

# SKY GENIE® VARIABLE DESCENT SYSTEM TECHNICAL MANUAL

## **WARNING:**

This manual is to be read and understood prior to using any SKY GENIE® products. User and Employer assume all responsibility for liability when products are not used according to **ALL** instructions.

It is best to print this manual for ease in reference.

**SKY GENIE® AND SEATBOARD EDUCATION VIDEOS AVAILABLE for high-rise work such as window cleaning, caulking, and maintenance.**

## **ROPE INSPECTION:**

- 1: All line shall be inspected prior to each use.
- 2: Line shall be removed from service if:
  - A. Braids are cut
  - B. Excess abrasion has worn fibers
  - C. Hardness or stiffness is apparent
  - D. Rust, oxidization, or discoloration is present
  - E. Size of line has been reduced
  - F. Sustains shock load
- 3: Line shall be replaced after TWO (2) years from date of first use.
- 4: See back cover for other warnings.

**CAUTION:** Sharp edges reduce strength up to 70%. Knots reduce the strength of any line by 40% to 50%. There is no need to tie knots with SKY GENIE® line. **NO KNOTS NECESSARY.** System with snake is available. Contact factory for information.

## **RECOMMENDED WORKING LOAD FOR ROPE:**

The recommended working load is determined by taking the average tensile strength of new rope under laboratory conditions and dividing by a factor to determine the maximum load that should be applied to the rope. The factor varies with the type of fiber and the construction. This factor usually is sufficient to assure you of a comfortable safety margin; however, there are exceptions.

Synthetic fibers are susceptible to degradation and damage in many ways that are not controllable by the manufacturer. Therefore, it is imperative the rope be inspected before each use.

See our catalog for a full line of safety belts, harnesses, lanyards, rope grabs, anchor tie offs, rope protectors, and SKY GENIE® rescue and work system.

# SKY GENIE® ---A Variable Descent System

California Approval No.C3020

## OPERATING INSTRUCTIONS:

### **1: PRE-SETTING THE SKY GENIE® FOR DESIRED SPEED OF DESCENT:**

The SKY GENIE® operates on the principle of friction created by turning the nylon line around the shaft. The speed of descent depends on the number of turns around the shaft and the distance to ground level. The number of turns used is determined by the weight of the person or object to be lowered and the distance rate of descent.

In pre-setting the unit, note that speed can be decreased by apply downward tension on the line. While descending, speed will increase. Control of free end of line is **IMPERATIVE** for safety.

Package units are shipped set with four turns: units may be reset for desired speed of descent. The following recommendations are based on our demonstrations and experiments. We suggest that persons using the SKY GENIE® for the first time should familiarize themselves with the unit by descending from a low elevation to determine the correct number of turns best suited for their own requirements.

#### **WHERE DESCENT WILL BE CONTROLLED:**

**Rapid descent- three (3) turns for first 150-200 pounds. One (1) additional turn for each additional 50 pounds.**

**Medium descent- four (4) turns for the first 150-200 pounds. One (1) additional turn for each additional 50 pounds.**

When using unit under wet or very humid conditions, compensate for the added friction by removing half a turn. Basically, more turns for slower descent or more weight. Less turns for faster descent or less weight. **SAFETY IS DEPENDENT ON MANUAL CONTROL.** After pre-setting the SKY GENIE® for desired rate of descent, make certain the bullet catch secures cover and **BE SURE TO SECURE THE THUMB NUT.**



#### **COUNTING TURNS**

1ST FULL TURN  
2ED FULL TURN  
3RD FULL TURN  
4TH FULL TURN

#### **NOTE:**

WHEN LINE ENTERS SLOT AT TOP OF THE SKY GENIE AND EXITS SLOT AT THE BOTTOM ON SAME SIDE, FULL TURNS ARE INDICATED. WHEN LINE ENTERS ONE SLOT AND EXIT'S THE OPPOSITE SLOT, HALF TURN IS INDICATED.



#### **COUNTING TURNS**

1ST FULL TURN  
2ED FULL TURN  
3RD FULL TURN  
4TH FULL TURN  
½ TURN

## **2. CONTROLLED DESCENT**

Controlled descent is desirable where conscious person will be able to lower himself; where unconscious person or injured person will be lowered by others: where objects and materials are to be lowered.

In Paragraph A and Paragraph B, descent is controlled by HOLDING NYLON LINE BELOW the SKY GENIE® Variable Descent System and applying DOWNWARD TENSION on the line to reduce speed or stop descent, and easing tension in order to continue descent. In Paragraph C, descent is controlled by holding nylon line above the SKY GENIE and applying UPWARD MOTION.

Descent may be controlled from below point of descent by person lowering another person or object ( Paragraph B ). Descent may be controlled from above point of descent by person lowering injured or unconscious, or when lowering objects ( Paragraph C ).

### **PARAGRAPH A:**

#### **CONTROL FROM POINT OF DESCENT BY CONSCIOUS PERSON LOWERING HIMSELF** (As supplemented by illustration "A")

After short end of line has been firmly secured to an anchor point capable of supporting a minimum dead weight of 5000 pounds and person lowering self has secured his safety belt, sling, harness or seatboard chair to lower eye of the SKY GENIE. ( NOTE: Seatboard System requires two (2) lines), follow these procedures:

(1) Before stepping off structure from which descent will be made and before applying load to unit, lock in place by taking free end of line and looping upward between upper eye of SKY GENIE® and secured short end of line. ( See Illustration ""C"" )

(2) After stepping off structure and making self as comfortable as possible, HOLD TENSION on line when removing loop, thereby unlocking unit. Apply DOWNWARD TENSION to line below the SKY GENIE® and start descent by gradually easing tension.

(3) Let line feed through your hand during descent, applying and easing downward tension for control.

(4) Although it is possible to play out line from carrying case during descent, you may prefer to drop unsecured end of line to the ground. Always make certain line is free of hitches and knots, and that line clears all obstructions when dropped.

(5) When unsecured end of line is on the ground, it is possible to transfer control of descent at any time to person below.

(6) If descent does not start when full weight is on the SKY GENIE®, lift the line below the SKY GENIE® to start descent. Weight of line may cause braking action with light person or with descent from greater heights.

## **PARAGRAPH B**

### **CONTROL FROM BELOW POINT OF DESCENT BY PERSON LOWERING ANOTHER PERSON OR OBJECT ( As supplemented by illustration "A" )**

After short end of line has been firmly secured to an anchor point capable of supporting a minimum dead weight of 5000 pounds and person or object to be lowered has been secured to the lower eye of the SKY GENIE® Variable Descent System, follow these procedures:

(1) Drop unsecured end of line to level from which descent will be controlled by another person. MAKE CERTAIN that line is free of hitches and knots, and that line clears all obstructions when dropped.

(2) Before person or object to be lowered is released from supporting structure, person controlling descent from below must apply DOWNWARD TENSION on the line. Gradually ease tension to start descent.

(3) Although not required under normal circumstances, additional control is achieved by moving to the side of the descending person or object, and not standing directly in line with descending unit. If person lowered is conscious, control may be transferred from person below to person descending. It does not matter at what point the suspended line tension is applied or eased. Control can therefore be transferred upon mutual consent.

## **PARAGRAPH C**

### **CONTROL FROM ABOVE POINT OF DESCENT BY PERSON LOWERING INJURED OR UNCONSCIOUS PERSON, OR WHEN LOWERING AN OBJECT.**

( As supplemented by illustration "A" )

After the lower eye of the SKY GENIE® has been secured to an anchor point capable of supporting a minimum dead weight of 5000 pounds and after person or object to be lowered has been secured to short end of nylon line below the SKY GENIE®, follow these procedures:

1: Make certain the unsecured control line, remaining at level from which descent is made, (1) free of knots and kinks.

(2) Person controlling descent from above should stand to the side of line controlling same by firmly holding unsecured line until person or object is "over side." To start descent, gradually ease tension on unsecured line entering top of the SKY GENIE® shaft. DO NOT drop line or allow uncontrolled descent.

(3) Descent is controlled from above by applying upward tension to unsecured line as it enters the SKY GENIE®.



ILLUSTRATION  
"A"

Short end of line, if firmly secured to an anchor point, is capable of supporting a minimum dead weight of 5000 pounds. The SKY GENIE® Variable Descent System travels downward on the nylon line. Descent is controlled by applying or easing tension on the nylon line BELOW the SKY GENIE®. The person lowering self ( as in Paragraph A ) or the person or object to be lowered (as in Paragraph B) is secured to lower eye of the SKY GENIE® by means of a waist belt, sling, harness, seatboard or stretcher.

Lower eye of the SKY GENIE® shaft is secured to the level from which descent is to be made. The nylon line travels through the SKY GENIE®. The person or object to be lowered is secured to the short end of the nylon line by a waistbelt, sling, harness, seatboard or stretcher. Descent is controlled by applying or easing tension on the nylon line BEFORE it enters the top of the SKY GENIE®.

**NOTE** After above point descent is completed, SKY GENIE® must be reversed for last person. Follow self-rescue procedures by conscious person In Paragraph A ( page 3 ).



ILLUSTRATION  
"B"

#### **SUGGESTIONS:**

- 1: Practice from low heights to learn easiest method of control ( 5' to 10' ).*
- 2: Pull down on the line to slow down or stop.*
- 3: The more free hanging line below you, the less tension needed for control.*
- 4: In some cases, you will have to lift up the line below you to start the descent.*
- 5: The line may be coiled in the bag as it comes from the factory, or it may be chained starting at the bottom end.*

### 3: FREE SUSPENSION DURING CONTROLLED DESCENT

When descent is controlled by person descending, it is possible for that person to lock the SKY GENIE® Variable Descent System, enabling him to suspend himself freely as may be required during certain maintenance or rescue operations.

Unit is locked by taking the suspended or free end of the line and looping it upward between the upper eye of the SKY GENIE® and the taught upper line (illustration "C" ). Control is resumed by removing the loop. HOLD TENSION ON LINE WHEN REMOVING THE LOOP.



ILLUSTRATION "C"



D1

A secure double lock can be made without use of knots. First lock off as in illustration "C". Then bring a loop of line through the attachment and over top eye of the SKY GENIE® as in illustrations D1 and D2. To release, take off double lock first and then remove lock off as in #3 above.

NOTE: The double lock is very useful whenever it is necessary to bend over -- such as when giving first aid or when placing victim in litter or harness.

ILLUSTRATIONS "D1 and D2"



D2

## TWO (2) LINE LOCK OFF:

To lock the unit using two(2) lines, secure free ends one at a time. Secure the first line by bringing it up and around the top eye of the SKY GENIE®. PULL TIGHT. The second line is then brought up and around the top eye of the SKY GENIE® on the other side. PULL TIGHT. ( illustration "E" ). To release, unlock one line at a time. HOLD TENSION ON LINE WHEN REMOVING LOOP.

**WARNING: YOU MUST KEEP CONTROL OF THE FREE END BY FEEDING IT THROUGH YOUR HAND AT ALL TIMES. NEVER REMOVE YOUR HAND FROM FREE END UNLESS YOU ARE LOCKED OFF.**

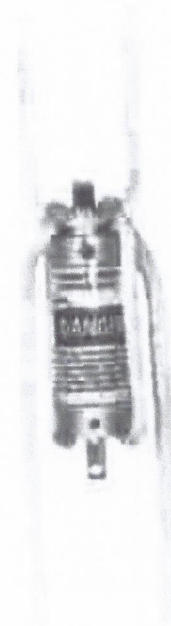


ILLUSTRATION "E"

## GENERAL INSTRUCTIONS - Use, Care and Maintenance

Check SKY GENIE® Variable Descent System each time it is used. Remove any foreign material on shaft. Detent pin should work easily.

The shaft may develop a groove pattern after many descents. The SKY GENIE® should be replaced if this occurs.

When line passes over any sharp or rough surface, padding should be placed to prevent line abrasion. Line should not be used if it is cut, abraded, or the size of the line is reduced. Examine entire length of line for any cuts, abrasions, foreign material or dryness. Line should retain the "slippery" feel of a new line. Dryness will reduce strength of line. With use, a normal fuzzing of the line will occur. This fuzzing protects the inner portion of the line. A black, spiral streak along the line indicates rapid descent at excessive speed. Frequent use at excessive speeds will cause premature dryness and strength reduction. Keep line clean for best results. Dirt reduces the strength of any line. Wash with mild detergent and cool water.

**ALLOW TO DRY NATURALLY. NEVER PLACE IN A DRYER.**

## INSTRUCTIONS FOR SEATBOARD USE

One working line and one independent safety line are MANDATORY for use of the SKY GENIE®. This complies with the proposed OSHA Standard for Controlled Descent Equipment (Subpart D, Walking and Working Surfaces).

The Sky Genie® L4 line is wrapped around the SKY GENIE® shaft using four (4) complete wraps before replacing the cover. Cover must fit over detent pin (bottom) and locking nut (top) securely so as to lock cover.

To provide added safety, an additional L4 line may be wrapped around the SKY GENIE® shaft as described above. In this case, there should be three (3) wraps if each line with total of six (6) wraps of rope on the SKY GENIE® Shaft.

Line(s) may be attached to one anchor point as long as:

1. Anchor meets 5000 pound OSHA requirement.
2. No Knots are placed in the SKY GENIE® L4 Line.
3. Lines are protected from abrasion against any sharp edge or rough surface.

Independent safety line must be attached to a SEPARATE anchor point meeting OSHA standards capable of supporting at least 5000 pounds. A rope grad shall be placed on this line with no more than a three foot lanyard attached to the D-ring in the center back of a full body harness.

SKY GENIE® L4 line must be locked off over the top eye of the SKY GENIE® before any weight is put on the line. This "locked off " position is ALWAYS used when getting into the descent position. Be sure the "locked" line is secure over the eye when getting into the descent position.

Due to the shock absorbing elasticity of the SKY GENIE® L4 line, a certain amount of stretch should be expected when your full weight is put on the seatboard. When ready to descend, release the locked line, hold tension on the line when removing the loop from the top of the SKY GENIE® and control your descent by applying downward tension on the line below the SKY GENIE®. DO NOT LET GO of the line while descending.

**BEFORE USING, ON THE JOB TRAINING IS MANDATORY. DO NOT MAKE RAPID DESCENTS OR SUDDEN STOPS. EDUCATIONAL VIDEO TAPE IS AVAILABLE.**

## Inspection Warning Manual

Belts, Harnesses, Lanyards and Chain Assemblies should be used only for worker safeguarding and positioning. Should any of these items be subjected to actual loading or impact forces, as may develop in arresting a fall, they should be removed from service. DO NOT allow rope to work against sharp edges or abrade on hard surfaces. Keep dirt, grit and grease off your rope as much as possible. Always check visually for proper placement of snaps and hooks. Be sure keepers are firmly closed. DO NOT rely on feel or sound alone.

Prior to each use, fall protection equipment should be carefully inspected for indication of wear or deterioration. If evidence of excessive wear or deterioration is observed, it is recommended the equipment be replaced. In addition... a semi-annual recorded inspection should be performed.

**HARDWARE:** All metal hardware must be free of distortion, cracking, sharp edges, corrosion and wear. Hardware includes but is not limited to buckles, 'D' rings, snaps, hooks, chains, swivels and connectors.

**BELTS:** Inspect both sides, the entire length of the nylon belt webbing. Hold belt in a 'U' shape position to better identify any damaged or cut fibers, pulled stitches, or chemical damage. Rivets should be tight and flush with material. They should not be pitted, cracked or discolored. Grommets should not be loose, broken, crushed or distorted.

No additional holes should be punched in the belt for any reason. If belt is not correct size, replace with the proper size.

**LANYARDS:** Inspect entire length of rope or web lanyards. Slowly rotate the lanyard while checking for cuts, broken strands, badly worn areas, heat damage (melted or glazed) areas or discoloration due to chemical damage. Rope or web lanyards should be flexible and have a "slippery" feel. Dryness indicates a probable loss of strength. Rope should have elasticity for shock absorption. There should be no reduction in diameter of the rope. Thimbles should be free of sharp edges, distortion and cracks. They should be unmovable in the eye of the line. Snap keepers should close and remain firmly closed without binding. NEVER snap two snaps together. Use the proper length lanyard for the job. Keep the tie-off as short as practical.

**CHAIN ASSEMBLY:** Inspect all parts according to HARDWARE above. Inspect swivel to see if it rotates freely. Screw pins must extend slightly beyond edge of shackle and be panned. Snap keepers and large hooks keepers should seat into nose without binding and should remain firmly closed. Chain should be inspected for damaged links or weld separation.

### **IMPORTANT NOTICE:**

- 1: Use only SKY GENIE® line with SKY GENIE® variable descent systems. Never use line from any other manufacturer.
- 2: The line, which is a component of the descent system, should be replaced after two(2) uses for rapid descent at speeds in excess of 15 feet per second.
- 3: DO NOT use the rope as a safety line if it has ever been used as a utility line.
- 4: Replace the line IMMEDIATELY after it has been used to arrest a free fall of two (2) feet or more.
- 5: Replace the line IMMEDIATELY if it has need exposed to any of the following chemicals:

|                   |              |               |               |
|-------------------|--------------|---------------|---------------|
| Hydrochloric Acid | Nitrobenzene | Muriatic Acid | Sulfuric Acid |
| Acetic Acid       | Oxalic Acid  | Nitric Acid   | Phenol        |

- 6: The number of turns of the line around the shaft of the SKY GENIE® WILL NOT automatically ensure a controlled rate of descent. The user must be prepared to manually control the descent in order to prevent an uncontrolled fall.
- 7: The durability and life of the line will vary significantly depending on how and where it is used. In order to ensure safe use in an emergency, inspect the line carefully before each use. Look for broken, cut or puller strands, worn fibers, or any hardening or discoloring of portions of the line. If any of these warning signs are present, the line may break.
- 8: The descent systems are not appropriate or safe for use as personal emergency or self-rescue devices by individuals who are not familiar with the proper use and application of the device.
- 9: DO NOT use SKY GENIE® line around high temperatures (such as welding sparks) as the melting point of the SKY GENIE line is 470' F.
- 10: Read the Technical Bulletin for care of SKY GENIE and line.
- 11: Attach line only to anchor points capable of supporting 5000 pounds.
- 12: DO NOT use if line is wet. A wet line WILL interfere with the safe operation of the SKY GENIE®..
- 13: The safety and speed of descent of users of SKY GENIE variable descent systems is dependent upon manual control by the user.
- 14: Never use SKY GENIE if you have consumed alcohol or taken any drugs.

All statements, technical information and recommendations contained herein are based on test we believe to be reliable, but the accuracy or completeness thereof is not guaranteed and the following is made in lieu of all warranties, expressed or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the products proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of use of or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use and user assumes all risk and liability whatsoever in connection therewith. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by the offices of seller and manufacturer.

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# Illustrations

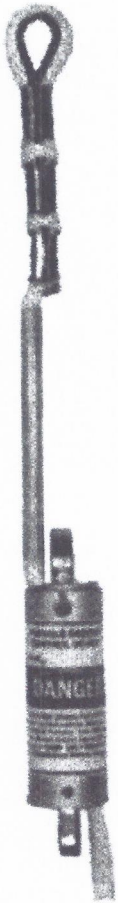


ILLUSTRATION  
"A"

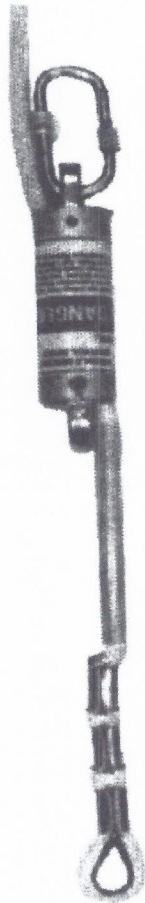


ILLUSTRATION  
"B"



ILLUSTRATION  
"C"

# Illustrations

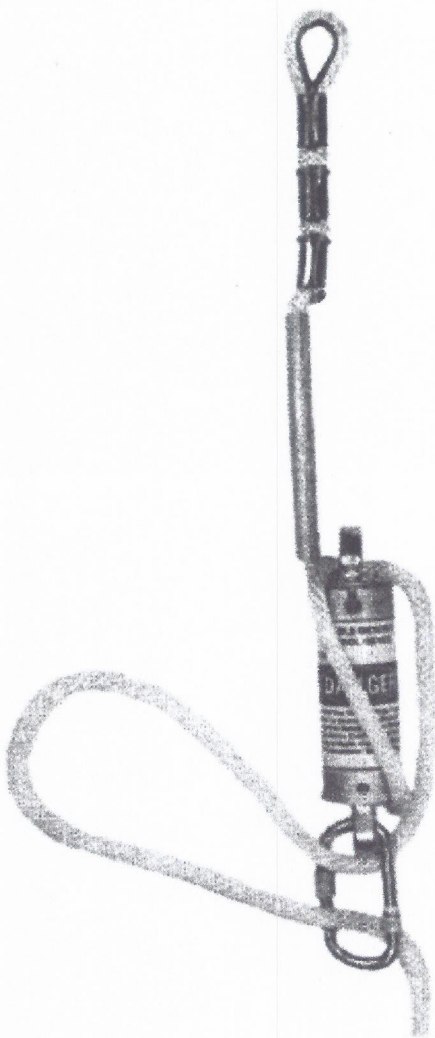


ILLUSTRATION  
"D1"



ILLUSTRATION  
"D2"



ILLUSTRATION  
"E"