




LIFESAVING SYSTEMS CORPORATION

# RESCUE HOOK MAINTENANCE MANUAL

Part Number: 414 Series



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**REVISION RECORD**

Retain this record in front of the manual.

REV NO.	REV DATE	DESCRIPTION OF CHANGE	REVISED BY	APPROVED BY
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## **INTRODUCTION**

### 1. GENERAL:

The New #414 D-LOK incorporates an automatic dual-lock gate design that incorporates a patented fully-guarded latch design for ultimate security. The design eliminates the possibility of an unintentional opening while allowing the latch gate to be operated quickly and easily with one hand. The hoist hook has a large ring volume for multiple equipment rings and will accept rings over one inch in diameter. The integral utility eye allows attachment of tag/guideline.

All inspections and service of the rescue hook described in this manual must be performed by trained technician or LSC approved repair station.

If the procedures defined in this manual are not adhered to, or personnel other than those noted above perform those procedures.

### 2. MANUAL CONTENT:

The instructions contained within this manual provide information necessary to perform care and maintenance functions ranging from visual inspections of critical zones to applying lubrication.

The frequency of inspection should be determined by the frequency and condition of use. However, the period between inspections shall not exceed three (3) months.

This manual will be revised as necessary to reflect current information.

## HOOK DAMAGE CRITERIA

### 1. CRITICAL ZONE

Carefully inspect the hook body for gouges or other surface flaws greater than 0.020 inches deep in the 90-degree critical zone.

- A. Ensure the work area is clean, dry, and free from abrasive and corrosive materials. Always handle component parts with care to prevent damage.
- B. Clean hook body surface with denatured alcohol and visually inspect the critical zone for gouges and surface flaws. Minor blending of nicks on the hook body may be performed by qualified personnel. The thickness of the hook body shall not fall below 0.470 inches.
- C. The rescue hook should be replaced if gouges are found beyond these limits. Hooks may be returned to LSC to determine serviceability.

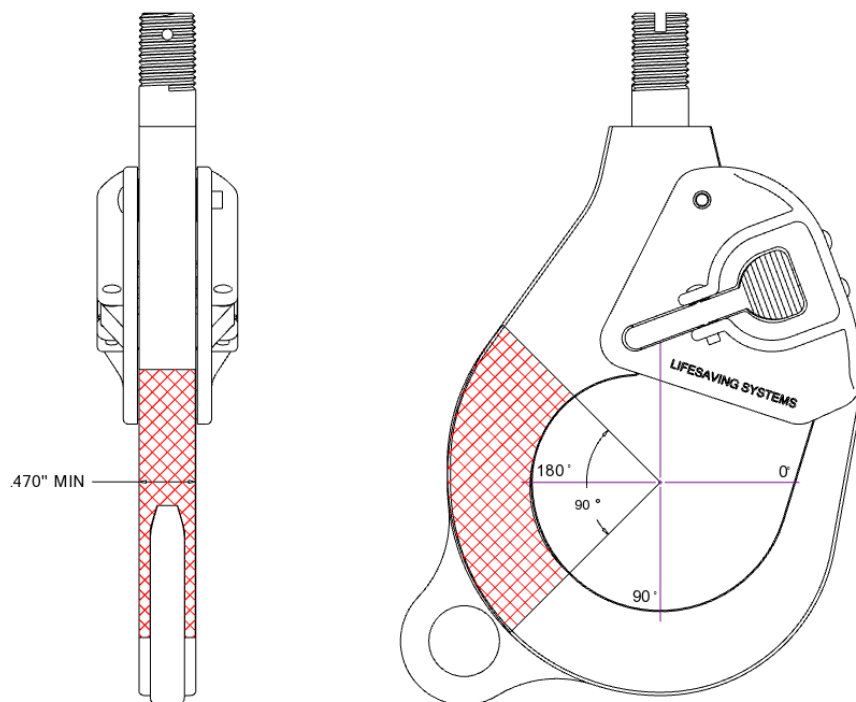


Figure 1: Critical Zone

## 2. TYPICAL ZONES

Carefully inspect the hook body for gouges or other surface flaws greater than 0.030 inches deep in the typical zones of the hook body and utility eye indicated below.

- A. Ensure the work area is clean, dry, and free from abrasive and corrosive materials. Always handle component parts with care to prevent damage.
- B. Clean hook body surface with denatured alcohol and visually inspect the critical zone for gouges and surface flaws. Minor blending of nicks may be performed by qualified personnel. The thickness of the hook body shall not fall below 0.470 inches and the utility eye shall not fall below .250 inches.
- C. The rescue hook should be replaced if gouges are found beyond these limits. Hooks may be returned to LSC to determine serviceability.

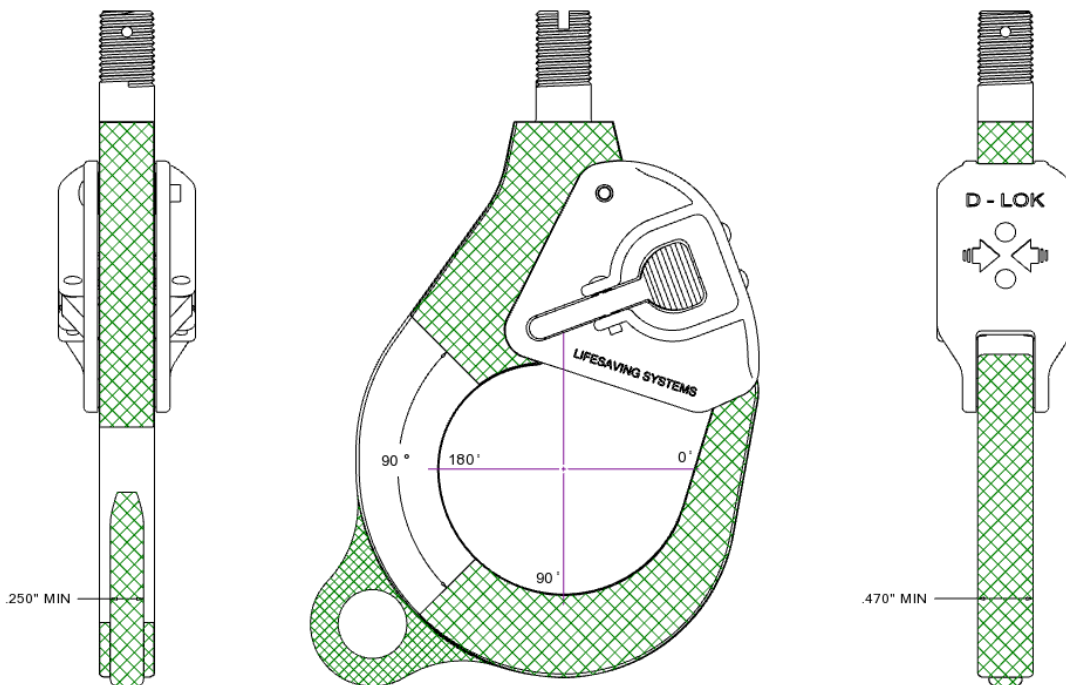
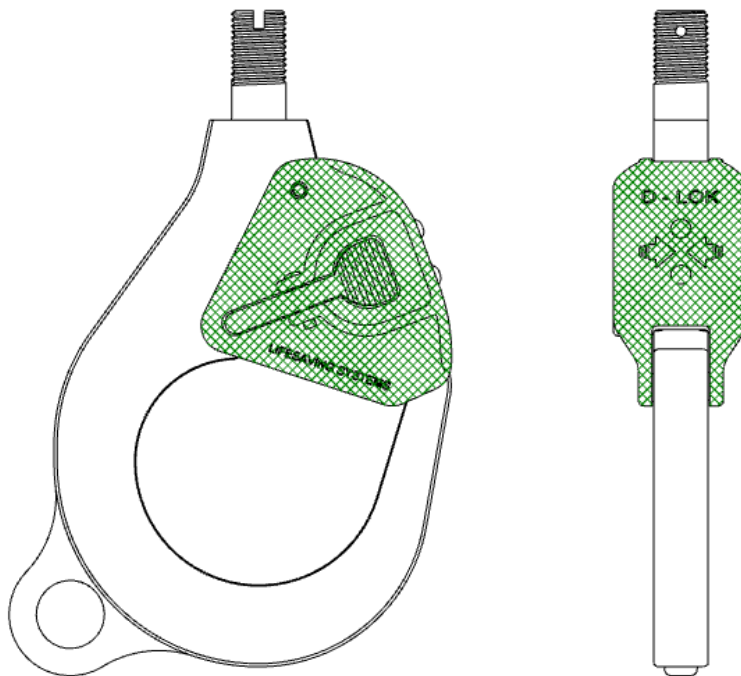


Figure 2: Typical Zones

### 3. GATE AND LATCH

Carefully inspect the hook gate and latches for cracks, distortion, broken or missing parts, unusual wear, and sharp edges. There should be no damage that would affect fit, form, or function of the gate and latch assembly.

- A. Ensure the work area is clean, dry, and free from abrasive and corrosive materials. Always handle component parts with care to prevent damage.
- B. Clean hook body surface with denatured alcohol and visually inspect the gate and latch. Minor blending of nicks may be performed by qualified personnel.
- C. The rescue hook should be replaced if damage is found that causes the latch or gate to function improperly. Hooks may be returned to LSC to determine serviceability.



*Figure 3: Gate and Latch Assembly*

#### 4. SHANK AND THREADS

Carefully inspect the hook shank and threads for cracks, unusual wear, and sharp edges. There should be no burrs on the threads or gouges, depressions, or bearing wear on the shank deeper than 0.030 inches.

- A. Ensure the work area is clean, dry, and free from abrasive and corrosive materials. Always handle component parts with care to prevent damage.
- B. Use a calibrated thread ring gauge to check threads for go and no-go tolerances in accordance with technical drawings (available from LSC for each fitment type.) The hook shank diameter shall not fall below 0.470 inches.
- C. The rescue hook should be replaced if damage is found on the threads or gouges are found beyond these limits. Hooks may be returned to LSC to determine serviceability.

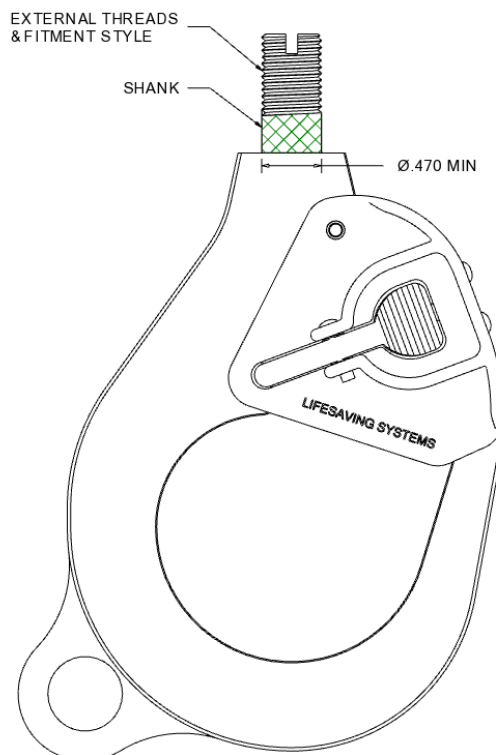


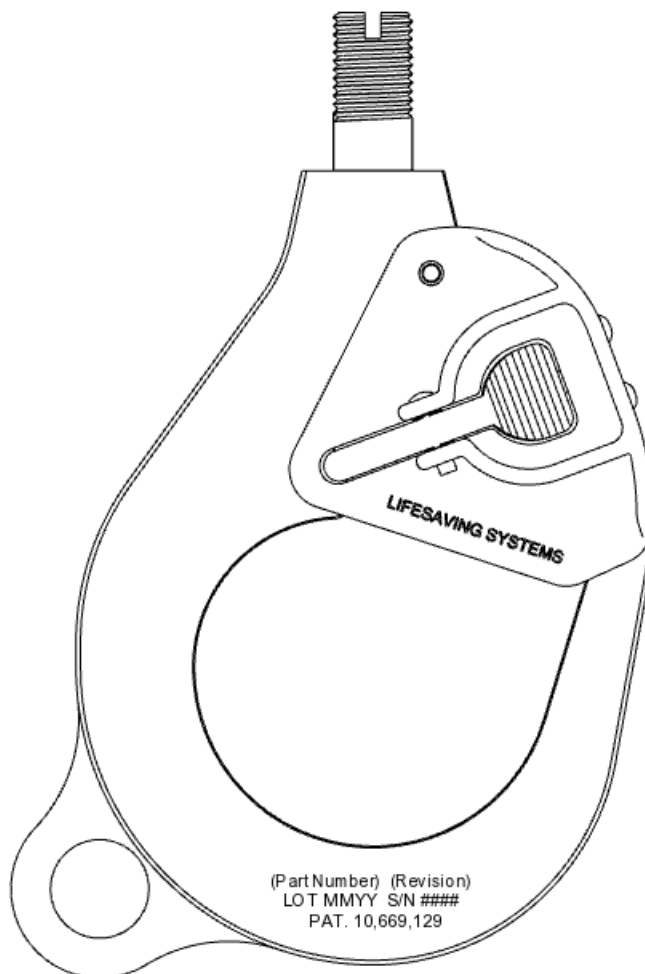
Figure 4: Shank and Threads



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## **IDENTIFICATION AND TRACEABILITY**

Carefully inspect the laser engraved identification and traceability area of the hook. The informational text shall be legible. Minor blending of surface flaws to the text is permissible to the part, revision, lot, and patent numbers. The serial number shall always be legible for traceability. Hooks may be returned to LSC for reconditioning and remarking if necessary.



*Figure 5: Identification and Traceability*

## CORROSION CRITERIA

Carefully inspect the entire rescue hook for corrosion. There shall be no corrosion on the hook body or gate and latch assembly.

- A. Ensure the work area is clean, dry, and free from abrasive and corrosive materials. Always handle component parts with care to prevent damage.
- B. Corrosion is most often a surface containment and can be removed with abrasive cloth or wire brush and fresh water. If corrosion persists, contact LSC for assistance.

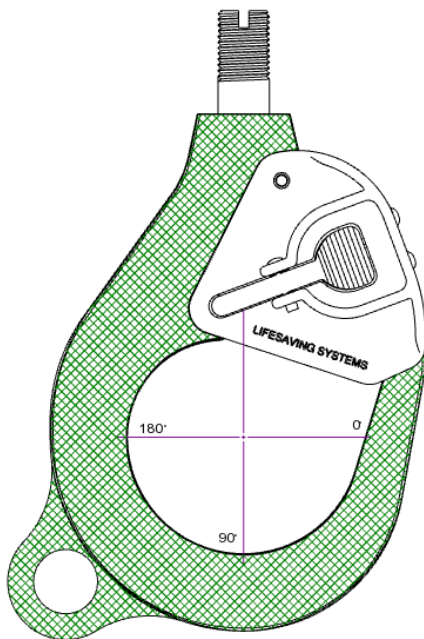


Figure 6: Hook Body

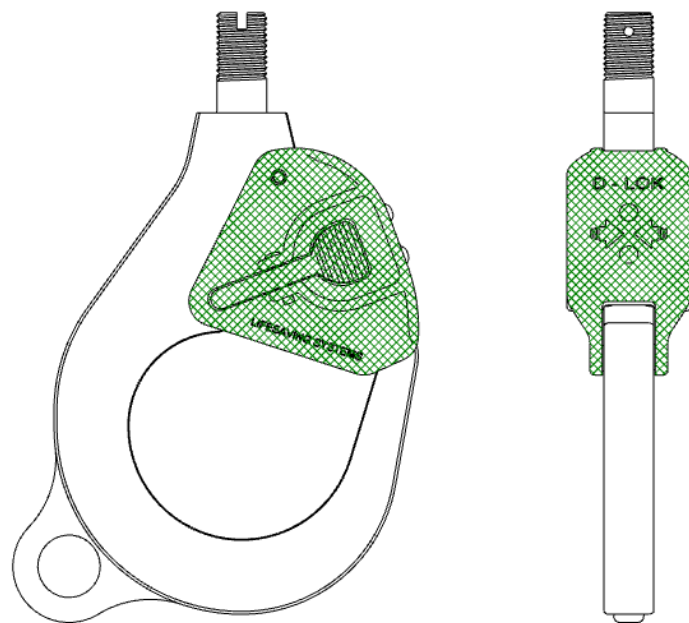


Figure 7: Gate and Latch Assembly

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## **MONTHLY INSPECTION AND MAINTENANCE**

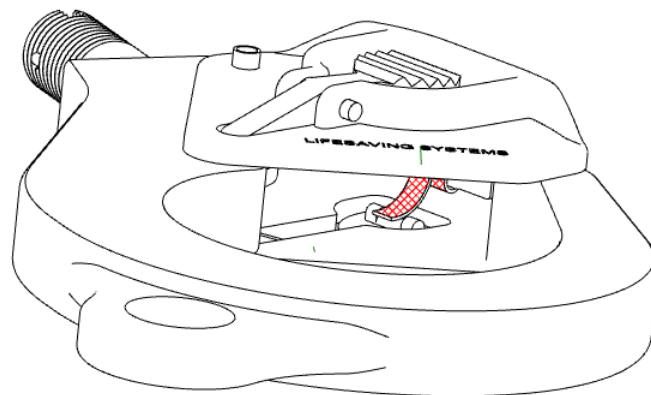
### 1. VISUAL INSPECTION OS HOIST-INSTALLED HOOK

- A. Inspect the hook over its entire exposed surface underneath the carriage for any suspected damage as indicate above.

### 2. INSPECT AND LUBRICATE THE LATCH SPRING

Latch spring should exhibit no free play and should be tight against the latches. If the latches are loose in any way, return the hook to LSC for spring replacement.

- A. Ensure the work area is clean, dry, and free from abrasive and corrosive materials.
- B. Always handle component parts with care to prevent damage.
- C. Visually inspect the latch spring is contacting the latches on both sides. Squeeze and release the latches to confirm spring function.
- D. Lubricate latch spring with light machine oil. Remove excess lubricant.

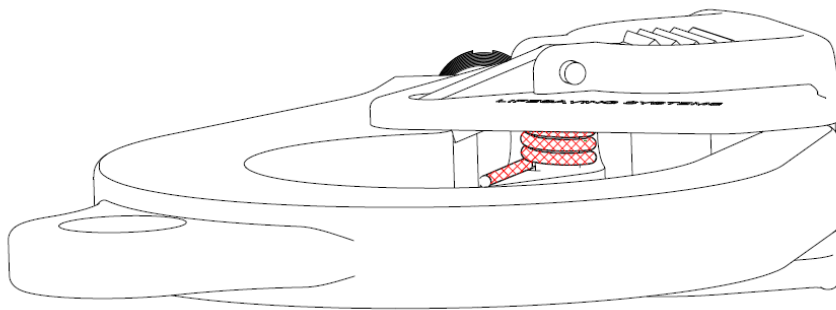


*Figure 8: Latch Spring*

### 3. INSPECT AND LUBRICATE THE GATE SPRING

Gate spring should exhibit no free play and should be tight against the gate and hook body. If the spring is loose in any way, return the hook to LSC for spring replacement.

- A. work area is clean, dry, and free from abrasive and corrosive materials.
- B. Always handle component parts with care to prevent damage.
- C. Visually inspect the gate spring is contacting the hook body and gate. Squeeze the latches to open the gate and move gate back and forth to confirm spring function.
- D. Lubricate gate spring with light machine oil. Remove excess lubricant.



*Figure 9: Gate Spring*

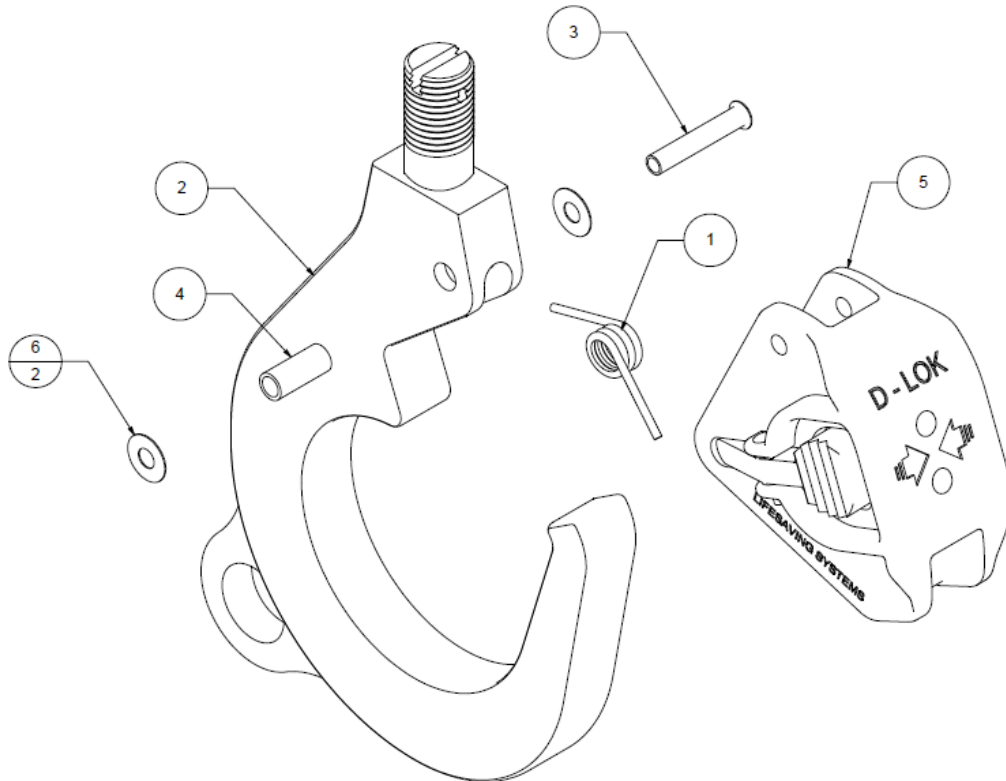
## **LONG TERM STORAGE**

Hooks may be removed from periodic maintenance by placing them in an unlimited long-term storage status. To achieve this, the hook should pass the inspections noted above, thoroughly lubricated with light machine oil and then sealed in plastic with a 5 gram (minimum) desiccant pack. The inspection and packaging date should be documented.

To remove the hook from long term storage, simply re-inspect and return to a serviceable status.

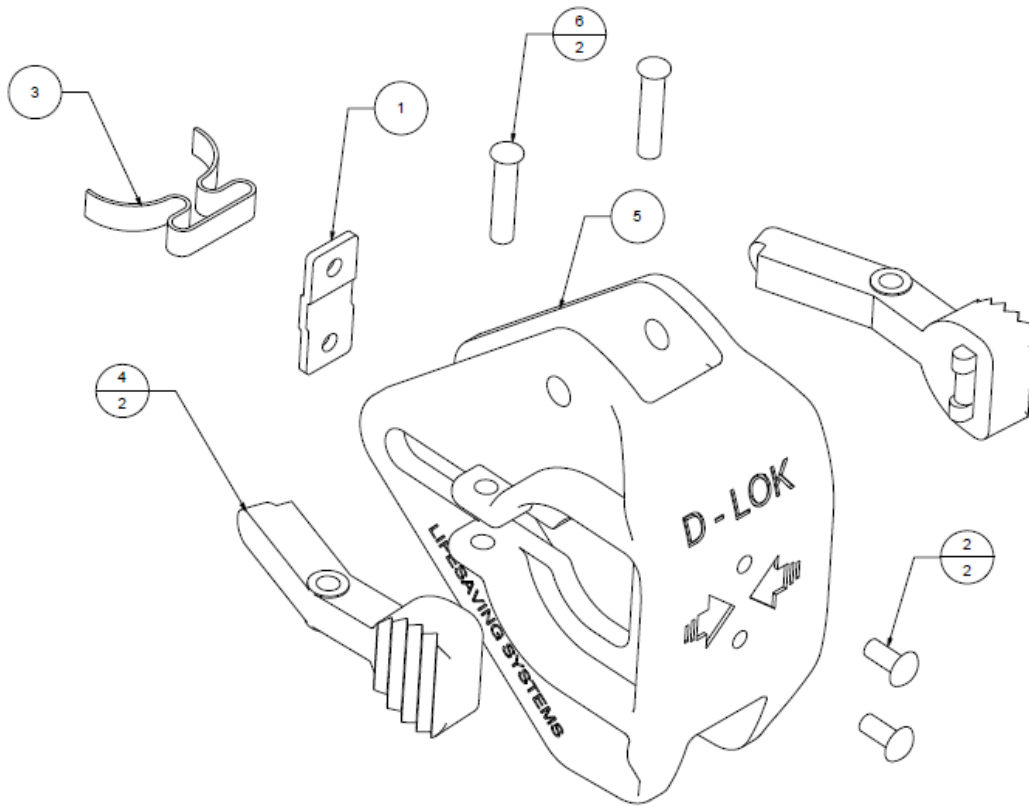
## ILLUSTRATED PARTS LIST

### 1. HOOK ASSEMBLY



6	410-15	GATE SPACER	2
5	414-14B	LATCH GATE ASSEMBLY	1
4	410-4	SPRING BUSHING	1
3	410-8	GATE RIVET	1
2	414-1T	HOOK BODY, THREADED	1
1	410-6	GATE SPRING	1
Item Number	Part Number	Part Name	Quantity

## 2. GATE ASSEMBLY



6	410-9	LATCH RIVET	2
5	410-2B	GATE	1
4	410-3B	LATCH	2
3	410-5	LATCH SPRING	1
2	410-10	SPRING RIVET	2
1	410-5-1	SPRING MOUNT	1
Item Number	Part Number	Part Name	Quantity

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## **SPECIFICATIONS**

**Service Life:** CONDITIONAL: On Inspection: Recommended NDI every ten years or after significant shock-load event (broken strands in hoist cable).

**Service Life Conditions:** Documented positive in-service and monthly inspections.

**Load Limit:** 600lbs (272kg)

**Breaking Limit:** 7,000lbs (3,175kg)

**Factory Proof Load:** 3,000lbs (1,360kg)