

# NATIONAL INTERAGENCY FIRE CENTER

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9216 NFES (LLFA240000)

August 2, 2012

## NATIONAL FIRE EQUIPMENT SYSTEM CACHE MEMORANDUM NO. 12-3

To: NFES: National Interagency Support Caches

From: Leslie Anderson, Chair, Equipment Technology Committee – NWCG

Subject: Helicopter Lead Line Retrofit or Replacement

The Interagency Aviation Safety Alert No. IASA 12-01 (Revision 1) “Helicopter Cargo Hauling Equipment” issued on June 18, 2012 recommends that Caches and local units phase out all 3000 lb. capacity leadlines (NFES 000528) equipped with snap-back spring/keeper gated hooks by May 1, 2013. In accordance with these recommendations the National Interagency Support Caches (NISC) will initiate action to either replace or retrofit affected NFES 000528 leadlines in their inventory prior to the May 1, 2013 deadline with keeper-less gate/”Sure Lock” type hooks. Under this direction the NISC caches are not obligated to provide leadline retrofit/replacement services to the Units within their service area.

Leadlines equipped with snap-back spring/keeper gated hooks can be easily identified by the forged steel, one piece hook with an attached sheet metal spring loaded gate as shown in Figure #1.



Figure #1



The approved keeper-less gate/"Sure Lock" type leadline hook is shown in Figure #2 below.



Figure #2

Each cache will determine the feasibility and cost effectiveness of either replacing or retrofitting their leadline inventory based on the number of units affected, proximity to qualified rigging vendors, retrofit/conversion cost, shipping cost (if applicable), or other factors. If opting for replacement, leadlines equipped with "Sure Lock" hooks are available from GSA.

This direction supersedes previous direction provided in Cache Memorandum No. 08-2 regarding the retrofit of NFES 000528 leadlines.

The appendix below provides complete technical direction for retrofitting older snap-back spring/keeper gated hook equipped leadlines to acceptable specifications. If you have any questions on the information provided in this memorandum please contact Carl Bambarger, San Dimas Technology and Development Center (SDTDC) at (909) 599-1267, ext. # 253.

/s/ Leslie Anderson

Attachments:

Appendix – 2 pages  
Statement of Work – 6 pages

cc:

State Fire Management Officers – BLM  
Regional Directors Fire and Aviation Management – USFS  
Technology Development Centers – San Dimas, Missoula  
Agency Directors – NIFC  
Logistics Center – NICC  
Bill Hicks – GSA



## Appendix – Leadline Retrofit

Caches may use the following information to implement a retrofit program on snap-back spring gated hook leadlines.

Caches will:

- Use all of the requirements identified in the attached Statement of Work for obtaining retrofit services.
- Assure that the contractor has provided all of the information identified in paragraph 11 of the Statement of Work before beginning the required inspection using table 1, Inspection and Measurements.
- Inspect the returned product for quality and assure that the contract requirements have been met. Field units will inspect the lot for the elements shown in table 1 of the Statement of Work.
- Inspect a sample quantity of leadlines from those retrofitted by the contractor. Use the following Sample Size/ Reject Criteria table for the lot provided to the contractor. To use the following table, count the number of parts/leadlines in the lot being provided by the contractor. Based on the quantity in the lot determine the sample size (quantity of parts) that will be inspected. From the offered lot, randomly select the number of parts you just determined (sample size). Each leadline from the sample is examined for the criteria in table 1 of the Statement of Work. Count the total number of defects found that violate the requirements identified in table 1 of the Statement of Work. (Note: The same defect found on two different leadlines of the sample is considered two defects, not one defect.) Upon completing the inspection, reject the lot if the quantity of accumulated defects exceeds the number shown in the table below for the lot/sample size. The vendor may resubmit a rejected lot after defects have been eliminated. Field personnel shall use the same inspection process for the resubmitted lot.

Sample Size/Reject Criteria		
Number of parts (Quantity up to)	Sample Size	Reject all parts after finding more than this number of defects
15	2	0
25	3	0
90	5	0
150	8	0
280	13	1
500	20	1
1200	32	1
3200	50	2

Example: The quantity of retrofitted leadlines is 65. According to the above table, the sample size for inspection should be 5; 65 is greater than 25, but less than 90. From the total lot of

leadlines (65) take a random sample of 5 leadlines. Inspect the parts for the parameters in table 1 of the Statement of Work, recording and counting the number of defects, if any. After inspecting all of the lead lines from the sample, if the total number of defects is greater than 0, the entire lot of leadlines is not acceptable and they shall be returned to the vendor for rework or replacement. The vendor shall be shown the defects and provided a copy of your records. If the total number of defects found is 0, then accept the lot.

For additional information or questions please contact Carl Bambarger, USDA Forest Service, San Dimas Technology & Development Center. (909) 599-1267 ext. 253.

## Leadline Retrofit Statement of Work

Purpose: In response to Safety Alert IASA 12-01, these instructions are provided. Land management agencies have in their inventories leadlines with snap-back spring gates. This type of gate is no longer desirable and the Government is interested in retrofitting these items. This Statement of Work defines the requirements for retrofitting these leadlines.

Requirements: The contractor shall retrofit the supplied Government leadlines as follows:

1. The contractor shall remove the existing hook and replace it with a hook that meets the following:
  - a. The hook shall have a minimum WLL (working load limit) of 3,000 lbs.
  - b. The hook shall have a minimum ultimate strength of 11,250 lbs.
  - c. The hook shall meet the dimensions shown in figure 1.

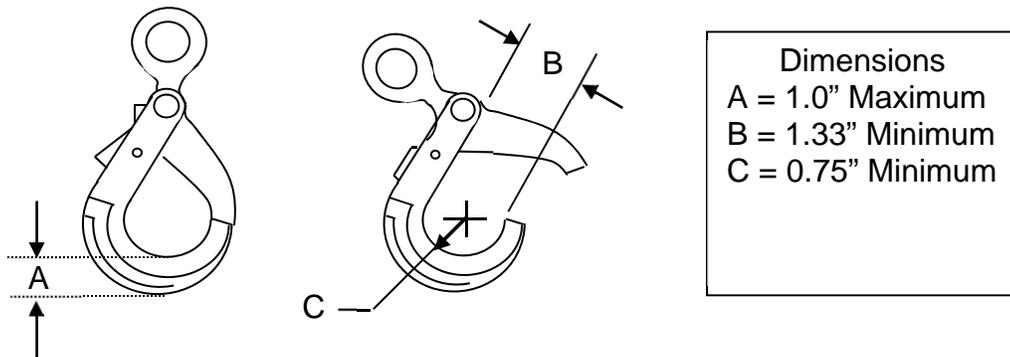


Figure 1, Self-Closing Hook

- d. A gate release shall be incorporated in the hook and have a spring return to lock the gate closed. The release lock and hook gate shall have a minimum engagement of 0.130 inches, as shown in figure 2. (Note: The dashed lines in figure 2 are hidden lines.)

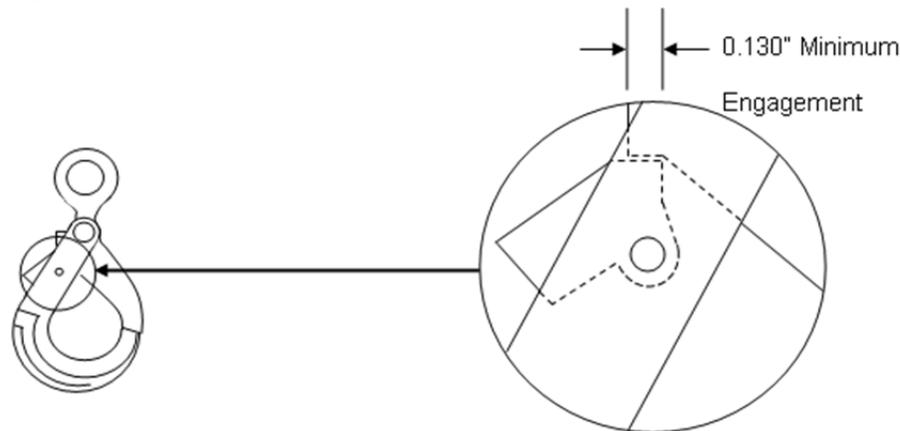


Figure 2, Gate Lock Engagement

- e. The hook shall be treated for corrosion resistance.

- f. The contractor shall provide a Certificate of Conformance (COC) in accordance with paragraph 5 for the hook.
  - g. The hook shall be in a style similar to figure 1 in that it closes under load
2. The contractor may reuse the thimble from the removed hook end if it is serviceable (not collapsed, bent, etc.). The contractor shall supply a new thimble if the original one is not serviceable. The new thimble shall be rated extra heavy or heavy duty: and shall be galvanized coated. If a replacement thimble is provided, the contractor shall supply a COC for the thimble. The COC for the thimble shall meet the requirements of paragraph 5.
3. The contractor shall mark each retrofit leadline item with a tag showing the information in figure 3. (Note: The date and company shown below for the tag are sample information. The actual date and proof testing date shall be used.) The text size shall be a minimum of 0.12 inches. The text shall be legible and permanently stamped, embossed, cut, or etched into the metal tag. The tag shall be either stainless steel or brass. The tag shall be attached to the leadline at the hook end using a galvanized steel wire rope. The hole in the tag shall be a minimum of one hole-diameter away from any edge of the tag. The securing wire rope for the tag shall be 1/16 inch galvanized steel. This wire rope shall be included in the swaging which attaches the hook. The loop formed shall be between 1 and 1-½ inches in diameter and oriented in the swage in the direction shown in figure 3. The tag shall not have sharp edges.

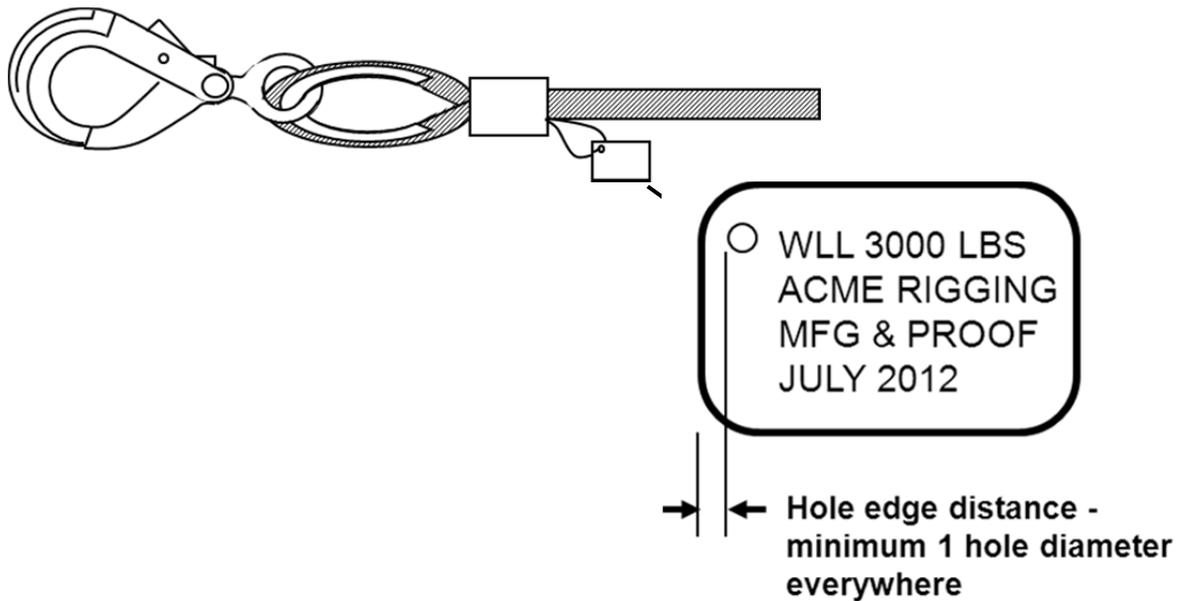


Figure 3, Tag Information and Orientation

4. Each and every leadline shall be proof tested to 6,000 lbs before delivery to the government. Slip indicator paint, see paragraph 8, shall be applied prior to proof testing. The contractor shall provide evidence of proof testing for each retrofit leadline. The test equipment used for proof testing shall be calibrated to a recognized State or Federal standard. The equipment used for proof testing shall have been calibrated within the last 12 months of the proof testing. The proof load applied to the retrofit leadlines shall be a static load. If the proof test fixture is capable of testing more than one leadline at a time, the contractor shall provide evidence/information that each leadline receives the same load, within 75 lbs.
  
5. The contractor shall provide individual certificates of conformance for the components where required in this statement of work. The contractor shall provide the following information on the certificate:
  - a. Item description, i.e. eyelet hook, thimble
  - b. Item Manufacturer's name, address, and telephone number
  - c. Manufacturer's item part number
  - d. Procuring document for the item, including the quantity and date ordered
  - e. Manufacturer's late number, if applicable
  - f. Manufacturer's statement of working load limit and ultimate strength for the hook; and the part rating for the thimble
  
6. When removing the original hook from the leadline, the contractor shall ensure that the maximum length of the new leadline is achieved. The minimum length shall be 10 feet 2 inches for the retrofitted assembly. The measured length shall be as shown in figure 4 - measured from center to center of the thimbles, with the leadline taut, in a straight line, and on a flat surface.

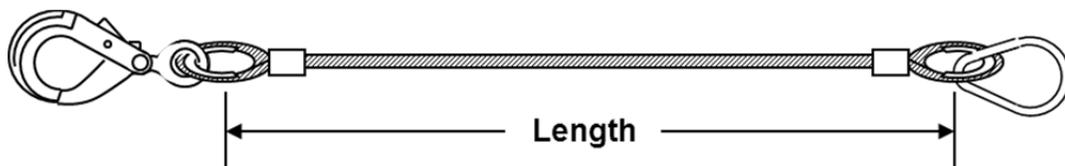


Figure 4, Length of Leadline

7. The retrofit leadline shall be manufactured by current standard production processes to provide a clean, finished quality product. Workmanship shall be equal to the best commercial practices consistent with the highest engineering standards in the industry and

shall be free from any defect that may impair serviceability or detract from the appearance of the product. The lead line shall be free of sharp edges or other that could result in injury.

8. The new hook shall be terminated in an eye using a thimble and swage collar. The swage collar shall be either stainless or carbon steel, copper, or zinc-coated copper. Aluminum swages shall not be used. The wire rope shall be striped of the plastic coating before swaging. The swaged area shall not incorporate any part of the plastic coating. All swages shall be painted for slip indication as shown in figure 5. The paint color shall be red. The pear link end swage shall also be similarly painted. Swages shall not be covered. Splices shall not be allowed in the finished leadline. For turnback swage terminations, both terminated ends of the wire rope shall be fully contained within their swages and the end of the wire rope shall be flush with the swage collar or extend no more than 0.125 inches beyond the swage. In no case shall the end of the wire rope be contained within the swage on turnback terminations. Flemish eye swage terminations shall meet the swage manufacturer's requirements. The contractor shall obtain and retain the Flemish eye swage termination requirements, including inspection requirements. If inspection of the Flemish eye requires special tools for inspection, the contractor shall make them available to the government during the inspection process.

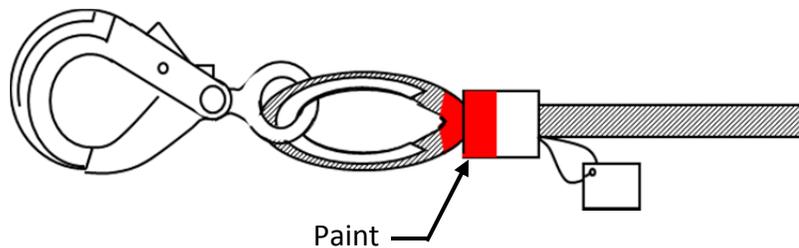


Figure 5, Slip Indicator Paint

9. The contractor shall be responsible for delivering quality products that meet the requirements of this statement of work. The contractor shall perform all inspections and test requirements specified herein prior to the submission of any items to the government for inspections and acceptance. The contractor's test and inspection results shall be made available to the government at acceptance of the products. The contractor may use his or her own test facilities or any commercial laboratory acceptable to the government. Inspections and test records shall be kept complete and available for the government.
10. The contractor shall perform the inspections and tests identified in table 1.

<b>Table 1, Inspection and Measurements</b>		
<b>Method of Inspection</b>	<b>Examination</b>	<b>Appendix Reference Paragraphs</b>
Measure	Measure the hook to assure the dimensions are as shown in figure 1.	1c
Review	Review the contractor's submitted Certificate of Conformance for the required data about the supplied hook.	1a, 1b, 1f, and 5
Measure	Measure the gate release lock engagement to assure the dimension is as shown in figure 2.	1d
Visual	Assure that the hook is coated for corrosion, e.g. painted, plated, etc.	1e
Review	Review the contractor's submitted Certificate of Conformance for the required data about the thimble, if appropriate.	2 and 5
Visual	Assure that the marking tag contains all of the information identified	3 and figure 3
Measure	Measure the characters heights to assure they meet the requirements.	3
Visual	Assure that the characters are legible and permanently stamped, embossed, cut, or etched in the metal tag.	3
Visual	Assure that the tag is either stainless steel or brass.	3
Visual	Assure that the tag is oriented in the swage properly, that a steel cable is used to hold the tag, and that the attachment and loop are as required.	3 and figure 3
Measure	Measure the tag wire rope for diameter and loop size	3
Review	Review the submitted documentation to assure that each finished assembly was proof tested to 6,000 lbs.	4
Measure	Measure the cable to assure that it is not less than 10 feet 2 inches, per figure 5.	6
Visual	Examine the finished hook installation for suitable workmanship and that now sharp edges exist.	7
Visual	Assure that the swage collar has been painted per figure 6 for slip indication.	8 and figure 5
Visual	Assure that no plastic coating was included in the swage.	8
Visual	Assure that the terminated end (cut end) of the wire	8

	rope or does not extend greater than 0.125 inches beyond end of the swage collar, for turnback swage terminations.	
Visual	Assure that the terminated end (cut end) of the wire rope, for the hook end, is not recessed inside of the swage collar, for turnback swage terminations.	8
Review	Review the contractor supplied information on the Flemish eye swage, if applicable.	8
Visual	Assure that installed Flemish eye swages are installed per the manufacturer's inspection information, if applicable.	8
	End of table.	

11. The contractor shall provide an acceptance data package to the government at the time of acceptance. The package shall include the following:
- All required Certificates of Conformance, see paragraphs 1f, 2, and 5
  - All contractor inspection results, see paragraphs 9, 10, and table 1
  - All proof testing results, see paragraph 4
  - Flemish eye swaging requirements, including inspection methods (if applicable)

Notes to Contractors:

1. The leadlines were procured to a specification that established a minimum tensile strength of the raw wire rope material at a minimum of 11,250 lbs. Certifications were obtained at the time of procurement validating this. Hence leadlines shall not be rejected due to doubts about the strength of the wire rope material. Leadlines may be rejected due to unacceptable wear or damage to the wire rope.
2. The Government shall inspect lots provided for acceptance in accordance with the following Sample Size/Reject Criteria Table.

Sample Size/Reject Criteria		
Number of parts (Quantity up to)	Sample Size	Reject all parts after finding more than this number of defects
15	2	0
25	3	0
90	5	0
150	8	0
280	13	1
500	20	1
1200	32	1
3200	50	2

End of Statement of Work