, (or to a person authorized in writing by MSA) annually or at any time that competent person inspection suggests the need to remove the unit from use. See sections 11 and 12 for inspection details. The only maintenance that may be performed by the user is cleaning, lifeline lubrication and removal of broken wire strands from the line. All other maintenance must be performed by MSA. The user must never attempt to repair or alter the unit. There are no internal parts which are serviceable or replaceable by the user.



#### CAUTION

***The Dynescape Descender must receive factory service annually, or sooner, as specified above.***

### 13.2 OWNER REGISTRATION

The owner (user) must register their Dynescape Descender at [www.MSAafety.com/register](http://www.MSAafety.com/register). Registration information will be used for warranty confirmation and may be used to communicate important product information to the user. Be sure to provide the permanent address and phone number of the owner and not the temporary address and phone number of a job site or temporary office.

### 13.3 WHEN FACTORY SERVICE IS NECESSARY

The Dynescape Descender must be returned to MSA or an authorized factory service center upon discovery during competent person inspection of any condition which requires removing the device from use. See sections 11 and 12. It is also necessary to return the unit to MSA or an authorized factory center after every 12 months of use. At these annual intervals it is necessary for MSA to perform inspection and maintenance on the internal parts of the device.

The user can determine when the annual factory service is required by looking at the Service Date Label located on the back of the unit. See section 4 for location of labels. On that label there is a date (month/day/year) entered in the space after the words "Last Factory Service." The next time when factory service is required is 12 months after this date, except when this date bears an asterisk (\*) meaning the unit was recently purchased new from MSA or a MSA distributor and has not yet undergone any factory service. In that case only, the next required factory service is 12 months from the date of purchase. This date is taken from the Owner Registration card. But for this one exception, the Dynescape Descender must receive factory service every 12 months regardless of its apparent condition.

Each time the unit receives factory service a new Service Date Label is applied. The new label will show the date of the servicing, which becomes the reference date for the user to determine when the next factory service is required.

When the user inspects the product, the Service Date Label must always be present and legible. If it is not, remove the product from use and contact MSA.

### 13.4 HOW TO OBTAIN FACTORY SERVICE

Contact MSA service at 1-800-672-2222 to arrange for inspection and service of a Dynescape Descender.

### 13.5 SERVICE AND INSPECTION LOGS

It is a requirement of section 11 and 12 that the Dynescape Descender be formally inspected at least every six months or immediately after it has been subjected to the forces of personnel evacuation or rescue. MSA requires that the device receive annual factory service. This annual factory service, if timely, will serve as one of the two required inspections each year. MSA will make the appropriate entries to both the Factory Service Log and the Formal Inspection Log at the time of factory service. It is the responsibility of the user and the user's management to perform timely formal inspections, log such inspections and annually return the unit and this User Instruction to MSA for factory service.

### 13.6 FACTORY SERVICE LOG

This Factory Service Log is to be filled in only by MSA or an authorized factory service center. At the time the unit is initially shipped from MSA, the date of manufacture, MSA part number, serial number and type number will be entered on the Log. When this manual is returned with the unit at the time of annual factory service, MSA personnel will enter the printed name and written initials of the service person, printed name and initials of the quality control inspector, the Inspection/Service Report number and the scheduled date for the next factory service. The Inspection/Service Report is a detailed report of annual factory service retained permanently by MSA. It is available for examination upon request.

**FACTORY SERVICE LOG**

(Print clearly using ball point pen. To be filled in by MSA Only)

Serial No. _____		Part No. _____		Date of Mfg. _____	
Date of Factory Service	Serviceman's Name (Print)	Serviceman's Initials	Inspector's Name (Print)	Inspector's Initials	Inspection / Service Report No.

**NOTE:** Fill out this form at the time of purchase. A duplicate Registration Card is provided with each new unit which must be filled out and returned to MSA. If ownership changes, the new owner must contact MSA to re-register the unit.

**PAGE INTENTIONALLY LEFT BLANK**

## 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.

**Exclusive Remedy** - It is expressly agreed that the Purchaser's sole and exclusive remedy for breach of the above warranty, for any tortious conduct of MSA, or for any other cause of action, shall be the repair and/or replacement, at MSA's option, of any equipment or parts thereof, that after examination by MSA are proven to be defective. Replacement equipment and/or parts will be provided at no cost to the Purchaser, F.O.B. Purchaser's named place of destination. Failure of MSA to successfully repair any nonconforming product shall not cause the remedy established hereby to fail of its essential purpose.

**Exclusion of Consequential Damages** - Purchaser specifically understands and agrees that under no circumstances will MSA be liable to Purchaser for economic, special, incidental, or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of the non-operation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against MSA.

For additional information, please contact the Customer Service Department at 1-800-MSA-2222 (1-800-672-2222).