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Fire Equipment Storage and Refurbishing Standards



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Fire Equipment Storage and Refurbishing Standards

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Introduction

This document addresses specific fire equipment items used within the National Fire Equipment System (NFES). These national standards are maintained by the NFES committee and are applicable at National Support Caches and local units. For items that are not identified for refurbishment in this guide, contact your local servicing cache or technical centers for assistance.

As new items are introduced, current items are discontinued and/or health and safety issues arise, this document will be revised to provide updated information.

Prior to refurbishment of any supplies or equipment, refer to your local health and safety reference materials and conduct Job Hazard Analysis (JHA) or risk assessments to identify potential hazards and establish mitigation practices. Reference materials may include USDA Health and Safety Code Handbook, Manufactures' Safety Data Sheets (MSDS), product owner's manuals, locally established JHA's, etc. (See below)

General guidelines for refurbishment:

- Inspection: Determine whether or not an item has been used or is in need of refurbishment. This can generally be done by visual inspection for soiling, damage, missing seals, or items being removed from packaging.
- Refurbishment: Generally this is a three step process consisting of cleaning, repairing and testing of an item before returning to service. Detailed refurbishment instructions are contained in the body of this document.
- Packaging: Packaging requirements identified are standards established and followed by National Support Caches. Local protocols for packaging may vary from established packaging standards and should be applied as necessary to meet local storage requirements.

Note: Items used for transport, consumption or storage of potable water or food should be cleaned and sanitized rinsing with mixture of 1 ounce or 1 tablespoon of chlorine bleach thoroughly mixed into a gallon of room-temperature water. Rinse with clean water, drain, and air dry.

For items exposed to the human body, clean and dry using the specific instructions in this document. Examples are Nomex® clothing, neck shrouds, sleeping bags, sleeping pads, and cots. Failure to follow the cleaning instructions may result in the failure of the fabric or materials to correctly or safely perform its function. This procedure also prevents the spread of communicable diseases.

- Dispose of hazardous materials according to local health and safety regulations.
- Cache managers or supervisors have the responsibility of determining whether it is economical to refurbish or dispose of an item.
- Contact your local servicing cache for recycling options and disposal criteria or as local options are available.
- Users should inspect all items that have been refurbished using some measure for quality assurance.

Abbreviations used in this document:

DLT—date last tested

GL—gallon

LB--pound

PSI—pounds per square inch

RPM—revolutions per minute

Web based References:

[Health and Safety Code Handbook](#)

[Job Hazard Analysis Worksheet](#)

[Water Handling Equipment Guide](#)

[NFES Catalog](#)

[USFS Technology and Development Centers Publications](#)

[National Interagency Support Caches Webpage](#)

[National NFES Cache Memos](#)

ADAPTER

ADAPTER, 1”
ADAPTER, 1½”

NFES #000003, #000004
NFES #000006, #000007

Initial Inspection/Disposal Criteria

1. Inspect for cracks and large burrs.
2. Inspect for fire damage, burn marks or melted areas.
3. Inspect threads for damage, if threads are crossed or show signs of excessive wear (loose fitting or hard to connect to other fittings).
4. Return to stock if item passes inspection, is clean and shows no sign of use.
5. Refurbish if dirty, gasket is missing or needs replacing and/or damage is superficial.
6. Dispose of item if it fails inspection or is unable to repair.

Refurbishing Procedures

A. Cleaning

1. Clean in parts washer or high pressure wash with warm water and a mild detergent using a brush or scouring pad.
2. Rinse in clean water and let dry

B. Repair

1. Replace gasket if missing, cracked, damaged, or stiff.
2. If male threads are damaged try using a triangle file to remove small burrs or dings. If it doesn't fit smoothly, dispose of.

C. Testing for Performance -- none

D. Repackaging

1. Package to protect threads.
2. Pack 60 each in NFES # 008064 carton (10” x 8” x 6”).

Storage and Shelf Life Checks - none

APPLICATOR

APPLICATOR, water, 2-piece

NFES #000720

Initial Inspection/Disposal Criteria

1. Inspect for cracks and large burrs.
2. Inspect for fire damage, burn marks or melted areas.
3. Inspect threads for damage, if threads are crossed or show signs of excessive wear (loose fitting or hard to connect to other fittings).
4. Return to stock if item passes inspection, is clean and shows no sign of use.
5. Refurbish if dirty, gasket is missing or needs replacing.
6. Dispose of item if unable to repair.

Refurbishing Procedures

A. Cleaning

1. All items will be washed and cleaned of mud, dirt, and grease.
2. Clean with a mild detergent with bristle brush or scouring pad; pressure wash as needed.
3. Rinse thoroughly and let dry.

B. Repair

1. Replace gaskets if missing, cracked, damaged, or stiff.

C. Test for Performance

1. Assemble 2-piece applicator.

D. Repackaging

1. Suggested packaging 18 each in NFES #000385 carton (7.25" x 9.25" x 26").

Storage and Shelf Life Checks - none

AXE

AXE, boy's single bit, 24" handle, w/sheath
AXE, single bit, 4 lb. w/sheath
AXE, 3 – 5 lb., 26" straight handle w/sheath

NFES #000352
NFES #000707
NFES #000383

Initial Inspection/Disposal Criteria

1. Inspect for obvious damage to head, cutting edges.
2. Inspect for large chips in blade or cracked head eye.
3. Inspect for any modifications to head, such as rivets through side of head to hold handle.
4. Inspect handle for twisted, bent or open grain, if handle has been shortened or is non-standard.
5. Return to stock if item shows no signs of use and passes visual inspection.
6. Refurbish if damage detected in the inspection process is repairable or handle is replaceable.
7. Dispose of item if unable to repair.

Refurbishing Procedure

A. Cleaning

1. Wash head and handle.
2. Wipe dry

B. Repair

1. Head

- a. Sharpen tool to specifications according to tool sharpening gauge NFES# 000510.
- b. Tools should never be ground to the degree that the metal temperature raises high enough to remove temper, i.e. blue or burned edges.
- c. Ensure that blade corners are square.
- d. Paint tool head with rust inhibitor (cache option.)

2. Handle

- a. Sand handle if it is rough, chipped, dinged, or has any type of residue that did not come off during sanding.
- b. When replacing handle, shape eye for a snug fit. Use high impact plastic or wood-type wedges with appropriate type of epoxy. Metal wedges can be added only in the field as an emergency measure and should not be used during refurbishment.
- c. The bottom of the tool head should be within $\frac{3}{8}$ "-- $\frac{5}{8}$ " of the shoulder of the handle.
- d. Cut excess off handle make flush with tool head after inserting wedge into handle.
- e. Wipe handle with rag and linseed oil.

C. Tests for Performance

1. On the head check that blades have not been tapered or rounded to the point that tools cannot be sharpened.
2. On the handle check that it is not twisted, bent or is open-grain.
3. Grasp the handle of the tool 2- 4" from the end with the head hanging down, but not touching the ground. Using a ball peen or similar hammer give the end of the handle a firm smack. Listen to the sound it makes. If the head is tight and the handle is free of defects, it will make a clear ringing sound. If it is loose or defective you will hear a dull thud, like hitting the end of a 2 x 4.

D. Repackaging

1. For NFES #000707 install sheath (no NFES)
 - Package 12 each in NFES #000338 carton (37" x 18" x 7").
2. For NFES #000352 install leather sheath NFES #000359, package per local cache requirements
3. For NFES #000383 install sheath NFES #000815
 - Suggested packaging is 6 each in NFES #000385 carton (7.25" x 9.25" x 26").

Storage and Shelf Life Checks - none

BAG, BACKPACK PUMP

BAG, backpack pump, with 2 liners & couplings

NFES #001197

Initial Inspection/Disposal Criteria

1. Inspect fabric and webbing for any holes, cuts, tears, burns, or torn seams that are not economically repairable, if any dispose of.
2. Inspect for any fastener missing or that does not provide adequate closure.
3. Inspect for excessive dirt or fuel stain that cleaning cannot eliminate, dispose of.
4. Inspect for any writings, drawings, and if so dispose of item.
5. Return to stock if item does not show any signs of use and passes visual inspection.
6. Refurbish if damage detected is repairable.
7. Dispose of item if unable to repair.

Refurbishing Procedures

A. Cleaning - CLASS 2 CORDURA (MACHINE WASH OK)

1. Allow any mud or loose dirt to dry, and remove using a stiff-bristle brush. If stains remain, wash as recommended below.
2. Remove light oil and dirt stains by brushing with a solution of warm water and a mild detergent, rinse thoroughly, and hang to dry. "Mild detergents" includes most home laundry detergents that contain no chlorine bleach or added scents.
3. For heavier oil or grease, soak in water-soluble biodegradable degreaser for at least 30 minutes, brush with a bristle brush, rinse thoroughly, and hang to dry.
4. If machine washing, use only cold water on a gentle cycle and air dry.
5. Where no other method is cleaning the fabric, wash with pressure washer set at wide fan, warm water, and only allow nozzle close enough as necessary for cleaning, the further away the better for the fabric.

DO NOT MACHINE DRY. DO NOT USE BLEACH.

B. Repair

1. Replace nonfunctioning hardware.
2. Take new plastic liner (NFES #000597) out of pouch and replace old liner, insert a new liner into pouch.
3. Install rubber gasket on cap, to prevent leakage.
4. Replace O-ring.

C. Tests for Performance - none

D. Repackaging

1. Suggested packaging is 10 each in NFES #002007 carton (24" x 16" x 16").

Storage and Shelf Life Checks - none

BAG, SLEEPING

BAG, sleeping, cloth, washable, 3 lb. fill
BAG, sleeping, cold weather, X-long
BAG, sleeping, cold weather
BAG, sleeping, firefighters, 36" x 86"

NFES #000022
NFES #000058
NFES #000128
NFES #001062

Initial Inspection/Disposal Criteria

1. Inspect for any holes, cuts, tears, abrasions, or torn seams that cannot be repaired economically, if any dispose of.
2. Inspect for excessive dirt or stains that laundering cannot eliminate, if any dispose of.
3. Inspect for missing slider, damaged coils, or other defects that make zipper inoperable, repair if economical.
4. Inspect for batting that is bunched-up or in clumps. Shake the bag several times to ensure that the batting will loft evenly, not clump or shift.
5. Inspect for any indelible marking on the bag, if any dispose of.
6. Inspect for any signs of body fluid stains. If there's any question on whether the bag can be completely cleaned and sanitized, dispose of the item.
7. Return to stock if item shows no signs of use and passes initial inspection.
8. Dispose of item if unable to repair.
9. Refurbish if damage detected is repairable.

Refurbishment Procedures

A. Cleaning- CLASS 4 CORDURA - SLEEPING BAGS

1. Remove all contents not part of the bag and zip closed before laundering.
2. Launder bags in front-loading machine. Use mild soap in water of no more than 130 °F. Bags shall undergo three wash and rinse cycles, i.e. wash, rinse, wash, rinse, wash, rinse, sterilize with a bleach solution of 50 ppm in the last wash cycle.
3. With bag unzipped, dry in a tumble dryer with an average temperature not to exceed 130 °F. The dryer unit shall be of the reverse-action type. All bags shall be unfolded and shall tumble free. (To obtain the average temperature, test the temperature every 5 minutes and average the findings.)
4. After drying, zip bags closed.

B. Repair

1. Repair any hole, cut, tear, abrasion, or open seam.
2. Replace any zipper that has damaged coils and replace any missing slider.

C. Tests for Performance

1. Inspect cord lock to ensure spring works properly and that the cord passes freely through when the lock is disengaged.
2. Close zipper to ensure it provides a smooth and secure closure the full length of the bag opening.
3. Open and close the hook and pile fastener to ensure closure is adequate
4. Retest all hardware if it has been replaced.

D. Repackaging

1. Package in plastic bag.
 - For NFES 000022,000058, 000128 package 5 bags in NFES #000644 carton (33" x 16" x 22").
 - For NFES 001062 package 10 bags in NFES #000513 carton (37.50" x 24.50" x 17").

Storage and Shelf Life Checks

Prior to shipping, inspect carton for rodent damage and/or moisture damage. If found, handle accordingly and dispose of carton and contents in appropriate manner.

BAG, SLINGABLE

BAG, Slingable, water, 72 GL, non-potable
BAG, Slingable, water, 250 GL, non-potable
BAG, Slingable, water, 360 GL, non-potable

NFES #000426
NFES #006017
NFES #006021

Initial Inspection/Disposal Criteria

1. Visually inspect for missing components, or need for repair such as: straps, hoses, spigot, cap, and gasket.
2. Return to stock if in unused condition.
3. Refurbish if dirty or need repair.
4. Dispose of item if it fails inspection and/or is damaged beyond repair.

Refurbishing Procedures

A. Cleaning

1. Clean exterior of tank thoroughly with filler cap attached.
2. Support or hang tank with spigot closed, remove cap and fill with water to rinse out tank.
3. Replace cap and shake bag vigorously until all foreign matter is removed.
4. Drain completely through hose and spigot.
5. Invert bag after removing cap, open spigot and empty as much water as possible.
6. Let dry inverted for 1 hour in sun, if possible.

B. Repair

1. Fill with air and look for leaks, visually inspect bags for rips, tears, or obvious defects.
2. Use a black permanent marker to indicate damage, keeping all markings simple and professional
3. In a well ventilated area clean area around damaged spot with lacquer thinner or other suitable cleaner.
4. Apply suitable glue (manufacturer's recommendation) to both surfaces (patch and tank).
5. Let dry until tacky.
6. Place patch on damaged area and apply pressure with roller or suitable device for at least 1 minute.
7. Repair or replace any damaged components.
8. Ensure bags are stenciled with NFES number and "non-potable" or "suppression use only".

C. Testing for Performance

1. Re-inspect any patches or repairs.
2. Fill with air to test for leaks.

D. Repackaging

1. Ensure that tank is stenciled visibly with the words "NON-POTABLE" or SUPPRESSION USE ONLY" and proper NFES # is stenciled on tank.
 - Use NFES #008070 carton (18" x 15" x 5.5") for NFES #000426.
 - For NFES #006017 and 006021, use local cache option for carton.

Storage and Shelf Life Checks - none

BAG, SLINGABLE

BAG, Slingable, water, drinking, 55 GL (208.2L)

NFES #000435

BAG, Slingable, water, suppression, 55 GL

NFES #000437

Initial Inspection/Disposal Criteria

1. Dispose of Cordura outer bag if there are--
 - a. Any holes, cuts, tears, burns, or torn seams not economically repairable.
 - b. Any zipper or Velcro closures that do not close properly.
 - c. Unsightly dirt or fuel stain that cleaning cannot eliminate.
 - d. Buckle does not function properly (repair, replace or dispose).
2. Fill and drain hardware.
 - a. Inspect fill and drain fittings for proper function and tight seal.
 - b. Replace or repair any part missing or damaged.
3. Liners:
 - a. Remove and dispose of any used liners.
 - b. Inspect condition of spare liner. Unless the integrity of the liner is in question, do not remove from the sealed bag to make this inspection.
4. Return to stock if all components are accounted for and the bag is clean and unused.
5. Refurbish if dirty or used and repairs can be made.
6. Dispose of item if it fails inspection or is damaged beyond repair.

A. Cleaning- CLASS 2 CORDURA (MACHINE WASH OK)

1. Allow any mud or loose dirt to dry, and remove using a stiff-bristle brush. If stains remain, wash as recommended below.
2. Remove light oil and dirt stains by brushing with a solution of warm water and a mild detergent, rinse thoroughly, and hang to dry. "Mild detergents" includes most home laundry detergents that contain no chlorine bleach or added scents.
3. For heavier oil or grease, soak in water-soluble biodegradable degreaser for at least 30 minutes, brush with a bristle brush, rinse thoroughly, and hang to dry.
4. If machine washing, use only cold water on a gentle cycle and air dry.
5. Where no other method is cleaning the fabric, wash with pressure washer set at wide fan, warm water, and only allow nozzle close enough as necessary for cleaning, the further away the better for the fabric.

DO NOT MACHINE DRY. DO NOT USE BLEACH.

Fill and drain hardware:

- a. For NFES #000435, wash thoroughly in a solution of chlorine bleach consisting of 1-ounce of bleach for every gallon of water.
- b. Rinse in potable water and dry completely.
- c. Once hose and fittings are sanitized and dried, reseal in a plastic storage bag and put in zipper pocket.
- d. For NFES #000437 wash fill and drain hardware thoroughly, rinse and dry completely, reseal, place in plastic storage bag and put in zipper pocket.

B. Repair

1. Repair holes, cuts, tears, and broken seams.
2. Replace nonfunctioning buckles.
3. Replace Velcro or zipper if it does not adhere and/or it does not operate smoothly and if it is economical to do so.
4. Replace used liners: for NFES #000435 use NFES #000436., for NFES #000437 use NFES #000438.

C. Testing for Performance

1. Test any replacement buckle, zipper, Velcro or fitting.

D. Repackaging

1. Use NFES #008070 carton (18" x 15" x 5.5").

Continued -

BAG, Slingable, water, drinking, 55 GL (208.2L)

BAG, Slingable, water, suppression, 55 GL

NFES #000435

NFES #000437

Storage and Shelf Life Inspects - none

BAG, TENT

BAG, Tent, personal gear pack

NFES #000281

Initial Inspection/Disposal Criteria

1. Inspect the fabric and webbing for any holes, cuts, tears, burns or torn seams that are not economical to repair, if any dispose of.
2. Inspect for and replace any fastener missing or that does not provide adequate closure.
3. Inspect for excessive dirt or fuel stain that cleaning cannot eliminate, dispose of.
4. Any zipper that does not close properly should be replaced if economical, otherwise dispose of.
5. Dispose of item if unable to repair.
6. Inspect for any writings, drawings, if any dispose of.

Refurbishing Procedures

A. Cleaning - CLASS 4 CORDURA (MACHINE WASH OK)

1. Allow any mud or loose dirt to dry, and remove using a stiff-bristle brush. If stains remain, wash as recommended below.
2. Remove light oil and dirt stains by brushing with a solution of warm water and a mild detergent, rinse thoroughly, and hang to dry. "Mild detergents" includes most home laundry detergents that contain no chlorine bleach or added scents.
3. For heavier oil or grease, soak in water-soluble biodegradable degreaser for at least 30 minutes, brush with a bristle brush, rinse thoroughly, and hang to dry.
4. If machine washing, use only cold water on a gentle cycle and air dry.
5. Where no other method is cleaning the fabric, wash with pressure washer set at wide fan, warm water, and only allow nozzle close enough as necessary for cleaning, the further away the better for the fabric.

DO NOT MACHINE DRY. DO NOT USE BLEACH.

B. Repair

1. Repair holes, cuts, or tears.
2. Replace nonfunctioning hardware, if economical.

C. Testing for Performance

1. Test hardware by fastening and unfastening the item. The hardware should function easily with little force being applied and with no difficulty in the release.
2. Open and close zipper to test. The zipper should operate smoothly through its full length.

D. Repackaging

1. Suggested packaging is 20 bags in NFES #002006 carton (23" x 19" x 10").

Storage and Shelf Life Inspects - none

BERM, CONTAINMENT

BERM, containment, 55 GL (1 to 4 drums)

NFES #000692

BERM, containment, 15 GL

NFES #000693

Initial Inspection/Disposal Criteria

1. Inspect for dirt, debris, fuel, and other liquids which may be present and/or soiled absorbent cloth. Dispose of soiled absorbent according to local hazardous materials standards.
2. Inspect for torn or missing tie down grommets, holes, rips or tears that are large or too numerous.
3. Return to stock if item shows no signs of use and passes initial inspection.
4. Refurbish if damage detected is repairable.
5. Dispose of item if damage is determined to be unrepairable.

Refurbishing Procedures

A. Cleaning

1. Clean with pressure washer to remove matter such as mud, dirt, and grease.
2. Use a solution of mild detergent and water to remove grease with an absorbent cloth.
3. Dispose of saturated cloth according local hazardous materials standards.
4. Wipe dry or let air dry.

B. Repair

1. Hold up to strong light or sun to locate holes.
2. With suitable cleaner, apply vinyl adhesive to both surfaces, i.e. patch and berm.
3. Let dry till tacky.
4. Place patch on damaged area and apply pressure with roller or suitable device for at least 1 minute.
5. Let berm sit flat and dry.

C. Testing for Performance - none

D. Repackaging

1. Roll berm and band for storage.
2. Suggested packaging is 10 each in NFES #002006 carton (23" x 19" x 10").

Storage and Shelf Life Checks - none

BLANKET, BED, WOOL

BLANKET, bed, wool, 66" x 84"

NFES #000441

Initial Inspection/Disposal Criteria

1. Inspect for visible stains, rips, burns, or tears, mend if economically feasible, if not dispose of.
2. Inspect for possible mildew, if so dispose of.
3. Inspect for liquids and other contaminants such as body fluid.
4. Return to stock if item is in clean serviceable conditions with no soiling, use or damage.
5. Dispose of item if unable to repair.
6. Refurbish if the item needs to be cleaned and/or damage can be repaired economically.

Refurbishment Procedures

A. Cleaning

1. Wool blankets must be DRY CLEANED ONLY.

B. Repair

1. Use a professional seamstress or laundry service that provides mending services.

C. Testing for Performance - none

D. Repackaging

1. Individually pack in plastic or waterproof bag.
2. Pack 15 each in NFES #000644 carton (33" x 16" x 22").

Storage and Shelf Life Checks - none

BLOWER, MIST, LEAF BLOWER

BLOWER, mist, leaf blower

NFES #007040

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there are no signs of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if the unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment procedures

A. Cleaning

1. Remove dirt and oil using compressed air or detergent and shop towels as necessary.
2. Use pressure washer and degreaser to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after pressure washing to minimize rust formation on metal parts.

B. Repair

1. This equipment is primarily serviced at a “factory authorized” repair facility. Ensure that the servicing repair facility has a copy of this refurbishment standard.

C. Test for Performance

1. Refer to the owner’s manual for operations and specifications information specific to blower model.
2. Check condition of fuel mix; ensure fuel is fresh and the correct mix oil ratio is used prior to starting the engine. Use a fuel stabilizer in fuel during testing to help ensure proper operation of engine at post storage start up.
3. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
4. Engine should: Start easily, run smoothly, be free of fuel leaks, and provide sufficient power to the blower attachment.
5. Ensure all engine operational controls are functioning properly; stop switch, throttle and choke.
6. Test for blower performance (see owner’s manual for specific performance data).
7. Should any function fail a test, refer to the manufacturer’s repair manual and troubleshooting guide to correct the problem.
8. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of fuel.

D. Repackaging

1. Use a nylon “zip-tie” to tie off (seal) starter rope to the handle grip.
2. Attach a certification tag that indicates date last tested (DLT), property #, and name of inspector certifying the performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks - Date Last Tested (DLT) not to exceed 12 months.

CAN, GASOLINE

CAN, gasoline, safety, 5 GL, DOT approved

NFES #000606

Initial inspection/Disposal Criteria

1. Inspect for fuel or mixes and dispose of properly.
2. Inspect for rust that has pitted, is flaking or is lifting the interior surface and determine extent as some “flash rust” maybe present.
3. Inspect for leaks or separation along seams.
4. Inspect all threads on nozzles for serviceability.
5. Inspect spring closure devices to be sure they are functioning properly.
6. Inspect for can integrity and uniformity, i.e. collar crushed, large dents, punctures, modifications.
7. Inspect all cotter keys and pins.
8. Ensure that containers are properly marked and labeled.
9. Ensure spark arrester screen is present, replace as necessary.
10. Return to stock if item shows no signs of use and passes visual inspection.
11. Refurbish if item has been used and/or damage is repairable.
12. Dispose of item if damage is found and it cannot be repaired.

Refurbishing Procedures

A. Cleaning

1. Drain all existing fuel.
2. With pressure washer and detergent wash outside of container.
3. Use a rag and air hose or some means to dry the interior of the container.
4. Turn upside down with lids off or open to dry.
5. Spray inside of can lightly with WD-40 or similar product.

B. Repair

1. Replace rubber O-ring in discharge port of pin-lock style gas cans.
2. Replace any defective cotter key or pins.
3. Wipe down outside of container and repaint if necessary
4. Ensure container is properly marked and labeled. Color requirement for the can is red with yellow markings. Label shall be FLAMMABLE LIQUID. Markings are dependent on fuel type and can be accomplished using NFES tags 000805, 000802, 000803, 000801
5. Secure proper spout to top of can ($\frac{3}{4}$ ” threaded spout NFES #007033 or 1” pin-lock or threaded spout NFES #000706).

C. Tests for Performance - none

D. Repackaging - none

Storage and Shelf Life Checks

1. If stored outside protect from rain, snow or any form of moisture.

Reference

Replacement parts available from:

SAFE-T-WAY

National Sales Office

PO Box 1188

Salem, OR 44460

Web site: <http://www.safewayproductsinc.com/index.htm>

Phone: 330-332-3200

Fax: 330-332-2340

Fax order entry: 800-721-7216

CAN, GASOLINE

CAN, 3 GL (3.8L), gas, safety, vented	NFES #001290
CAN, 5 GL (18.9L), gas, safety, vented	NFES #001291
CAN, 1 GL (3.8L), gas, safety, vented	NFES #000350
CAN, 5 GL (18.9L), gas, w/o spout, jeep	NFES #001175

Initial Inspection/Disposal Criteria

1. Inspect for fuel or mixes and dispose of properly.
2. Inspect for rust that has pitted, is flaking or is lifting the interior surface and determine extent as some “flash rust” maybe present.
3. Inspect for leaks or separation along seams.
4. Inspect all threads on nozzles for serviceability.
5. Inspect spring closure devices, if applicable, to be sure they are functioning properly.
6. Inspect for can integrity and uniformity, i.e. large dents, punctures, modifications.
7. Inspect all cotter keys and pins, if applicable.
8. Ensure that containers are properly marked and labeled.
9. Ensure spark arrester screen is present in NFES #001290 and 001291, replace as necessary.
10. Return to stock if item shows no signs of use and passes visual inspection.
11. Refurbish if item has been used and/or damage is repairable.
12. Dispose of item if damage is found and it cannot be repaired.

Refurbishing Procedures

A. Cleaning

1. Drain all existing fuel.
2. With pressure washer and detergent wash outside of container.
3. Use a rag and air hose or some means to dry the interior of the container.
4. Turn upside down with lids off or open to dry.
5. Spray inside of can lightly with WD-40 or similar product.

B. Repair

1. Replace any defective cotter key or pins.
2. Wipe down outside of container and repaint if necessary
3. Ensure container is properly marked and labeled. Color requirement for the cans are red with yellow markings. Label shall be FLAMMABLE LIQUID. Markings are dependent on fuel type and can be accomplished using NFES tags #000805, #000802, #000803, #000801.
4. Secure proper spout to top of can, if applicable

C. Testing for Performance - none

D. Repackaging - none

Storage and Shelf Life Checks

1. If stored outside protect from rain, snow or any form of moisture.

Reference

Replacement parts available from:

SAFE-T-WAY

National Sales Office

PO Box 1188

Salem, OR 44460

Web site: <http://www.safewayproductsinc.com/index.htm>

Phone: 330-332-3200

Fax: 330-332-2340

Fax order entry: 800-721-7216

CHAIN SAW

CHAIN SAW, 20" – 24" Bar

NFES #000159

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment procedures

A. Cleaning

1. Remove dirt and oil using compressed air or detergent and shop towels as necessary.
2. Use pressure washer and degreaser to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after pressure washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose or missing parts and mounting hardware. Tighten or replace as necessary.
2. Ensure that the air filter is clean and dry before reinstalling. Replace the filter if it is damaged or will not come clean.
3. Replace spark plug and fuel filter if saw shows normal signs of field use. Use only solid terminal spark plugs
4. Test function of rewind starter, ensure proper engagement of engine and recoil function. Check for damage or fraying of pull cord; repair or replace as necessary.
5. Ensure all decals (operations and warning) are affixed and legible.
6. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder, and all engine bearings are not damaged.
7. Clean muffler of excess carbon.
8. Inspect spark arrestor screen for build-up. Clean, repair or replace as necessary.
9. Replace sprocket or star drum if the wear is deep enough to catch a fingernail.
Inspect clutch shoes and springs. Replace if damaged or missing.
Replace clutch drum if badly burned (discolored).
10. Clean and re-grease the clutch bearing, replace if needle bearings are pitted or damaged.
11. Ensure saw chain is properly sharpened to manufacturer's specifications after each use.
Replace chain if: Cutters have been filed down to 50% or less of the original cutter length; two or more cutters are broken; tie straps are worn down to rivets; if stretched beyond tensioning abilities; or when side plate is filed back to rear attaching rivet.
12. Service the guide bar after each use.
Inspect groove depth and width; true and file rails; and inspect for bends.
Replace guide bar if rails are cracked, chipped, burned, or have a dip deeper than 1/16".
Inspect sprocket tip for wear and looseness. Lubricate tip if grease type.

C. Test for Performance

1. Refer to the owner's manual for operations and specifications information specific to chain saw model.
2. Should any function fail a test, refer to the manufacturer's repair manual.

Continued -

CHAIN SAW, 20" – 24" bar

NFES #000159

3. Check condition of fuel mix; ensure fuel is fresh and the correct mix oil ratio is used prior to starting the engine. Use a fuel stabilizer in fuel during testing to help ensure proper operation of engine at post storage start up.
 4. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
 5. Start saw and allow engine to warm-up at idle.
 6. Ensure that there are no leaks at engine, fuel tank or bar oil tank.
 7. Run saw and inspect for proper function of bar oiler and chain brake.
 8. Ensure all engine controls are operational.
 9. Inspect engine speed using a digital tachometer, adjust carburetor to obtain specified speed.
 10. If saw chain rotates at the specified idle speed, inspect clutch for loose and or missing springs.
 11. Should any function fail a test, refer to the manufacturer's repair manual and troubleshooting guide to correct the problem.
 12. Remove all fuel from fuel tank and run engine until carburetor is completely empty of fuel.
 13. Remove bar and chain oil from the oil tank (local cache option).
- D. Repackaging**
1. Attach bar guard on cutting attachment
 2. Use a nylon "zip-tie" to tie off (seal) starter rope to the handlebar.
 3. Attach a certification tag that indicates date last tested (DLT), property #, and name of inspector certifying the performance.
 4. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks - Date Last Tested (DLT) not to exceed 12 months

CHAPS

CHAPS, protective, summer weight

NFES #000044, #000045, #000078, #000150

Initial Inspection/Disposal Criteria

1. Inspect fabric and webbing for any holes, cuts, tears, or burns.
2. Inspect for any area of abrasion that has weakened fabric beyond repair.
3. Inspect for any webbing that is cut, burned, or abraded beyond economical repair.
4. Inspect each leg, if either leg has more than five patches.
5. Chaps should be removed from service if not labeled with specification USFS 6170-4F or are not certified to NFPA 1977-05.
6. Inspect all molded nylon hardware for dirt, cracks, breaks, and proper function.
7. Return to stock if item does not show any signs of use and passes visual inspection.
8. Refurbish if the item needs to be cleaned and/or damage can be repaired economically.
9. Dispose of item if it fails initial inspection.
10. Dispose of item if wood chips and sawdust are evident inside the layers at the bottom of the chaps.
11. Dispose of item if the first layer of yellow Kevlar has a cut that is more than 1 inch long.
12. Dispose of item if improper repairs have been made, such as patch jobs that stitched through the Kevlar.

Refurbishing Procedures

A. Cleaning

1. Allow any mud or loose dirt to dry and then remove using a stiff-bristle brush. If stains remain, wash as recommended below.
2. Remove light oil and dirt stains by brushing with a Citrosqueeze® solution, brush with a bristle brush, rinse thoroughly and hang to dry.
3. For heavier oil or grease soak in a Citrosqueeze® solution for at least 4 hours, brush with a bristle brush, rinse thoroughly and hang to dry

DO NOT MACHINE WASH OR DRY.
DO NOT USE BLEACH TO CLEAN FABRIC.
DO NOT PRESSURE WASH

B. Repair

1. Repair burn holes and cuts.
2. Use Seam Grip® to repair holes or cuts in the nylon shell.
3. To repair holes shorter than ½ inch, apply a dot of Seam Grip® over the hole and allow the Seam Grip® to dry.
4. To repair holes and tears longer than ½ inch--
 - Cut a piece of paper about twice the size of the damaged area.
 - Slip the paper inside the tear in the nylon shell so that the paper lies on top of the Kevlar pad.
 - Press the nylon shell onto the piece of paper and squeeze Seam Grip® onto the paper and onto the sides of the tear.
5. Allow chaps to dry for at least 12 hours before using
6. Replace burned, abraded, or cut nylon webbing with like items.
7. Replace broken or nonfunctioning hardware.

C. Testing for Performance

1. Retest all replaced hardware. The hardware should function easily with little force being applied and no difficulty in the release.

CI. Repackaging

1. Pack 10 each in NFES #002007 carton (24" x 16" x 12").

Storage and Shelf Life Checks - none

**Continued –
CHAPS, protective, summer weight**

NFES #000044, #000045, #000078, #000150

References

CITROSQUEEZE®

Seam Grip® Seam Sealer & Outdoor Repair

CLAMP

CLAMP, hose, shut-off, 1" – 1½" hoses

NFES #000046

Initial Inspection/Disposal Criteria

1. Inspect for obvious/damage.
2. Inspect metal components for cracks or deformation.
3. Inspect metal components for burn marks.
4. Inspect all pins for excessive wear (very loose fittings). Replace the pins or dispose of.
5. Return to stock if item does not show any signs of use and passes visual inspection.
6. Refurbish if item has been used and/or damage is repairable.
7. Dispose of item if it fails initial inspection.

Refurbishing Procedures

A. Cleaning

1. Clean with a parts washer, high pressure washer, or with a mild detergent and scrub with a brush or scouring pad.

B. Repair

1. Replace worn or broken pins

C. Testing for Performance - none

D. Repackaging - none

Storage and Shelf Life Checks - none

CONTAINER, FUEL

CONTAINER, 1 liter, fuel, aluminum, red finish

NFES #001535

Initial Inspection/Disposal Criteria

1. Inspect for fuel in bottle and dispose of fuel properly.
2. Inspect outside of bottle for excessive dents, cracks, or evidence of fuel leakage, dispose of bottle if any are present.
3. Inspect inside of bottle for any foreign matter that cannot be removed. Dispose of bottle if this has occurred.
4. Inspect cap and bottle for any thread damage. Replace cap if necessary.
5. Inspect O-ring for damage or wear, replace if necessary.
6. Inspect for fill to here line, without it dispose of bottle.
7. Fuel bottles shall be of one-piece construction, containers that have threaded inserts crimped into the top shall be disposed of.
8. Return to stock if item does not show any signs of use and passes visual inspection.
9. Refurbish if item has been used and/or damage is repairable.

Refurbishing Procedures

A. Cleaning

1. Fill with water and put cap on, invert to see if it leaks.
2. Wash bottle inside and out with mild detergent or power wash.
3. Rinse thoroughly.
4. Turn upside down with cap off and let air dry.

B. Repair

1. Replace O-ring if necessary.
2. Replace cap if necessary.

C. Testing for Performance

1. If O-ring or cap is replaced re-check for leaks.

D. Repackaging

1. Local cache option.

Storage and Shelf Life Checks - none

CONTAINER, FUEL/OIL

CONTAINER, fuel/oil, 2 compartment, with CARB¹ compliant nozzles

NFES #000741

Initial Inspection/Disposal Criteria

1. Inspect for fuel in container. If any, dispose of fuel properly.
2. Inspect for leaks or separation along seams. Dispose of container if any are present.
3. Inspect inside of container for any foreign matter that cannot be removed or identified. Dispose of container if this has occurred.
4. Inspect all threads, moving parts, locking mechanism, auto-shut valve or spring mechanism on both (2) nozzles for serviceability. If nozzle does not spring to closed position when not pouring, dispose of.
 - Certain nozzles are supplied with a dust cap. The dust cap does not have to be present for the container to be "ready for issue. The gasket located on the lip of the nozzle and the nozzle's auto-shut valve actually seals the container.
5. Return to stock if item does not show any signs of use and passes visual inspection.
6. Refurbish if item has been used and/or damage is repairable.

Refurbishing Procedures

A. Cleaning

1. Drain all existing fuel or oil.
2. Wash container inside and out with mild detergent with brush/scouring pad or power wash.
3. Rinse thoroughly.
4. Use rag and air hose or other means to dry the container interior.
5. Turn upside down with lids off or open and let air dry.

B. Repair

1. Replace nozzle gaskets if stiff, damaged or missing.
2. Assemble both nozzles to unit to ensure nozzle-collar threads fit.
3. Replace nozzles as needed with nozzles that automatically spring to closed position (CARB compliant style).

C. Testing for Performance - none

D. Repackaging

1. Local cache option.

Storage and Shelf Life Checks - none

References

- A source of CARB compliant nozzles: (there may be others) www.baileysonline.com
- California Environmental Protection Agency Air Resources Board (CARB) <http://www.arb.ca.gov/homepage.htm>

¹CARB compliant nozzle has:

- An auto-stop, self-venting nozzle that stops the flow of fuel when the target tank is full.
- A single opening for filling and pouring. No separate vents or openings.
- A treated container body for very low permeation.
- Automatic closure. Nozzle automatically springs to the closure position when not pouring.

CORD, EXTENSION

CORD, extension, 50' or 100' AWG, 12/3 wire

NFES #000560, #001172

Initial Inspection/Disposal Criteria

1. Visually inspect for broken plugs, cracked, or damaged cord, if any dispose of.
2. Return to stock if item is unused.
3. Refurbish if item passes initial inspection.
4. Dispose of field modified cords.
5. Dispose of if ends with grounding prong are removed or damaged.
6. Dispose of any cord that is not UL approved with a 12/3 gauge minimum wire.

Refurbishing Procedures

A. Testing for Performance

1. Plug into 110V source, and plug light into other end to ensure no connecting problems.

B. Cleaning

1. Wipe down cord with damp cloth to remove foreign material.

C. Repair - none

D. Repackaging

1. Rollup cord (approximately 12—14" loop).
2. Tie off with zip ties or strappex banding (minimum of 1 per cord).
3. Tag cord with proper NFES number.
4. Suggested repack cartons for NFES #000560:
 - 5 each in NFES #002006 carton (23" x 19" x 10")
 - 3 each in NFES # 008070 carton (18" x 15" x 5.5")
 - 1 each in NFES #008066 carton (12" x 9" x 10")
5. Suggested repack carton for NFES #001172:
 - 2 each in NFES #008070 carton (18" x 15" x 5.5")

Storage and Shelf Life Checks - none

CORD, LIGHT

CORD, light, 50', with multiple light sockets, AWG, 12/3 wire

NFES #000563

Initial Inspection/Disposal Criteria

1. Visually inspect for broken plugs, cracked or damaged cord, cracked or damaged sockets, bent or broken bulb guards.
2. Dispose of or repair if bulb guards are bent or missing.
3. Replace any cracked or broken light sockets.
4. Dispose of any broken, frayed, or burned cords.
5. Dispose of any cords that are not UL approved with a 12/3 gauge minimum wire.
6. Return to stock if item is unused.
7. Refurbish item if has been used or damage is repairable.

Refurbishing Procedures

A. Testing for Performance

1. Plug cord into 110v source and test each socket by screwing in a bulb or testing with voltage tester at cache option.

B. Cleaning

1. Wipe down cord with a mild detergent solution to remove mud, dirt, and grease.
2. Clean guards with soapy water, brush, and scouring pad.
3. Do NOT soak.
4. Dry completely before use (due to possible electric shock).

C. Repair

1. Repair or replace guards.

D. Repackaging

1. Local cache option for coiling and repacking.

Storage and Shelf Life Checks - none

COT

COT, folding, 12 Oz cover, 3½' x 6½'

NFES #000053

Initial Inspection/Disposal Criteria

1. Visually inspect for tears in cover, soiled cover, missing parts, and loose nuts and bolts, replace.
2. Dispose of cot if structural damage to the frame is present.
3. Return to stock if item is clean and in unused condition
4. Dispose of item if it fails initial inspection or is not repairable.
5. Salvage usable parts when feasible.

Refurbishing Procedures

A. Cleaning

1. Assemble to ensure completeness and all parts fitting properly.
2. If rail end tubing will not install properly wet cot to stretch nylon cover.
3. Soiled cots can be power washed and left to dry.
4. Wipe cot with commercially available disinfectant if not power washing.

B. Repair

1. If cover is torn or its seam is separated, replace the cover.
2. Replace damaged rail end tubing pieces.
3. If plug for cot ends are missing replace them with the appropriate plug.
 - Parts list for cot parts available from Department of Defense-S9I
 - Cover, Nylon 7105-00-935-1845
 - Rail End Tubing 7105-00-935-0424
 - Plug (Dowel) 7105-00-935-0433
 - Plug (Spacing) 7105-00-935-0344
 - Plug (End) 7105-00-935-0435
 - Strap 7105-00-113-0003

C. Testing for Performance - none

D. Repackaging

1. Refold and band.
2. Local cache option

Storage and Shelf Life Checks - none

Reference.

To order parts: (this is a secure site, user name and password required.)
<https://dod.emall.dla.mil>

COUPLING

COUPLING

NFES #000710, 000855, 000856, 000857, 000916,
007027, 007028, 007618, 007619

Initial Inspection/Disposal Criteria

1. Visual Inspects on male couplings:
 - a. Inspect for worn or damaged threads.
 - b. Inspect coupling to ensure it has not been smashed, bent, or cracked.
 - c. Ensure that rocker lugs are not stripped.
2. Visual Inspects on female couplings:
 - a. Inspect for worn or damaged threads.
 - b. Inspect coupling to ensure it has not been smashed, bent, or cracked.
 - c. Inspect for gaskets.
 - d. Ensure that swivel operates properly.
 - e. Ensure that rocker lugs are not stripped.
3. Return to stock if item is clean and unused.
4. Refurbish if coupling has been used, is dirty and/or needs minor repair
5. Dispose of item if it fails inspection or can't be repaired.

Refurbishment Procedures

A. Cleaning Procedures

1. Wash and clean of mud, dirt, and grease.
2. Clean in parts washer, high pressure wash or clean in a sink with dishwashing detergent using a brush or scouring pad.
3. Rinse thoroughly and let dry.

B. Repair

1. Male coupling--if threads are damaged, try to file with a triangular file.
2. Female coupling--replace gaskets if necessary.
3. Lubricate with a dry lubricant, i.e. graphite.

C. Testing for Performance

1. Re-inspect male threads that have been repaired or "chased."
2. Male coupling-- attach to female coupling to ensure that threads operate smoothly.
3. Female coupling--ensure that threads operate smoothly.

D. Repackaging

1. 20 Each in NFES #008064 carton (10" x 8" x 6") for the following NFES: #000856, 000855 and 000857.
2. 60 Each in NFES #008064 carton (10" x 8" x 6") for the following NFES: #000710, 000916.
3. Use local cache option for NFES #007027, 007028, 007618 and 007619.

Storage and Shelf Life Checks - none

EXTINGUISHER, FIRE

EXTINGUISHER, fire, 20A:120BC, 20 lb. (9.1L)

NFES #000307

Initial Inspection/Disposal Criteria

1. Visual inspection of use gauge.
2. Ensure the gauge arrow is registering in the “green.”
3. If gauge arrow is in the “red”, set aside for an authorized service representative.
4. Inspect for missing parts: Safety pin, hose, and bracket.
5. Verify tag for expiration date and signature of authorized service representative.
6. If either of these is in question, set aside for authorized service representative.
7. Return to stock if unused, passes inspection and not expired.
8. Refurbish if item is dirty, expired or needs other service.
9. To dispose of an old fire extinguisher that cannot be refilled or that you do not wish to refill:
 - a. Release any pressure contained in the canister by shooting a small amount into an open area.
 - b. Let the canister sit for a few days, making sure the pressure has been released.
 - c. Once there is no longer any pressure, dispose in a trash bag in your regular garbage.

Refurbishment Procedures

A. Cleaning

1. Wipe down entire unit with a damp rag and make sure hose is free of dirt or debris.

B. Repair

1. Repair, testing and filling performed by authorized service representatives only.

C. Testing for Performance - none

D. Repackaging

1. Package 1 each in NFES #000385 carton (7.25” x 9.25” x 26”) to prevent accidental discharge of extinguisher.
2. Label carton with:
 - Extinguisher’s expiration date
 - NON-FLAMMABLE GAS 2 labels
 - Directional arrows “This Side Up”
 - NFES label

Storage and Shelf Life Checks

Yearly inspection by authorized service representative.

FENCE

FENCE, barricade, plastic, 4' X 100'

NFES #000608

Initial Inspection/Disposal Criteria

1. Visually inspect for damage, tears, rips, dirt, grease, oil or paint. Inspect for length, if less than 100' splicing may be required following refurbishment procedures. There should be no more than four splices in a 100' section of fencing using fencing of similar style and pattern.
2. Return to stock if item is in clean serviceable condition with four or less splices and minimal torn fence sections.
3. Refurbish if item is repairable and easily cleaned.
4. Dispose of item if sections are less than 50' with previous spliced sections, if there is excessive damage, or shows paint, oil, or soiling that cannot be easily removed.

Refurbishing Procedures

A. Cleaning

1. Clean by sweeping or with high-pressure wash; or clean with mild detergent using a brush or scouring pad.

B. Repair

1. Replace damage barricade section by splicing.
2. Splice using small cable ties or small hog rings one top, one bottom, and one every 6 inches to ensure splice security; only one splice of same type and pattern for each barricade fence.

C. Testing for performance - none

D. Repackaging

1. Re-roll and secure.

Storage and Shelf Life Checks - none

FLIGHT SUIT

FLIGHT SUIT

All Sizes

Initial Inspection/Disposal Criteria

1. Inspect for holes, cuts, tears, burns, or torn seams. Inspect hook and pile fastener missing or that does not provide adequate closure, repair or dispose of. Inspect for broken zippers or missing sliders. Open and close the hook and pile fasteners to ensure they provide an adequate and secure closure. Open and close zipper to ensure smooth operations and secure closures.
2. Return to stock if item is clean and all components are in good working condition
3. Refurbish if cleaning is the only refurbishment required.
4. Dispose of item if any damage is found in the inspection process.

Refurbishing Procedures

A. Cleaning

1. Follow the cleaning procedures described in the publication, Nomex®- Aramid Fiber -Laundering Guide (H-71603), http://www2.dupont.com/Personal_Protection/en_US/assets/downloads/nomex/h71603launderingguidefornomexaramidfiber.pdf
Additional information can be obtained by calling DuPont at 1-800-453-8527 or by writing:
DuPont
Advanced Fibers Systems
Chestnut Run Plaza
Laurel Run Building
Wilmington, DE 19880-0705
2. Abbreviated washing procedures from above publication:
 - a. "Garments of NOMEX® should be washed separately from other articles to avoid contamination with lint of flammable fibers."
 - b. "Tests show that formulations designed for use at a temperature of 140 °F (60 °C) or less – such as high-surfactant, low-alkalinity products - adequately clean NOMEX® and provide the best fabric color retention."
 - c. "For heavily stained and oily garments of NOMEX®, a higher temperature wash formula may be required for adequate cleaning."
 - d. "Garments made of NOMEX® must be adequately rinsed to remove residual wash chemicals."
 - e. "In some instances, tumble dry conditioning is the only finishing necessary for garments of NOMEX®."
 - f. "...dry cleaning is an alternative method of removing heavy soil and may be preferable to repeated high-temperature washing."
3. If items are taken to vendor laundry facilities for refurbishment; ensure that they receive a copy of this refurbishment standard. The laundry facility must satisfy both--the requirements as set by the manufacturer specification and the agreement made with the local agency.

B. Repairs - none

C. Test for performance - none

D. Repackaging - Local cache option

Storage and Shelf Life Checks - none

FLY, PLASTIC

FLY, plastic, tent, 16' X 24' with 10 guy ropes

NFES #000070

Initial Inspection/Disposal Criteria

1. Visually inspect for rips and tears, mold or mildew, and petroleum or other stains on the main sheet; inspect borders for seam damage and loose grommets.
2. Return to stock if item is clean and appears to be in unused condition.
3. Refurbish item if item can be cleaned, damages are repairable and economically feasible.
4. Dispose of items that are nonstandard and any items that are damaged or soiled beyond repair or refurbishment.

Refurbishing Procedures

A. Cleaning

1. Completely unfold tent fly on clean, dry floor or work area so that any defects (tears, burns, mildew, etc.) will be visible.
2. Sweep off entire fly with stiff-bristle broom.
3. Wash with water and mild degreaser detergent.
4. Rinse to remove all soap residues.
5. Air dry.
6. If items are taken to vendor laundry facilities for refurbishment; ensure that they receive a copy of this refurbishment standard. The laundry facility must satisfy both--the requirements as set by the manufacturer specification and the agreement made with the local agency.

B. Repair

1. Repair any minor rips, tears, or any other defects at this time (if possible)
2. Replace missing or damaged grommets with 5/8" brass grommets.
3. Replace missing or damaged guy ropes with 25' X 1/4" manila rope with sliders (10 each of NFES# 001043).

C. Testing for performance - none

D. Repackaging

1. Utilize a flat, clean surface greater than 20' X 20'.
2. Fold lengthwise once, fold lengthwise again, and sweep after each fold until fly is in neat, tight package approximately 16" X 24".
3. Secure fly with 1/4" manila or similar rope.
4. 1 each in NFES #000823 carton (15" x 15" x 10").

Storage and Shelf Life Checks - none

FLY, SUNSCREEN

FLY, sunscreen, 20' x 20', with 10 guy ropes

NFES #006131

Initial Inspection/Disposal Criteria

1. Inspect for standard 20' x 20' size. Inspect for rips and tears, seam damage and loose grommets, mildew and excessive petroleum products.
2. Return to stock if item appears to be in clean unused condition.
3. Refurbish if cleaning is effective and repairs are economically feasible.
4. Dispose of items that are not of standard 20' x 20' size or if damage is excessive and not economically feasible to repair.

Refurbishing Procedures

A. Cleaning

1. Completely unfold fly on clean, dry floor or work area so that any defects (tears, burns, mildew, etc.) will be visible.
2. Sweep off entire fly with stiff bristle broom.
3. Wash with water and mild degreaser detergent. Power wash with mild degreaser if necessary.
4. Rinse to remove all soap residues.
5. Air dry.

B. Repair

1. Repair any small rips, tears, or any other defects.
2. Replace missing or damaged guy ropes with NFES #001043, 25' X 1/4" manila rope w/ tension dowels (10 each).
3. Replace missing or damaged grommets with 5/8" brass grommets.

C. Testing for performance - none

D. Repackaging

1. Utilize flat, clean surface greater than 20' X 20'
2. Fold lengthwise once, fold lengthwise again and sweep each after each fold until fly is in neat, tight bundle.
3. Secure fly with strapping, 1/4" manila or similar rope.
4. Recommended packaging 1 each in NFES #002006 carton (23" x 19" x 10").

Storage and Shelf Life Checks - none

FLY, TENT

FLY, tent, type II, 9' x 10'

NFES #001521

Initial Inspection/Disposal Criteria

1. Visually inspect for rips and tears to body of fabric larger than pinholes. Inspect borders for seam damage and missing or loose grommets
2. Return to stock if item is clean and appears to be in unused condition.
3. Refurbish item if it is easily and economical done.
4. Dispose if item is not to specification, or is not economically feasible to refurbish.

Refurbishing Procedures

A. Cleaning

1. Unfold and look for defects.
2. Sweep or brush off with stiff broom or brush.
3. Wash with water and mild degreaser detergent.
4. Rinse to remove all soap residues.
5. Air dry.
6. If items are taken to vendor laundry facilities for refurbishment; ensure that they receive a copy of this refurbishment standard. The laundry facility must satisfy both--the requirements as set by the manufacturer specification and the agreement made with the local agency.

B. Repair - none

C. Testing for performance - none

D. Repackaging

1. Package 20 each in NFES #002006 carton (23" x 19" x 10").

Storage and Shelf Life Checks - none

FOOD, MRE

FOOD, meals ready to eat (MRE'S)

NFES #001842

Initial Inspection/Disposal Criteria

1. Receipt inspection: Verify shipping carton for marking of MRE meals. The carton must show the following data:
 - N (National Stock Number)
 - Item Nomenclature
 - Wt. _____ Cu _____
 - Contract No. _____ Lot No. _____
 - Name and Address of Ration Assembly Contractor
 - Date packed
 - ITD Inspection test date
 - Fresh – Check Indicator
2. Expiration of MRE meals will be based on a US Army food service inspector's evaluation.
3. The Fresh-check Indicator may be used for field inspections.
4. Return to stock if MRE's are in original unopened carton packaging, have no indication of damage, and are within expiration dates indicated on outside of carton.
5. There are no refurbishment procedures for this item.
6. Dispose of all loose, partial, or open MRE meals, and all unmarked MRE meals or meals not in original carton packaging.
 - a. The meal will be removed from its container and rendered unusable and placed in a wet-garbage container.
 - b. The water activated Flameless Ration Heater, for heating the MRE entrée, will be removed from its packaging and placed in a metal pail with enough water to submerge and deactivate. It may then be disposed of in your local landfill.

Refurbishing Procedures

A. Cleaning

1. Dust or wipe down outer carton.

B. Repair- none

C. Testing/Retesting

1. Inspect container for proper marking.
2. Look for container damage, insect or rodent damage, product leakage, and foul odor. If damage is found, follow Initial Inspection/Disposal Criteria.
3. Mark case/pallet with next inspection test date if no damage found.
4. Extension of Expiration Dates requires US Army Food Service Inspector's evaluation.

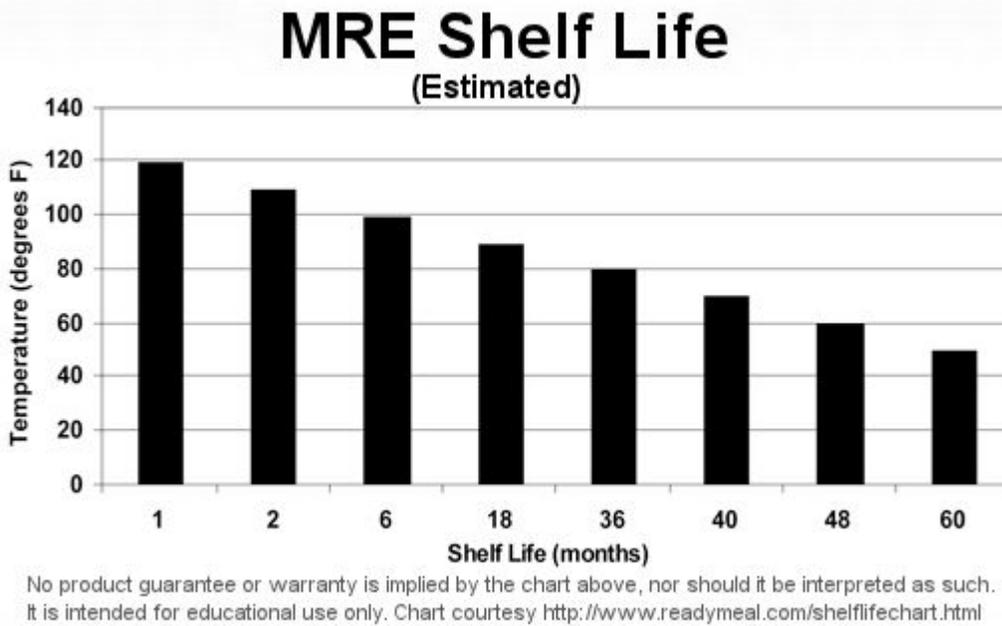
D. Repackaging

1. Label appropriately and store accordingly.

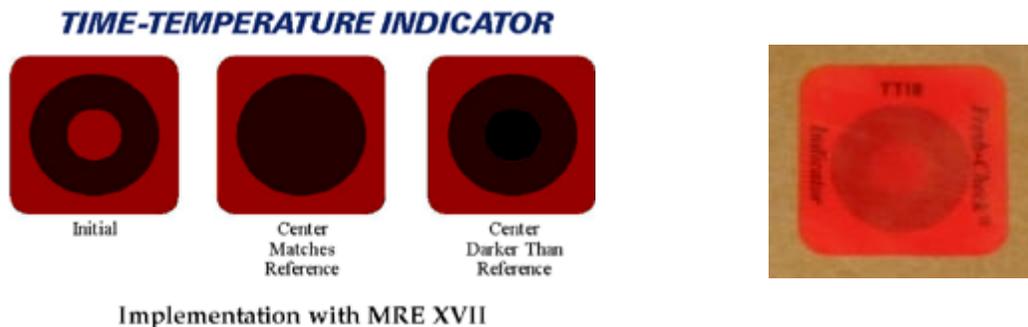
Storage and Shelf Life Checks

How long MREs last depends on how long they are stored and at what temperatures they are stored. At the least, they'll last 1 month at 120 degrees F. Or they could last 60+ months at 50 degrees F.

Time/temp chart provided by the manufacturer:



Since about 1997, MRE cases have also included something called a TTI (time and temperature indicator) on the outside of the box to assist inspectors in determining if MREs are still good. There are two parts to the TTI - an outer dark circle and an inner light circle. As long as the inner circle is still lighter than the outside circle, the MREs are supposed to be good. For the official info on the TTIs visit http://nsrdec.natick.army.mil/media/fact/food/Time-Temperature_Indicator.htm.



Reference

<https://www.troopsupport.dla.mil/subs/support/qapubs/appa/>
www.mreinfo.com

FUEL LINE ASSEMBLY

FUEL LINE ASSEMBLY – ¼” X 5’ W/FITTINGS

NFES #000113

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use i.e., dust, oil, damage, loose or missing parts.
2. Return to stock if there is no sign of use or damage and priming bulb can be squeezed easily.
3. Refurbish as necessary if the assembly has been used, damaged or is incomplete.
4. Dispose of the Fuel Line Assembly if it is not economically repairable.

Refurbishment procedures

A. Cleaning

1. Remove dirt and oil using detergent and shop towels as necessary.
2. Use pressure washer and degreaser to remove heavy deposits of oil and grease.

B. Repair

1. Replace fuel hose if there are cuts, tears, burns or other defects.
2. Tighten the quick disconnect fitting if loose.
3. Replace cracked, torn or missing O-rings on quick disconnect fitting.
4. Replace any ¼” fuel hose that is not gasoline, oil and ozone resistant.
*Remove Goodyear INSTA-GRIP hose from service during the refurbishment process.
5. Replace priming bulbs that are too stiff and cannot be squeezed easily.
6. Replace fuel hose sections if assembly is not a minimum of 54” overall length.
7. Replace worn brass swivel fittings that have been rounded over by wrenches.
8. If assembly has an in-line fuel filter, replace the filter at each service.
9. Secure hose connections using pinch type Ear Clamps (Oetiker® clamps).

C. Test for Performance

1. Check function of priming bulb by squeezing; air should escape at hose-end opposite of quick disconnect fitting.
2. Pressurize fuel line assembly to 8-10 psi and seal off, ensuring that there is no leak-down in pressure.
If pressure will not hold, submerge in water or spray hose with soapy water to indicate source of air leak, repair as necessary and retest.

D. Repackaging - Local cache option.

Storage and Shelf Life Checks - none

GENERATOR

GENERATOR, gasoline engine, 3 to 6 KW w/ground rod

NFES #000709

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment procedures

A. Cleaning

1. Remove dirt and oil using compressed air or detergent and shop towels as necessary

B. Repair

1. Check condition of engine oil. If engine is equipped with an engine oil filter; replace the filter at each oil change.
2. Check condition of spark plug and air filter, clean or replace as needed. Foam type air filters can be cleaned, re-oiled with "foam filter oil" and reinstalled.
3. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
4. Check for loose and/or missing parts or mounting hardware; tighten or replace where needed.
5. Inspect exhaust system; make sure there are no cracks and or leaks.
6. Clean spark arrestor screen of excess carbon build up, replace if screen is damaged.
7. Inspect fuel tank, filler cap, fuel line and fuel filter; clean, repair and/or replace as needed.
8. Ensure that the recoil starter operates properly and that the rope is not frayed or Ensure proper condition of battery (if equipped).
9. Ensure all decals (operations and warning) are affixed and legible.

C. Test for Performance

1. Refer to the owner's manual for operations and specifications information specific to generator model.
2. Ensure gasoline is fresh prior to starting the engine. Use a fuel stabilizer in fuel during testing to help ensure proper operation of engine at post storage start up.
3. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
4. Engine should start easily, run smoothly, be free from fuel leaks, and provide sufficient power to the electrical generator.
5. Ensure all engine operational controls are functioning properly; stop switch, throttle and choke.
6. Test for engine performance and electrical output (see owner's manual for specific performance data).
7. Should any function fail a test, refer to the manufacturer's repair manual and troubleshooting guide to correct the problem.
8. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of fuel.

D. Repackaging

1. Ensure grounding rod is attached to frame.
2. Use a nylon "zip-tie" to tie off (seal) starter rope to the frame.

Continued –

GENERATOR, gasoline engine, 3 to 6 KW w/ground rod

NFES #000709

3. Attach a certification tag that indicates date last tested (DLT), property #, and name of inspector certifying the performance.
4. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

HARNESS

HARNESS, chest, fire shelter

NFES #000294

Initial Inspection/Disposal Criteria

1. Inspect for cuts, tears, frayed, or burned areas on webbing and harness material. Inspect for any area of abrasion that has weakened the webbing beyond repair. Inspect all plastic hardware for proper function, cracks, breaks, or missing components.
2. Return to stock if item shown no sign of use or damage.
3. Refurbish if holes, cuts, tears or burns are easily repaired, broken or missing components are replaceable, and if repairs are economically feasible.
4. Dispose of item if excessive wear or damage is found and it is not economically feasible to return item to a like new condition.

Refurbishing Procedures

A. Cleaning - CLASS 2 CORDURA (MACHINE WASH OK)

1. Allow any mud or loose dirt to dry, and remove using a stiff-bristle brush. If stains remain, wash as recommended below.
2. Remove light oil and dirt stains by brushing with a solution of warm water and a mild detergent, rinse thoroughly, and hang to dry. "Mild detergents" includes most home laundry detergents that contain no chlorine bleach or added scents.
3. For heavier oil or grease, soak in water-soluble biodegradable degreaser for at least 30 minutes, brush with a bristle brush, rinse thoroughly, and hang to dry.
4. If machine washing, use only cold water on a gentle cycle and air dry.
5. Where no other method is cleaning the fabric, wash with pressure washer set at wide fan, warm water, and only allow nozzle close enough as necessary for cleaning, the further away the better for the fabric.

DO NOT MACHINE DRY. DO NOT USE BLEACH.

B. Repair

1. Repair holes, cuts, tears, and/or burns; if economically feasible.
2. Replace damaged hardware.

C. Testing for performance

1. Test hardware by fastening and unfastening. The hardware should function easily with little applied force and without difficulty in opening and closing.

D. Repackaging

1. Local cache option.

Storage and Shelf Life Checks - none

HEADLAMP

HEADLAMP, Firefighters (advanced)

NFES #000667

(Obsolete, replaced by NFES #000718)

National Caches are not stocking or refurbishing this item.

Initial Inspection/Disposal Criteria

1. Inspect for the following:
 - a. Inspect lamp head.
 - i. Lamp head should have two bulbs, one in place for use, and one inside the housing as a spare.
 - ii. The computer chip inside the housing should be intact and firmly in place.
 - iii. Lens/reflector should be clear, unscratched, and turn on the housing with resistance--if not dispose of.
 - iv. The housing should be free of cracks and the switch boot free of cracks or tears.
 - v. The strap lugs should be intact--if not dispose of.
 - vi. O-ring should be free of cracks and pliable--if not dispose of and replace.
 - vii. The wire should be tight and have no cracks
 - viii. The connector should be round and clean.
 - b. Inspect battery pack.
 - i. Housing should free of cracks, both cap lugs and strap lugs should be present and intact.
 - ii. The cap should be free of cracks, the wire tight and without defect and the O-ring intact. The cap should fit snugly on the battery housing and lock in place. The connector plate inside the cap should be centered and free of corrosion.
 - iii. The battery frame should be intact and firmly hold 5 AA batteries.
 - iv. The electrical connectors should mate with the connectors in the cap.
 - c. Inspect helmet strap.
 - i. The helmet strap should be without tears, pliable, and hold the headlamp components.
 - ii. Return to stock if item is in unused/new condition
2. There is no refurbishment for this item to return to stock.
3. Dispose of item if item possesses any defective components or fails any part of initial inspection.

Refurbishing Procedures

A. Cleaning

1. Clean headlamp with clean water.

B. Repair – none

C. Testing for performance

1. Insert 5 new AA batteries into the battery frame all pointing towards the top.
2. Insert battery frame into the battery housing.
3. Tighten the cap; attach the lamp head, the light should go on.
4. Press and release the lamp button, the light should either brighten or dim.
5. Press and hold the lamp button, the light should go off.
6. Remove batteries.

D. Repackaging

1. Package 48 each in NFES #002006 carton (23" x 19" x 10").

Storage and Shelf Life Checks

Headlamps should be stored without batteries.

HEADLAMP

HEADLAMP, firefighters, LED

NFES #000718

Initial Inspection/Disposal Criteria

1. Inspect for broken wires, rust or corrosion on any metal part, and cracks in the battery case, light bezel, or lens cover. Inspect for broken or missing components, O-Ring damage, battery leakage in the battery case, and dirt or damage to retention straps.
2. Return to stock if item has not been removed from plastic bag, is clean and appears to have not been used (inspect for batteries in battery case).
3. Refurbish item if easily cleaned and any missing or damaged components are available for replacement.
4. Dispose of item if missing or damaged components aren't replaceable; if battery leakage is discovered; or if unit fail testing for performance.

Refurbishing Procedures

A. Cleaning

1. Wipe entire unit clean to include lamp housing, battery cam, and both sides of lens with soft cloth and mild soapy water.
2. Remove retention straps and hand wash with mild detergent, rinse and air dry. Reinstall.

B. Repair

1. Install new retention straps, battery case latch, and O-ring if required.
2. Lightly lubricate the O-ring and lens cap threads with silicone grease when necessary.
3. Salvage usable parts from unserviceable units when practical.

C. Testing for performance

- a. Test unit with new batteries.
- b. Test all light mode functions; if any bulb does not function, dispose of headlamp.
- c. Test elasticity of retention straps; if defective, replace.
- d. Check O-ring is present and pliable, replace as necessary.
- e. Remove batteries prior to storage.

D. Repackaging

1. Individually package headlamp in plastic bag.
2. Package 50 each in NFES #002006 carton (23" x 19" x 10").

Storage and Shelf Life Checks - none

HEATER

HEATER, propane, 20# tank mounted
HEATER, propane, outdoor, 360° radiant heat

NFES #006139
NFES #006187

Initial Inspection/Disposal Criteria

1. Visual inspect for missing parts (guards, knobs, etc.) or any structural damage preventing repair. Inspect for torn or cut heater element, damaged or cracked hose/hose connections, loose fittings, and damage to regulators.
2. Inspect hoses for cracks, inspecting for breaks by flexing.
3. Inspect hose or valve for foreign material that might cause a blocked line.
4. Inspect O-rings on supply hose and replace if needed.
5. Inspect for out-of-round fittings by screwing regulator into tank POL fitting.
6. Return to stock if item passes initial inspection, passes *Testing for Performance*, is clean, and is serviceable.
7. Refurbish heater if any damage is repairable, missing or damaged components are available, and it's economically feasible to refurbish.
8. Dispose of heaters that have structural damage that prevents repair. Salvage parts that are serviceable for future repairs. Dispose of damaged regulators and cracked or damaged hoses.

Refurbishing Procedures

A. Cleaning

1. Clean the outside of the heater using a damp cloth. **DO NOT clean the heater by spraying water on it.**
2. Clean the inside of the heater using compressed air.

B. Repair

1. Replace regulator if there is any damage to the regulator or threads do not properly seat.
2. Replace or straighten any damaged or bent parts.
3. Repair or replace auto shut off valve if not working properly (if applicable.)
4. Replace any damaged or cracked hose or hose connections.

C. Testing for Performance

1. Prior to testing use an air hose to blow unit off of any dust, dirt or debris.
2. Perform initial inspections prior to testing.
3. Ensure a fire extinguisher is in the work area prior to lighting any heater.
4. Mount or connect the heater to a LP-Gas supply cylinder.
5. Turn on gas supply to the heater and check all fittings and connections for gas leaks using mild soap and water solution. NEVER INSPECT FOR LEAKS USING A MATCH OR ANY OTHER TYPE OF FLAME. Should a gas leak occur, shut off the gas supply to the heater immediately and wait a minimum of five minutes before repairing the leak.
6. When assured that there are no leaks, light heater/pilot. If heater/pilot does not ignite within 5 seconds, extinguish flame and shut off gas valve. Wait 5 minutes before retrying.
7. (#006139 heaters) Once pilot is lit, let run for 3-5 minutes, try on/off cycle 2 to 3 times.
8. (#006187 heaters) Once pilot is lit, turn heater on, let run for 3-5 minutes; try on/off cycle 2 to 3 times.
9. If heater fails, determine if economical to repair, send to a certified repair shop.
10. Inspect auto shut off valve is in working condition by tipping unit over (if applicable.)

D. Repackaging

1. Repack in original carton if possible or pack to local cache option.

Storage and Shelf Life Checks - none

HELMET

HELMET, safety, plastic, w/chin strap

NFES #000109

Initial Inspection/Disposal Criteria

Note: National Incident Support Caches consider helmets a consumable item. Helmets returned to caches removed from their original packaging will be considered used and will not be refurbished or reissued. Helmets that have been issued but not removed from their original packaging will be subject to the Wildland Firefighter's Helmet Serviceability Guide and Inspection process below to determine serviceability.

1. Wildland Firefighter's Helmet Serviceability Guide:
 - a. Has it been more than 10 years since the helmet's date of manufacture (DOM)? If yes then remove from service. If it is less than 10 years since DOM, inspect the helmet.
 - b. Helmet is less than 10 years from DOM: Inspect the helmet using inspection criteria in #2. Does the helmet pass inspection? If yes, return to stock. If no, remove from service.
2. Inspection

The shell should be inspected routinely for dents, cracks, nicks, gouges, and any damage that might reduce protection. Any helmet that shows signs of worn or damaged parts should be removed from service immediately.

The shell material may be degrading if the shell becomes stiff, brittle, faded, or appears dull or chalky. With further degradation, the shell's surface may flake or delaminate. A hardhat should be replaced at the first sign of any of these conditions.

 - a. Compress the shell from both sides about 1 inch with your hands and release the pressure without dropping the shell. The shell should return to its original shape quickly, exhibiting elasticity. Compare the elasticity with that of a new shell. If the shell being tested does not have as much elasticity as the new shell, or if the shell cracks, it should be replaced immediately.
 - b. Inspect the suspension system closely for cracks, cut or frayed shell straps, torn headband or size adjustment slots, loss of pliability, or other signs of wear. Remove and replace any suspension that is damaged.
 - c. Inspect for cracks, chips in shell, scuff marks and discoloration, and if so dispose of.
 - d. Ensure that all attachment clips are present (chin strap, headlamp, liner, neck and face shroud).
 - e. Inspect for markings, drawings or labels, if any dispose of.
 - f. All certification labels (ANSI, etc.) must be present in helmet, if not dispose of.

See also: Inspection Guidelines: (From Your Hardhat: Inspection and Maintenance 0267 2331. Missoula, MT: U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center. 4p.)
3. Return to Stock if helmet complies with the *Wildland Firefighter's Helmet Serviceability Guide* and passes initial inspection.
4. Refurbish helmet if it complies with the *Wildland Firefighter's Helmet Serviceability Guide* the passes initial inspection but requires cleaning and or repair.
5. Dispose of helmet if it fails inspection or the *Wildland Firefighter's Helmet Serviceability Guide*.

Refurbishing Procedures

A. Cleaning

1. Wash with soap and water, rinse, and air dry.

B. Repair

1. Replace with new liner and new chin strap.
 - Bullard helmet use liner NFES #002025 (<http://www.bullard.com>)

- Mine Safety Appliances (MSA) helmets use liner NFES #007036 (<http://www.msanorthamerica.com>)
 - 2. Attach front 2 suspension clips to helmet to ensure proper fit.
 - 3. Add or replace reflective strips.
 - 4. Add or replace Velcro strips
 - 5. Velcro strips 1½” x 2¼” and placed at center at rear of helmet and 9½” around curvature of helmet on each side.
 - 6. The adhesive used shall be approved by the manufacturer for use on the helmet.
- C. Testing for performance--none
- D. Repackaging
1. Place helmet in a plastic bag and pack 20 each in NFES #002007 carton (24” x 16” x 16”).

Storage and Shelf Life Checks

1. Inspect annually for service life compliance.

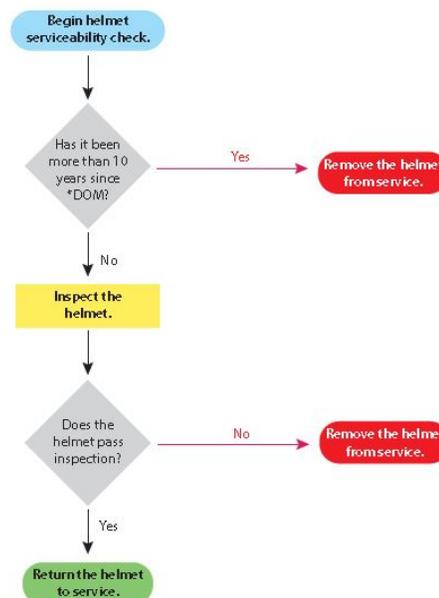
References

Velcro available from:
Textrol Systems Inc., 435 Meadow Lane, Carlstadt, NJ 07072
Phone: 800-624-8746 Part #193973 (Part B-male)



1551-2M09_WFFHel
metServiceFlowchar

Wildland Firefighter’s Helmet Serviceability Guide



*DOM = The date of manufacture stamped in the brim of the helmet.

HELMET, FLIGHT

HELMET, flight, SPH-5TPL
HELMET, flight, SPH-5C

NFES #001214, #001215
NFES #002314, #002315

Initial Inspection/Disposal Criteria

1. Visual inspection indicating use or missing parts (screws, visors, worn cords, etc.).
2. Structural damage (cracked shell, visor housing, booms, etc.).
3. Structural damage preventing repair and refurbishment (cracked helmet shell, salvage useable part and dispose of helmet shell).
4. Visual inspection for SPH-4 helmets as flight helmets must meet requirements in Instruction Memo No. 96-2006 which states: SPH-4 Helmet should be converted to SPH-5 Helmets or disposed of.
5. Return to inventory if helmet has been unused.
6. Send for refurbishment if any item found during inspection such as use or missing parts appear to be repairable.
7. Dispose of helmet if structural integrity is compromised. Salvage usable parts.

Refurbishing Procedures

A. Cleaning

1. Use general purpose cleaner. (Do not use bleach, paint remover, thinner, or acetone on flight helmet shell. It may cause damage).

B. Repair - All refurbishment will be conducted by certified personnel.

1. Earphones
2. Microphone
3. Cord assembly
4. Microphone cable assembly
5. Replace missing or damaged parts.
6. Replace thermoplastic liner (TPL) in SPH-5 TPL.
 - Size Regular NFES #003063
 - Size XL- NFES #003064
 - Size Small NFES #003065. Contact address above for further information.

Refurbishment and repair maybe performed by the following:

National Interagency Fire Center

Ramp Services

3833 S. Development Avenue

Boise, ID 83705

Phone: 208-387-5529

Fax: 208-387-5785

C. Testing for Performance

1. Retest avionics is anything has been repaired or replaced.

D. Repackaging

1. Package 1 each in carton NSN 8115-00-079-8680, (12" x 12" x 12").

Storage and Shelf Life Checks - none

HOSE, GARDEN

HOSE, garden, synthetic, 3/4" NH x 50'

NFES #001016

Initial Inspection/Disposal Criteria

1. Visually inspect for burns, cuts, and damaged fittings.
2. Recycle brass fittings from disposed hose.
3. Inspect gasket for cracks, if any replace.
4. Return to stock if hose is banded and in unused condition.
5. Refurbish if item passes initial inspection.
6. Dispose of hose if it fails initial inspection or fails *Testing for Performance*.

Refurbishing Procedures

A. Testing for Performance

1. Start pump.
2. Test hose at bib pressure, which should be at least 150 PSI.
 - a. Check bib pressure with pressure gauge.
 - b. Gauge can be purchased at any local hardware store.
3. Hold for 2 minutes and inspect hose for leaks.
4. Shut down pump and relieve water pressure from system.
5. Drain excess water from hose.

B. Cleaning Procedures

1. Remove excess dirt from hose.
2. Wash hose with clean water, clean water with mild detergent or high pressure wash.
3. If detergent is used, rinse with clean water.
4. Allow hose to drain and dry thoroughly.

C. Repair - none

D. Repackaging

1. Roll hose in single-roll configuration, male fitting in center of roll.
2. Secure roll with band.
3. Package 20 lengths in NFES #008017 carton (18" X 12" X 10").

Storage and Shelf Life Checks - none

HOSE, LINED

HOSE, lined

NFES #000932, #000933, #000966, #000967, #001238, #001239

Initial Inspection/Disposal Criteria

1. Segregate by NFES number.
2. Visually inspect for burns, cuts, damaged fittings.
3. Recycle brass fittings from disposed hose.
4. Inspect gasket for cracks, if any replace.
5. Return to stock if hose is banded and in unused condition.
6. Refurbish if item passes initial inspection.
7. Dispose of hose if it fails initial inspection or fails *Testing for Performance*. Good couplings should be salvaged from any hose not repairable.

Refurbishing Procedures

A. Testing for Performance

1. Replace gasket if necessary.
2. Connect female end of hose to pump or manifold:
 - a. Confirm connection ends are not out of round and there is no damage to threads.
 - b. All 1½” hose should be NH threads. All 1” hose should be NPSH threads
3. Pressure Test:
 - a. Start pump.
 - b. Make sure nozzles are open. Let all air escape from hose. Shut nozzles.
 - c. Pressurize hose to 300 PSI and hold for 3 minutes.
 - d. Walk the length of the hose inspecting for the following which indicate a need for repair or disposal: burns, cuts, or leaks between hose and couplings, at swivel portion of female coupling, and along the length of the hose.
4. Female and male couplings:
 - a. Inspect for leaks where hose goes into coupling.
 - b. Inspect for crooked coupling (easier to see when hose is charged).
5. Shut down pump and relieve water pressure from system.
6. Remove hose.
7. Stretch out good hose to drain.

B. Cleaning

1. Clean excess dirt from hose.
2. Run hose through hose washer using clean water or clean water with a mild detergent or clean with high pressure wash.
3. If detergent is used, rinse with clean water.
4. Allow hose to drain and dry completely before rolling.

C. Repair

1. Repaired hose shall result in lengths that are a minimum of 90 percent of original length.
2. Good couplings shall be salvaged from disposed hose.
3. Re-coupling procedures.
 - a. Remove old expansion ring and coupling from hose.
 - b. Remove unserviceable portion of hose, squaring end to be re-coupled.
 - c. Utilize expander machine to insert new expander and coupling. Follow specific machine operating instructions.
 - d. Refurbished hose shall result in hoses that are 90 to 100 foot in length.
 - e. Following re-coupling, hose that has been repaired or recoupled should be retested at a test pressure of at least 50 percent greater than the service test pressure following *Testing for Performance* above.

**Continued –
HOSE, Lined**

NFES #000932, #000933, #000966, #000967, #001238, #001239

D. Repackaging

1. Roll in a single roll configuration with male coupling in center of roll.
2. Secure roll (plastic band, string)
3. Local cache option for storage.
4. Roll, secure, and place on pallet.
 - NFES #000932, 001238 - Cache option. Recommended quantity per pallet 1” X 100’ length/pallet.
 - NFES #000933, 001239 - Cache option. Recommended quantity per pallet 1½” X 100’ length/pallet.
 - NFES # 000966, 000967 - Cache option quantity per pallet.

Storage and Shelf Life Checks - none

Reference

Water Handling Equipment Guide, NWCG PMS 447-1 which is posted at <http://www.nwcg.gov/pms/pubs/WHEG03.pdf>

HOSE, SUCTION

HOSE, suction

NFES #000115, #000652, #000914, #001808

Initial Inspection/Disposal Criteria

1. Visually inspect for burns, cuts, and damaged fittings.
2. Inspect gasket for cracks or damage, if any replace.
3. Return to stock if hose is banded, clean, and in unused condition.
4. Refurbish if item passes initial inspection.
5. Dispose of hose if it fails initial inspection or fails *Testing for Performance*.

Refurbishing Procedures

A. Testing for Performance

Service pressure test:

1. Start pump.
2. Test for 3 minutes at 50 PSI.
3. Inspect hose for leaks.
4. Shut down pump.
5. Drain hose completely.

B. Cleaning

1. Remove excess dirt from hose.
2. Clean with damp rag.
3. Apply a rubber protectant to prevent drying and cracking.

C. Repair

1. Replace gasket if necessary.

D. Repackaging

1. Local cache option.
2. Protect male coupling threads.

Storage and Shelf Life Checks - none

Reference auxiliary

Water Handling Equipment Guide, NWCG PMS 447-1 posted at <http://www.nwcg.gov/pms/pubs/WHEG03.pdf>

HOSE, SYNTHETIC

HOSE, synthetic weeping

NFES #001873, #000334

Initial Inspection/Disposal Criteria

1. Segregate by NFES number.
2. Visually inspect for burns, cuts, and damaged fittings.
3. Recycle brass fittings from disposed hose.
4. Inspect gasket for cracks or damage, if any replace.
5. Return to stock if hose is banded and in unused condition.
6. Refurbish if item passes initial inspection.
7. Dispose of hose if it fails initial inspection or fails *Testing for Performance*. Good couplings should be salvaged from any hose not repairable.

Refurbishing Procedures

A. Testing for Performance

1. Replace gasket if necessary.
2. Connect female end of hose to pump or manifold
 - a. Confirm connection ends are not out of round and there is no damage to threads.
 - b. All 1½” hose should be NH threads.
 - c. All 1” hose should be NPSH threads.
3. For linen hose, begin pressure test with a 5-minute wet soak at 50 PSI prior to applying full test pressure.
4. When hose is under pressure, walk the length of hose inspecting for the following which will indicate a need for repair or disposal: leaks between hose and couplings and at swivel portion of female coupling.
5. Pressure test.
 - a. Start pump.
 - b. Time for 3 minutes after reaching 300 PSI.
 - c. Walk the length of the hose inspecting for burns or cuts.
6. Female and male couplings.
 - a. Inspect for leaks where hose goes into coupling.
 - b. Inspect for crooked coupling (easier to see when hose is charged).
7. After 3 minutes turn off pump and relieve water pressure from system.
8. Remove hose from testing pump.
9. Stretch out good hose to drain.

B. Cleaning

1. Clean excess dirt from hose.
2. Run hose through hose washer using clean water or clean water with a mild detergent or high pressure wash.
3. If detergent is used, rinse with clean water.
4. Dry linen hose immediately after testing and washing to avoid mildew. Allow synthetic hose to dry completely before rolling.

C. Repair

1. Repaired hose shall result in lengths that are a minimum of 90 percent of original length.
2. Good couplings shall be salvaged from disposed hose.
3. Re-coupling procedures.
 - a. Remove old expansion ring and coupling from hose.
 - b. Remove unserviceable portion of hose, squaring end to be re-coupled.

- c. Utilize expander machine to insert new expander and coupling. Follow specific machine operating instructions.

HOSE, Synthetic weeping

NFES #001873, #000334

- d. Refurbished hose shall result in hoses that are 90 to 100 foot in length.
- e. Following re-coupling, hose that has been repaired or recoupled should be retested at a test pressure of at least 50 percent greater than the service test pressure following *Testing for Performance* above.

D. Repackaging

1. Roll in a single roll configuration-male coupling in center of roll.
2. Secure roll (rubber or plastic band, string).
3. Local cache option for storage.

Storage and Shelf Life Checks

1. Linen hose should be inspected periodically for mildew or rot.
2. Linen hose should be retested after 3 years on the shelf, regardless of appearance.

Reference

Water Handling Equipment Guide, NWCG PMS 447-1 posted at <http://www.nwcg.gov/pms/pubs/WHEG03.pdf>

HOSE ROLLER, ELECTRIC

HOSE ROLLER, electric

NFES #000633

Initial Inspection/Disposal Criteria

1. Inspect for missing parts, proper foot pedal switch operation, cracks in frame structure, roller pins in place, exterior motor damage; damaged or cut power cord.
2. Verify that the protective guards are on any and all moving parts. (i.e., foot pedal shroud)
3. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
4. Refurbish as necessary if unit has been used, damaged, or shelf life is exceeded.
5. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Blow dust and dirt out of electric motor.
2. If needed wash with high-pressure washer (cover electric motor).
3. Let dry.

B. Repair

1. Repair cracks in frame as needed.
2. Repair or replace power cord if damaged. Ensure no exposed wire, grounding hazards or electrical shock risks.
3. Ensure all decals (operations and warning) are affixed and legible.

C. Test for Performance

1. Plug in to power source and test motor and moving parts.
2. Test roller under a load by means of rolling lengths of hose.
3. Retest after servicing motor and/or transfer case.

D. Repackaging

1. Use nylon "zip-tie" to tie off (seal) power cord to frame.
2. Attach certification tag that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

HOSE ROLLER, GAS

HOSE ROLLER, gas

NFES #000665

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after pressure washing to minimize rust formation on metal parts.

B. Repair

1. Check condition of engine oil, spark plug and air filter; clean or replace as necessary.
2. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
3. Check for loose and/or missing parts or mounting hardware; tighten or replace as needed.
4. Inspect exhaust system; make sure there are no cracks or leaks.
5. Clean spark arrestor of excess carbon build up, replace screen if damaged.
6. Ensure all safety equipment (warning labels, metal screening, guards and shields) are in place and functioning properly.
7. Check for and repair (weld) any cracks in frame structure.
8. Lubricate bearings on pulley shafts and wheel bearing.
9. Inflate tires to proper pressure if equipped with pneumatic tires.

C. Test for Performance

1. Refer to the owner's manual for operations and specifications information specific to engine/roller model.
2. Ensure gasoline is fresh prior to starting the engine. Use a fuel stabilizer in fuel during testing to help ensure proper operation of engine at post storage start up.
3. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
4. Engine should start easily, run smoothly, be free from leaks (oil/fuel), and provide sufficient power to the hose rolling wheels.
5. Ensure engine operational controls are functioning properly; stop switch, throttle and choke.
6. Rolling wheels/pins should turn without v-belt slippage when foot pedals are depressed and should be easily stopped when foot pedals are released.
7. Test roller under a load by means of rolling lengths of hose.
8. Should any function fail a test, refer to the manufacturer's repair manual and troubleshooting guide to correct the problem.
9. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of fuel.

D. Repackaging

1. Use nylon "zip-tie" to tie off (seal) starter rope to the frame.
2. Attach certification tag that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

4. Attach a current “Hose Rolling” Job Hazard Analysis (JHA) to the frame.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

Reference

NFES Cache Memo No. 09-01

http://www.nifc.gov/nicc/logistics/cachememo/CM_09-1_Hose_Rollers.pdf

INCREASER

INCREASERS

NFES #000204, #000416, #000854, #002235

Initial Inspection/Disposal Criteria

1. Inspect for cracks, dents, bad threads, or obvious damage. Inspect for missing gasket and if gasket has cracking or stiffness.
2. Return to stock if item is clean, passes inspection and does not show indication of use.
3. Refurbish item if thread damage is repairable and if gasket can be replaced.
4. Dispose of item if cracked, dented or damaged beyond repair.

Refurbishing Procedures

A. Cleaning

1. Clean in parts washer, high pressure wash, or clean in a sink with mild detergent using a brush or scouring pad.
2. Rinse thoroughly.
3. Stand upright to drain and dry.

B. Repair

1. Replace gasket if stiff, cracked, or missing.
2. Inspect threads for damage. Use triangular file to “chase” threads.

C. Testing for performance

1. Check threads function by using appropriate female fitting.

D. Repackaging

1. NFES #000416, package 10 each in NFES 008076 (8” x 4” x 4”) or 60 each in NFES #008064 (10” x 8” x 6”) and label accordingly.
2. NFES #000204, #000854, #002235 package 10 each or 60 each in carton (cache option) and label accordingly.

Storage and Shelf Life Checks - none

JEAN, BDU, KEVLAR/NOMEX

JEAN, BDU, KEVLAR/NOMEX

all sizes

Initial Inspection/Disposal Criteria

1. Inspect for holes, cuts, tears, burns, or torn seams. Inspect for color change (green to orange/pink) caused by exposure to heat. Dye sublimation is the result of heat baking the dye out of the fabric. Areas of fabric with dye sublimation do not affect the performance of the jeans. Charring (hard brittle fabric that will then form a hole) in association with sublimation will decrease the performance of the fabric and the item should be disposed of. Inspect hook and pile fastener that are missing or that do not provide adequate closure. Inspect belt loops to ensure that none are missing or broken. Check for broken zippers or missing sliders. Open and close zipper to ensure smooth operations and secure closure.
2. Return to stock if item is clean and all components are in good working condition.
3. Refurbish if repair holes, cuts, tears, burns, torn seams and broken zippers are easily repairable and economically feasible. Refurbish damage to pant leg cut off is a minimum of 30" inseam.
4. Dispose of jeans if unrepairable damage is found in the inspection process.
5. Exposure to poison ivy/oak/sumac is NOT disposal criteria. However, extra care should be taken when handling contaminated clothing. *See below for direction on processing clothing exposed to poison ivy/oak/sumac.*
6. Lost or damaged cuff closure cord and side take-up tape should not be disposal criteria. It is not recommended to replace any lost or damaged cuff closure cords and side take-up tape.

Refurbishing Procedures

A. Cleaning - **DO NOT USE BLEACH TO CLEAN FABRIC.**

1. Follow the cleaning procedures described in the publication, Nomex®- Aramid Fiber -Laundering Guide (H-71603), http://www2.dupont.com/Personal_Protection/en_US/assets/downloads/nomex/h71603launderingguidefornomexaramidfiber.pdf
Additional information can be obtained by calling DuPont at 1-800-453-8527 or by writing:
DuPont
Advanced Fibers Systems
Chestnut Run Plaza
Laurel Run Building
Wilmington, DE 19880-0705
2. Abbreviated washing procedures from above publication:
 - a. "Garments of NOMEX® should be washed separately from other articles to avoid contamination with lint of flammable fibers."
 - b. "Tests show that formulations designed for use at a temperature of 140 °F (60 °C) or less – such as high-surfactant, low-alkalinity products - adequately clean NOMEX® and provide the best fabric color retention."
 - c. "For heavily stained and oily garments of NOMEX®, a higher temperature wash formula may be required for adequate cleaning."
 - d. "Garments made of NOMEX® must be adequately rinsed to remove residual wash chemicals."
 - e. "In some instances, tumble dry conditioning is the only finishing necessary for garments of NOMEX®."
 - f. "...dry cleaning is an alternative method of removing heavy soil and may be preferable to repeated high-temperature washing."
3. If items are taken to vendor laundry facilities for refurbishment; ensure that they receive a copy of this refurbishment standard. The laundry facility must satisfy both--the requirements as set by the manufacturer specification and the agreement made with the local agency.

Nomex Clothing Exposed to Poison Oak/Ivy/Sumac

RESEARCH

At the request of the National Support Cache Refurbishing Standards Committee, MTDC researched the practicality of laundering Nomex firefighting clothing that has been contaminated with urushiol oil (the allergen to which the body reacts) from poison oak/ivy/sumac exposure. Current cache practices range from normal washing procedures to disposal of shirts and pants that have known urushiol contamination.

A search of on-line sources didn't produce any special care instructions beyond normal laundering. Some examples:

- “All clothing should be laundered, and everything else that may be contaminated with urushiol should be washed thoroughly.” American Academy of Dermatology,

<https://www.aad.org/public/diseases/itchy-skin/poison-ivy-oak-and-sumac>

- “...be sure to wash your clothing promptly with detergent...” Mayo

Clinic, <http://www.mayoclinic.com/health/poison-ivy/DS00774/DSECTION=prevention>

- “Washing clothes with ordinary laundry soap will remove urushiol.” Missouri Department of Conservation,

<http://mdc.mo.gov/conmag/2005/03/50.htm>

A phone conversation with Daniel Boelman, RN, BSN, Customer Service Manager with Zanfel Laboratories, Inc. also indicated no special treatment beyond normal laundering. (Zanfel produces a commercially available poison oak/ivy cream). Mr. Boelman recommended using vinyl gloves when handling contaminated clothing.

On 11/17/2008 the Forest Service filed a SAFENET Supplemental Corrective Action concerning poison oak reactions experienced by firefighters during the 2008 fire season in California.

<http://safenet.nifc.gov/safenet.nsf/3e5de74de3df7e0087256c00000dbf79/BB5CAA2EF216986687257505000C39B1?OpenDocument>

In that posting, it is recommended that “All clothing and equipment should be laundered immediately ...A degreaser was recommended for helping to remove urushiol from clothing and equipment.”

RECOMMENDATION

MTDC recommends that fire clothing contaminated with urushiol oil be cleaned following normal Nomex laundering procedures. Extra care should be exercised when handling the contaminated clothing. Clearly labeled plastic bags should be used to separate contaminated clothing from other returned clothing. Commercial laundry personnel should wear long sleeves and vinyl gloves when handling contaminated clothing and dispose of any bags used for transporting the clothes to the laundering facility. As an extra precaution, supply cache and laundry workers could apply an over-the-counter skin-barrier product that contains bentoquatam (such as Ivy Block or Stokoguard) before handling contaminated clothing. Bentoquatam helps prevent urushiol from penetrating the skin. After exposure, workers' clothes should be washed and gloves disposed of.

B. Repairs

1. Repair holes, cuts, tears, burns, and torn seams by darning, patching, or by duplicating the original construction.
2. Use Nomex® (Aramid) and/or Kevlar/Nomex patching material for all repairs.
3. Hemmed pant legs that change the inseam length shall indicate the new inseam length on the white sizing label on the inside of waist band.
4. Re-stitch frayed buttonholes using a buttonhole or zigzag stitch that has 50 to 60 stitches per buttonhole.
5. Replace damaged hook and pile fastener tape with tape of the same length, width, and quality as the original.
6. Replace damaged zipper with the same type, length, and quality as the original.
7. Replace damaged belt loops with loops of the same material and construction as the original.

**Continued –
JEAN, BDU, KEVLAR/NOMEX**

all sizes

8. Replace side take-up tape using Nomex® (Aramid) tape with a metal double-bar buckle.
The replacement tape should be 5/8" wide Aramid tape, style #2007, color black. Order from:
Offray Specialty Narrow Fabrics, Inc. Ph: 908-879-3636
4 Essex Avenue, Suite 403, Bernardsville, NJ 07924 sales@osnf.com
The replacement buckle should be Albest Metal Stamping Corp. part # BB340-10BD, 5/8" black or
ITW Waterbury Part #00482-09-21883. Order from:
Albest Metal Stamping Corp. Ph: 718-388-6000
One Kent Ave, Brooklyn, NY 11211-1014 info@albest.com
Or
ITW Waterbury Ph: 203-753-1161
952 South Main Street, Waterbury, CT 06706

The first lot of pants manufactured in 2000 have thin light green side take-up tapes; later contracts have heavier black side take up-tapes. It is recommended that the loose end of the light green take-up tapes be replaced by the recommended Nomex® tape. It is not necessary to replace the tape that is holding the metal buckle.

C. Test for performance

1. Inspect items after laundering to ensure all foreign matter and stains have been removed. If item fails second inspection, spot treat problem areas or remove item from service.
2. Open and close the hook and pile fasteners to ensure that they provide adequate and secure closure.
3. Open and close zipper to ensure smooth operation and a secure closure.

D. Repackaging

1. Close fly and all pocket flaps, properly thread side take-up tape, untie cuff cord.
2. With inseams meeting, fold pants from the leg bottom up toward the waist band to an overall length of about 23".
3. Pack 30 pairs of the same size pants in carton NFES #002007 (24" x 16" x 16").

Storage and Shelf Life Checks - none

References - Recycling

Leigh Fibers Inc.
Nelson Smith
1101 Syphirt Rd
Wellford, SC 29385
Ph: 864-439-4111
Make contact with vendor to establish requirements and feasibility.

KIT, COFFEE HEATING

KIT, coffee heating

NFES #000480

Initial Inspection Disposal Criteria

1. Visually inspect kit components. Kit component list is found in the NWCG National Fire Equipment System Catalog.
2. Inspect for missing or damaged O-rings on faucet.
3. Inspect for damage or cracking to hose line. Ensure that threaded pipe fittings inside the burner have been welded completely around. If not, have work done by a certified welder.
4. Return to stock if kit is complete, has not been used or damaged, and is clean.
5. Refurbish if initial inspection indicates kit was used or if components are missing or damaged.
6. Dispose of bad hose lines, badly bent stove, urn, lid, and broken faucets.

Refurbishing Procedures

A. Cleaning

1. Clean heater components. Repaint if necessary with high-temperature paint.
2. Clean with soap and water and disinfect urn, basket, bucket, lid, and faucets.

B. Repair

1. All welding should be completed by a certified welder.
2. Replace hose lines as necessary.
3. Replace damaged or missing O-rings as necessary.

C. Testing for Performance

1. Have a fire extinguisher in working area prior to testing burner performance.
2. Connect stove and all fittings to propane source.
3. Turn on tank with burner valve in "OFF" position.
4. Check all fittings and connections for gas leaks using mild soap and water solution. NEVER INSPECT FOR LEAKS USING A MATCH OR ANY OTHER TYPE OF FLAME. Should a gas leak occur, shut off the gas supply to the burner immediately and wait a minimum of five minutes before repairing the leak.
5. Once fuel line assembly is free of leaks, light burner and make sure it is operable.
6. Reference the refurbishment standards for the inspection, testing and cleaning of propane tanks.
7. Concerns and questions regarding propane fittings, regulators, and propane tanks should be directed to an authorized liquid propane gas service representative.

D. Repackaging

1. Package one kit in NFES #000500 carton (22" x 22" x 36").

Storage and Shelf Life - none

Reference

OPD Valves <http://www.p2pays.org/ref/14/13043.pdf>

KIT, FIRST AID

KIT, First Aid, 10-person, belt
KIT, First Aid, type III, 24-person

NFES #001143
NFES #001604

Initial Inspection/Disposal Criteria

1. Inspect case and/or bag for excessive wear and cleanliness. Inspect belt and buckles for serviceability.
2. Open case and/or bag and inspect contents.
 - a. Standard updated packing slip should be utilized while inventorying contents.
 - b. Inspect contents and inspect expiration dates. Dispose of expired items.
 - c. Inspect any items that require sanitary packaging for tears or other damage: dispose of if torn or damaged.
3. Return to stock if item contents aren't expired, kit seals are intact and item is clean and in unused condition.
4. Refurbish if item seals are missing or broken, components were used, or if kit contains expired item.
5. Dispose of damaged or expired components. Dispose of entire kit if it is not economically feasible to refurbish.

Refurbishing Procedures

A. Cleaning - CLASS 2 CORDURA (MACHINE WASH OK)

1. Clean bag as necessary.
Allow any mud or loose dirt to dry, and remove using a stiff-bristle brush. If stains remain, wash as recommended below.
2. Remove light oil and dirt stains by brushing with a solution of warm water and a mild detergent, rinse thoroughly, and hang to dry. "Mild detergents" includes most home laundry detergents that contain no chlorine bleach or added scents.
3. For heavier oil or grease, soak in water-soluble biodegradable degreaser for at least 30 minutes, brush with a bristle brush, rinse thoroughly, and hang to dry.
4. If machine washing, use only cold water on a gentle cycle and air dry.
5. Where no other method is cleaning the fabric, wash with pressure washer set at wide fan, warm water, and only allow nozzle close enough as necessary for cleaning, the further away the better for the fabric.

DO NOT MACHINE DRY. DO NOT USE BLEACH.

B. Repair

1. Repair, or replace case and/or bag as needed.
2. Replace damaged or expired items.

C. Testing for Performance--none

D. Repackaging

1. Utilizing packing slip, replace items in elastic retainers or inside case.
2. Hook belt buckles together and fold against back of bag on belt kit.
3. Enclose in a clear plastic bag with kit label and expiration dates visible and then heat seal bag.
4. Package 10 each NFES #001143 in NFES #002007 carton (24" x 16" x 16").
5. Package 10 each NFES #001604 in NFES# 002030 carton (24" x 16" x 12").

Storage and Shelf Life Checks

1. Inspect expiration dates of contents annually. Replace components as necessary.
2. Store in climate controlled environment.

KIT, SHELTER

KIT, shelter, 15' X 27'

NFES #000430

KIT, shelter, 16' octagon

NFES #000550

KIT, shelter, 18' octagon

NFES #000540

KIT, shelter, 20' octagon

NFES #000549

Initial Inspection/Disposal Criteria

1. Inspect packing list and instructions. Refer to *NWCG National Fire Equipment System Catalog* for a complete list of kit components.
 - a. Assemble the mainframe and components according to instructions. All locking pins and flex joints should move easily.
 - b. Inspect for burrs on all components of mainframe, eve bars, and base bars.
 - c. Loosen flex joints and remove burrs as needed.
2. Inspect and install door. Door should open and close easily.
3. Inspect roof and wall panels for any tears or rips and repair as needed.
4. Inspect windows and screens in wall panels. Repair or replace where necessary.
5. Check for broken welds on key flange, repair by bolting.
6. Return to stock if shelter was not used, all kit contents are accounted for, and the shelter is clean.
7. Refurbish kit if the shelter was used or is missing components.
8. Disposal of complete kits is not recommended. Seek direction from local cache management for specific disposal criteria. Components that are damaged beyond repair should be disposed of and replaced with like items.

Refurbishing Procedures

A. Cleaning

1. Clean main frame and misc. parts with a damp cloth and mild detergent if necessary.
2. Clean the roof and wall panels with a mild detergent and water solution. Use a brush to remove hard dirt and grime or high pressure wash. Rinse well.
3. Air dry completely before repackaging.

B. Repair

1. Repair or replace any part of the main frame as needed. Bolt key flange.
2. When dismantling, wipe all component parts with a damp cloth and return to proper container.
3. Repair any holes, tears or rips as needed.
4. Ensure that all locking buttons snap into place.
5. Ensure that the Velcro is dry on all panels before folding and placing in proper container.
6. Stencil main frame with property number, stencil inside the center roof ring.
7. Ensure that all kit components are accounted for prior to repacking.

C. Testing for Performance -- none

D. Repackaging

1. Repack according to manufacturer's instructions and local cache option.
2. Ensure that installation/assembly instructions are included in package.

Storage and Shelf Life Checks - none

Reference

Replacement parts may be obtained by contacting:
Western Shelter Systems
830 Wilson Street
Eugene, OR 97402

Phone: 541-344-7267
<http://www.westernshelter.com>

LADDER

LADDER, step, 8' fiberglass

NFES #000586

Initial Inspection/Disposal Criteria

1. Ladders should not have any damage including cracks, chips and splinters, deformed rails or rungs from heat, chemical or environmental exposure, or any bends and breaks, lack of structural integrity, missing components or loose parts.
2. The steps or rungs must be tight and secure to the side rails.
3. All hardware and fittings need to be properly and securely attached.
4. Movable parts must be tested to see that they operate without binding or without too much free play.
5. All labels should be intact and readable.
6. Ladders shall be free of oil, grease, or slippery materials.
7. All accessories such as leg levelers, paint shelves, stand-off shelves, etc. are in good condition.
8. The ladder feet must have slip resistant materials.
9. Return to stock if ladder passes visual inspection and no refurbishment is needed.
10. Refurbish if damage detected is repairable and cost effective.
11. Dispose of any ladder that has any material defect or damage that cannot be repaired, excessive paint exists. Dispose of any wooden or metal ladders.

Refurbishing Procedures

A. Cleaning

1. Remove all oil, grease.
2. Clean with soap and water or power wash.
3. Air dry.

B. Repair

1. Replace any damaged or missing components with manufacturer's specific parts and meeting the ladder's original design criteria.

C. Testing for performance

1. Visual inspection of all ladder steps, ladder legs, and ladder cross supports.
2. Set up ladder and check for stability.

D. Repackaging

1. Local cache option

Storage and Shelf Life Checks

If stored upright, it must be securely strapped to prevent falling.

LANTERN

LANTERN, Camp, electric, fluorescent

NFES #002501

Initial Inspection/Disposal Criteria

1. Inspect for broken lens, cracked cases, missing bulbs, broken switches, or leaked battery acid in battery compartment.
2. Return to stock if item is in clean, serviceable condition with fully functioning components.
3. Refurbish if item is easily and economically cleaned and repaired to like new condition.
4. Dispose of item if item is damaged beyond repair.

Refurbishing Procedures

A. Cleaning

1. Use a soft cloth to clean lens and battery compartment as necessary.

B. Repair

1. Remove batteries from battery compartment.
2. Replace bulbs if necessary: USE APPROPRIATE REPLACEMENT BULBS
 - F6T5/CW (6 watt)
 - F9W (9 watt)
 - HS/S15W/6500K (15 watt)

C. Testing for performance

1. Install batteries to test operation of switch and bulbs.
2. Remove batteries prior to storage.

D. Repackaging

1. Local cache option. Recommended 4 each in NFES #8017 carton (18" x 12" x 10").

Storage and Shelf Life Checks - none

LEADLINE

LEADLINE, helicopter, external loads, 6,000 lbs.
LEADLINE, helicopter, external loads, 3,000 lbs.

NFES #000380
NFES #000528

Initial Inspection/Disposal Criteria

1. Inspect eye and swage for red paint and slippage:
 - a. Inspect swage and wire rope eyes for slippage. If slippage has occurred, see Figures 1 and 2, dispose of the leadline.
 - b. Visually inspect each swage and eye for red paint, if the paint shows that slippage has not occurred, but the paint is worn in such a way that this determination was difficult, the swage shall be repainted. If paint is not present, send to certified rigging specialist for evaluation.

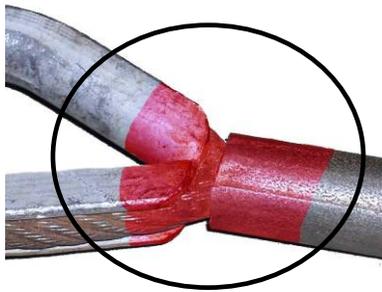


Figure 1. Painted swage

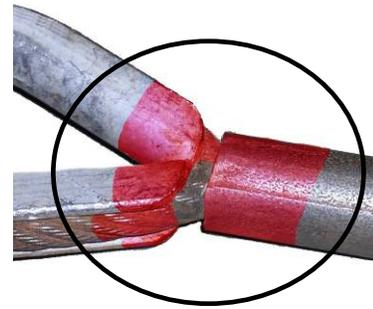


Figure 2. Paint showing slippage

2. Inspect for wire rope damage. If any damage is found then dispose of the wire rope.
 - a. Visually inspect length of wire rope for structural damage
 - Kinks in wire rope, see Figure 3.
 - Ballooning of wire rope, see Figure 4.
 - Cut or damaged plastic coating of cable (NFES #000528 only), see Figure 5.
 - Severe Corrosion
 - Abrasion, wear over 1/3 the outer wire diameter, see Figure 6.
 - Reduction in diameter of wire rope.

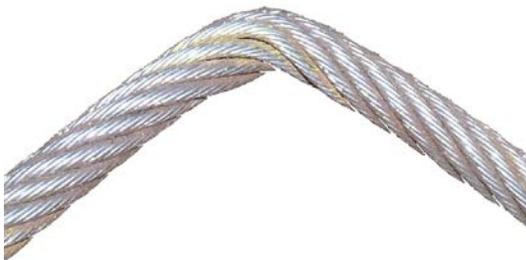


Figure 3. Kink



Figure 4. Ballooning



Figure 5. Damaged plastic coated wire rope.



Figure 6. Abrasion

- b. 6000 pound leadline (NFES #000380)--inspect length of wire rope for damage.
 - Wear heavy protective gloves. Never use an ungloved hand to check the length of the cable.
 - Run a dry rag over the entire length of the wire rope.
 - Flex wire rope to expose breaks. Snags indicate broken wires in the wire rope. If individual broken wires are found, they may be trimmed back. If 4 or more broken wires are found grouped together, then dispose of wire rope.
 - c. 3000 pound leadline (NFES #000528)--inspect plastic coated wire rope for damage. Abrasion to plastic coating down to the wire rope may cause corrosion.
 - Run gloved hand over length of plastic coated wire rope to check for any abnormalities such as lumps, depressions, and exposed wire. If plastic coated wire rope has severe damage or corrosion, dispose of properly. See Figure 5.
3. Measure wire rope diameter and length-
- a. Check wire rope length.
 - Length is measured from center of each thimble. If wire rope length exceeds tolerance, dispose of properly. Note: A hook replacement process was performed where old style spring gate hooks were replaced with self-closing gate hooks, see *References*. In this retrofit process the leadline length was shortened. The minimum length of the leadline was set at 10 ft. 2 inches. Further as part of the retrofit, the ID tag was to include “Retrofit Leadline.” Therefore short 3,000 lb. rated leadlines are only acceptable if they include the Retrofit Leadline designation on their ID tags, others are to be removed from service.

Table 1. Wire Rope Length

Length	Tolerance per FSS 5100-503/505
12 feet	+/-3 inches
25 feet	+/-3 inches
50 feet	+/-3 inches

- b. Measure wire rope diameter at 3 points--12 inches from each end and at middle. Dispose of wire rope that exceeds tolerance.

Table 2. Wire Rope Diameter

Size	Dimension
3000 lbs.	5/16 inch to 5/8 inch
6000 lbs.	1/2 inch to 9/16 inch

4. Check for identification.
 - a. Visually inspect leadline for permanently attached tag. Proof load tag shall be permanently attached with a swaged stainless steel wire rope.
 - b. Temporary attachments are not allowed, such as wire ties.
 - c. Tag shall contain at a minimum the following information: Manufacture Name, Test Company or Trademark; Working Load Limit; and Date of Proof Test (i.e., 06/06 for June, 2006). Note: Older leadlines will have Safe Working Load vice Working Load Limit, both terms are currently acceptable.
 - d. If permanently attached proof load tag is not present, missing required information, not made of metal or secured with a non-permanent attachment device (e.g. Ty-Rap zip ties), remove the leadline from service.
5. Inspect thimble for cracks, wear, and deformation.
 - a. Physically examine each thimble for movement by forceful motion with hand.
 - b. Thimble may move but should not be loose within the eyelet.
 - c. Thimble shall have a smooth arc (see Figure 7.) If thimbles have any cracks, wear, deformation or are loose (see Figure 8.), dispose of leadline.



Figure 7. Thimble, Pear Link and Proof Load Tag



Figure 8. Deformed Thimble and Hook

6. Inspect hook for damage, wear, and deformation.
 - a. Check hook for damage such as cracks, nicks, wear, gouges, and deformation, see Figures 9 and 10.
 - b. Ensure that hook is not bent or distorted and complies with hook dimensions, see Table 3 and Figure 9.
 - c. Ensure hook has a safety latch or has been retrofit with self-locking safety gate that operates correctly.
 - Ensure safety gate opens and closes completely.
 - Examine gate for damage or distortion.
 - Examine gate lock for rounded edge, see Figure 10.
 - Ensure lock latch pin is secure and flush with latch, see Figure 10.
 - a. Check hook dimensions, see Table 3 and Figure 9.

Continued –
LEADLINE, helicopter, external loads, 6,000 lbs.
LEADLINE, helicopter, external loads, 3,000 lbs.

NFES #000380
NFES #000528

- b. If hook is damaged, missing hardware, is distorted, or does not meet dimension requirements, remove leadline from service.

Table 3. Hook Dimensions

Leadline Capacity	Style	H (max)	J (min)
3000 lb	Self-locking hook	1.0 inch	1.33 inches
6000 lb	Self-locking hook	1.33 inches	1.7 inches

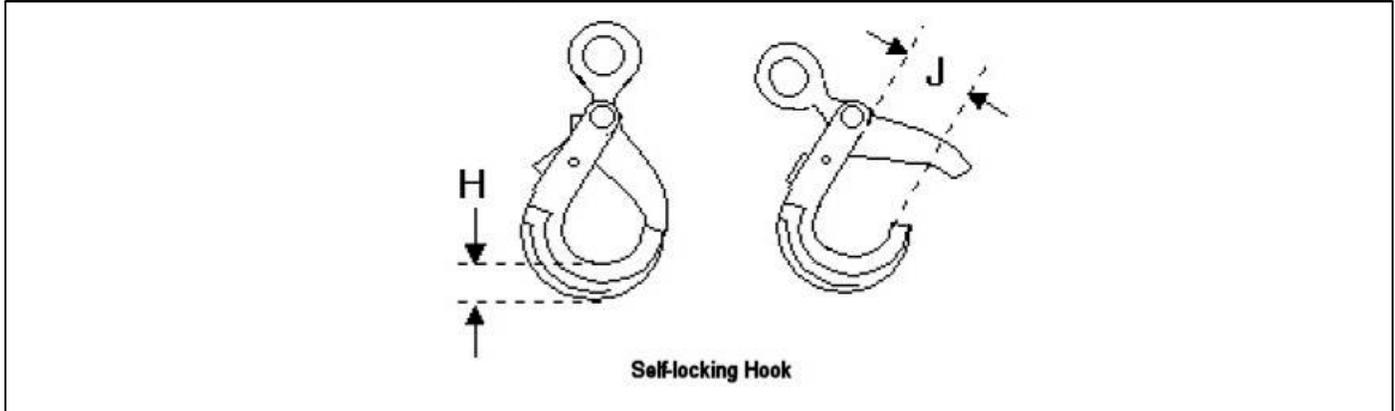


Figure 9. Dimension for Hooks

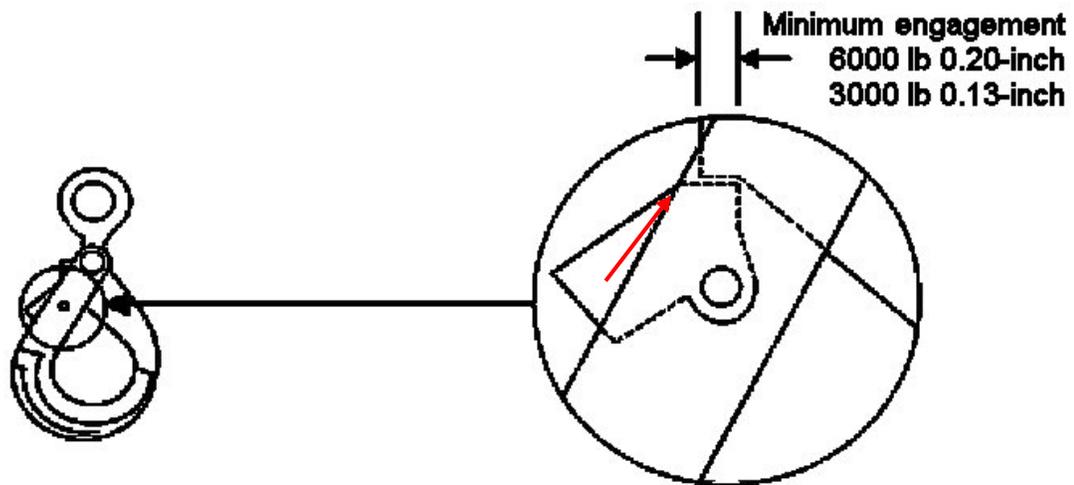


Figure 10. Examine Gate Lock Latch for rounding.

7. Inspect Ring or Link
 - a. Check for damage such as cracks, nicks, wear, and gouges.
 - b. Check dimensions for deformations, see Table 4 and Figure 11.
 - c. If ring or link is damaged, remove from service.

Table 4. Leadline Ring and Pear Link Dimensions

	A	B	C

3000 lb. Leadline	$\frac{5}{8}$ inch max	1.5 – 3 inch	3 – 4 inch
6000 lb. Leadline	0.63 inch max	1.5 – 3 inch	3 – 4.5 inch

LEADLINE, helicopter, external loads, 6,000 lbs.
LEADLINE, helicopter, external loads, 3,000 lbs.

NFES #000380
NFES #000528

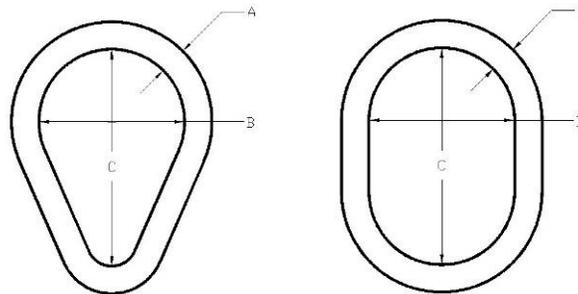


Figure 11. Dimension for Pear Link and Oblong Link.

8. Return to stock if leadline is in a sealed carton, or is an open container, but is clean, in unused condition, and passes inspection.
9. Refurbish if leadline only requires cleaning or has deficiencies identified during inspection that are economically feasible to complete.
10. Dispose of leadline if it fails inspection and repairs are not practical or economically feasible.

Refurbishing Procedures

A. Cleaning

1. The cable and hook assembly may be cleaned with hot water only, no soap.

B. Repair

1. Apply slippage paint to the swage and thimble as shown in Figure 12.
 - The paint shall be a red spray epoxy or acrylic.
 - Mask or cover the area to achieve a painted area similar to Figure 12.
 - Spray around the swage and do not attempt to spray paint into the ends of swage.
2. If the *Proof Load Tag* is missing, the leadline must be sent to a rigging company to be tested per *Testing for Performance*, as long as the item passed all other inspections.
3. Upon successful test, the rigging company shall apply a *Proof Load Tag* that meets/includes the following:
 - Working Load Limit in lbs.
 - date of proof test (month and year)
 - name or trademark of the rigging company
 - text size shall be 0.12 inches in height
 - tag shall either be stainless steel or brass
 - tag shall be secured to the leadline with a metal device, e.g., 'hog ring', wire cable

Continued –
LEADLINE, helicopter, external loads, 6,000 lbs.
LEADLINE, helicopter, external loads, 3,000 lbs.

NFES #000380
NFES #000528



Figure 12. Swage Paint.

C. Testing for Performance

1. Proof tests must be performed by a certified rigging company when the tag is missing and the leadline is otherwise acceptable and it's economically feasible to retest the leadline.
2. The proof test shall apply a load to the item at twice the rated safe working load.
3. Any certified rigging company can test proof test the leadline assembly.

D. Repackaging

NFES #000528 package 5 each in NFES #008018 carton (12" x 12" x 6").

NFES #000380 suggested package of 1 each in NFES #008018 carton (12" x 12" x 6").

Storage and Shelf Life Checks - none

References

NFES Cache Memo 08-02: <http://www.nifc.gov/nicc/logistics/cachememo/CM08-2.pdf>

USFS SDTDC *3,000 Pound Leadline*

Retrofit <http://fswb.sdtc.wo.fs.fed.us/pubs/pdf/08571304.pdf>

USDA Forest Service Specifications for 6,000 Pound Leadlines, External, Helicopter:

http://www.fs.fed.us/t-d/programs/fire/documents/5100_505.pdf

USDA Forest Service Specification for 3,000-pound leadlines, External,

Helicopter: http://www.fs.fed.us/t-d/programs/fire/documents/5100_503.pdf

LITTER, S.K.E.D

LITTER, S.K.E.D.

NFES #001670

Initial Inspection/Disposal Criteria

1. Inspect for blood or other bodily fluids, alert supervisor for further instructions.
2. Visually inspect for cuts or tears in plastic surface, soiled surface, missing parts such as straps or fasteners. Inspect for structural damage such as grommets pulled out. Inspect all straps; handles (web gear) are intact and functional.
3. Return to service if item is clean and in unused condition.
4. Refurbish if item is soiled or has damaged components that are easily repaired or replaced.
5. Dispose of S.K.E.D. if there are cuts or tears to plastic materials, webbing and straps are damaged beyond repairs that is economically feasible. See local protocol for proper disposal of items that possess biological hazards.
6. Retain all serviceable components for replacement on other litters.

Refurbishing Procedures

A. Cleaning

1. Wash S.K.E.D. with a disinfectant and warm water.
2. Wash with power washer and hang to dry.

B. Repair

1. Replace worn or damaged straps or fasteners.
2. Replace missing or damaged grommets.

E. Testing for Performance

1. Reassemble to ensure completeness and all parts are fitting properly.

D. Repackaging

1. Roll up S.K.E.D. (using rubber gloves for better grip) small enough to fit into case.
2. Fasten retaining strap tightly so S.K.E.D. can be easily extracted.

Storage and Shelf Life Checks - none

Reference

For information and parts lists see:
SKEDCO, Inc.
PO Box 230487
Portland, OR. 97281

Phone: 800-770-7533
Web site: <http://www.skedco.com>

MCLEOD

McLeod, 11" wide with plastic sheath

NFES #000296

Initial Inspection/Disposal Criteria

1. Inspect for obvious damage to cutting edge, rake fingers, and handle. Inspect for broken blades, loose heads, missing or severely bent fingers, short or nonstandard handles. Head
 - Blade to be at least 10 to 14 inches wide from handle base. USE TEMPLATE
 - Handle base not tilted, bent, or distorted.
 - Blade ends have not been rounded or severely tapered so that they cannot be ground to specifications.
 - Proper angle of cutting edge as per tool sharpening gauge NFES #000510.
- b. Handle
 - Handle must be straight.
 - Inspect for cracks, chips, or open grain.
 - Head loose on handle (loose or missing rivets).
 - Inspect for tape residue, or other residue (tar, sap, etc.).
2. Return to stock if item does not show signs of use and passes visual inspection.
3. Refurbish if damage is detected in the inspection process and is repairable or handle is replaceable
4. Dispose of item if cutting edge is severely damaged, rake fingers are cracked or missing, or handle base is cracked or damaged.

Refurbishing Procedures

A. Cleaning and Repair

1. Head
 - a. Remove dirt, rust and grime from head with wire brush or hose.
 - b. Square up blade if necessary.
 - c. Sharpen cutting edge 1/8-inch wide at 50° angle. Ensure that blade corners are square.
 - d. Check large nut on head and tighten or replace as needed. Sharply strike rivet to tighten head to handle as needed.
2. Handle
 - a. Sand handle if it is chipped, dinged, rough, or has any type of residue.
 - b. Replace as necessary.

B. Test for Performance

1. Ensure tool is properly sharpened with no deficiency to materials or craftsmanship.
2. Ensure head and handle are properly attached with no play caused by a loose head or handle.

C. Repackaging

1. Install plastic sheath NFES #001854.
2. Package 10 each in NFES #000305 carton (56" x 20" x 11").

Storage and Shelf Life Checks - none

NET

NET, cargo, 12' X 12', polypropylene, 3000 lbs. capacity

NFES #000531

NET, cargo, 15' X 15', 6000 lbs. capacity

NFES #000458

NET, cargo, lightweight, 10' X 10', 300 lbs. capacity

NFES #000795

Initial Inspection/Disposal Criteria

1. Inspect for fraying or deterioration of lines. Ultra violet exposure is the most important factor in the degradation of the strength of the cargo nets constructed from polypropylene rope, not use or age. There is no visual or other field inspection technique that will guarantee that a cargo net is free from degradation due to ultraviolet exposure. However, if the net is free of brittleness, has no more than 10 percent broken strands in any two adjacent cycles, and there is no chalking or other visible damage, then the net is probably safe for further use.
 - Inspect for more than 10 percent of strands in any two adjacent cycles of the net being broken.
 - Inspect for brittleness by bending several areas of the nets rope 180° back on itself. If more than 2 strands break per bend, dispose of net or return to manufacturer for repair.
 - Inspect for chalking by running a lightly grasped hand over several of the ropes in the net. If small, white, chalk-like fragments of the rope come off in your hand then chalking has occurred. If chalking is present, it is likely that the net has received enough ultraviolet exposure to cause embrittlement and the net must be further inspected for broken strands.
2. Inspect all ropes for fraying, burns, or wear points.
3. Inspect netting for contamination by fuel oils or other liquids considered degenerative to netting.
4. Verify an identification tag is attached to every net. If a tag is not attached, attach one but only if the chain of custody can be verified. There are many companies that make similar looking nets that are not of the same capacity. If the chain of custody cannot be verified, the net must be taken to a net manufacturer and proof tested to twice its Work Load (e.g. tested to 6,000 lbs. for a 3,000 lb. net. (Note: It has been found that the cost to perform this test for a net missing its tag is about $\frac{3}{4}$ the cost of new net. The custodian of the net should consider the economics before sending the net out for proof testing.)
 - Replacement tag info should include NFES #, Working Load Limit (WLL) in pounds, i.e., 3,000 lbs. /6,000 lbs., cache identifier and date.
 - Inspect loop thimbles for cracks, wear, and deformation. Ensure thimbles are not loose from net and easily removed.
 - On some heavy cargo nets (NFES #000458), the mesh intersections are fixed with molded plastic crosses. These should be visually inspected for cracks and missing parts. Remove from service if broken or missing components are identified.
 - Any NFES #000795 net that is constructed of black mesh must be taken out of service.
 - Return to stock if items pass inspection, are clean, and in unused condition.
 - Refurbish if deemed necessary through inspection and repairs economically feasible.
 - Dispose of item if refurbishment or repair will not correct deficiencies identified during the inspection process.

Refurbishing Procedures

A. Cleaning

1. Clean all dirt from netting.
2. Remove all flagging, string, and rope.
3. Hang or stack polypropylene nets and clean with water from high-pressure hose.
4. Dry completely before packaging.

B. Repairs – Any repairs should be completed by net manufacturers.

C. Testing for Performance – none

D. Repackaging

Suggested cartons are:

NET, cargo, 12' X 12', polypropylene, 3000 lbs. capacity

NFES #000531

NET, cargo, 15' X 15', 6000 lbs. capacity

NFES #000458

NET, cargo, lightweight, 10' X 10', 300 lbs. capacity

NFES #000795

- NFES #000531, package 1 each in NFES #002006 carton (23" X 19" X 10").
- NFES #000458, package 1 each in NFES #002007 carton (24" X 16" X 16").
- NFES #000795, package 1 each in NFES #008064 carton (10" X 8" X 6").

Storage and Shelf Life Checks - none

Reference

IHOG: <http://www.nwccg.gov/sites/default/files/products/pms510.pdf>

Cache Memo 03-4: http://www.nifc.gov/nicc/logistics/cachememo/cm_cargonet.pdf

NOZZLE, BARREL & PLASTIC

NOZZLE, combination, barrel, KK 1" & 1½"
NOZZLE, plastic, 35 GPM, 1" & 60 GPM, 1½"

NFES #001081, #001082
NFES #000137, #000138

Initial Inspection/Disposal Criteria

1. Inspect for burrs and cracks, broken plastic, or fire damage. Inspect gasket and replace if missing, cracked, or stiff. Inspect for screw and nylon washer. Inspect hose coupling threads for damage.
2. Barrel must turn freely.
3. Return to stock if nozzle functions properly, is free of damage and clean.
4. Refurbish if nozzle is repairable.
5. Dispose of any nozzle that is damaged beyond repair, has burn damage, or fails *Testing for Performance* and deficiencies cannot be corrected. Old style KK: Inspect threads inside of barrel; if they show—dispose of.

Refurbishing Procedures

A. Testing for Performance

1. Pressure testing: Attach to high pressure pump and turn on pump to 300 PSI.
2. Inspect for leaks:
 - Around the gasket
 - Behind the barrel
 - The tip of the barrel

B. Cleaning

1. All items will be washed and cleaned of foreign matter, such as mud, dirt, and grease. Clean in a mild detergent with brush and scouring pad, or high pressure wash as needed. Do not soak for extended periods of time as the detergent will corrode the metal.
2. Rinse thoroughly.
3. Stand upright with barrel in open position to drain water and dry.
4. Lubricate threads on back of the barrel with appropriate dry lubricant (graphite).

C. Repair

1. Replace gaskets, washers or screws as needed.
2. If plastic nozzle is found defective, dispose (NFES #000137, #000138).
3. Replace tip, screw, and O-ring, if needed (NFES #001081, #001082).

D. Retesting

1. Following completion of any repairs, retesting of nozzles must be completed following *Testing for Performance*, above.

E. Repackaging

1. Stand upright and dry completely prior to repackaging.
 - Use NFES #008064 carton (10" x 8" x 6") for each of the following:
 - NFES #001081 STANDARD PACK 20 per carton
 - NFES #000137 STANDARD PACK 10 per carton
 - NFES #000138 STANDARD PACK 10 per carton
 - Use NFES #008018 carton (12" x 12" x 6")
 - NFES #001082 STANDARD PACK 20 per carton
 - Use NFES #008017 carton (18" x 12" x 10") for each of the following:
 - NFES #001081 STANDARD PACK 60 per carton
 - NFES #000137 STANDARD PACK 60 per carton
 - NFES #000138 STANDARD PACK 60 per carton

Storage and Shelf Life Checks - none

NOZZLE, FOAM

NOZZLE, plastic, fire foam, 8 GPM, 16 GPM, 30 GPM

NFES #000627, #000628, #000629

Initial Inspection Disposal Criteria

1. Inspect for worn or damaged threads. Inspect for missing, cracked, or damaged gasket.
2. Ensure nozzle barrel has no cracks in plastic, or fire damage.
3. Return to stock if item shows no sign of damage, and is clean.
4. Refurbish if item can be cleaned and repaired.
5. Dispose of item if damaged beyond repair.

Refurbishing Procedures

A. Cleaning

1. Wash and clean of foreign matter, such as mud, dirt, and grease.
2. Clean with scrub brush in water with dishwashing detergent or high pressure wash.
3. Rinse thoroughly.
4. Stand upright and air dry.

B. Repair

1. Replace gasket if necessary.

C. Testing for Performance - none

D. Repackaging - Local cache option.

Storage and Shelf Life Checks - none

NOZZLE, GARDEN HOSE

NOZZLE, garden hose ¾”

NFES #000136

Initial Inspection/Disposal Criteria

1. Inspect for burrs and damaged threads. Inspect for missing, cracked, or damaged gasket.
2. Barrel should turn freely
3. Return to stock if item passes inspection, is clean and has not been used.
4. Refurbish if item passes inspection and repairs are economically feasible.
5. Dispose of item if burrs or damaged threads are found, if barrel does not turn freely, and if nozzle fails *Testing for Performance*.

Refurbishing Procedures

A. Testing for Performance

1. Pressure testing: Attach to high pressure pump and turn on pump to 100 PSI.
2. Inspect for leaks:
 - Around the gasket.
 - Behind the barrel.
 - The tip of the barrel.

B. Cleaning Procedures

1. Wash and clean of mud, dirt, and grease.
2. Clean in a mild detergent with brush or scouring pad or high-pressure wash.
3. Rinse thoroughly.

C. Repair

1. Replace gasket as necessary
2. Chase threads and remove small burrs with small file if damage is minimal.
3. Stand upright and dry completely prior to repackaging.

D. Retesting

1. Following completion of any repairs, retesting of nozzles must be completed following *Testing for Performance*, above.

E. Repackaging

1. Stand upright to drain water and dry.
 - Package 100 each in NFES #008064 carton (10” x 8” x 6”).
 - Package 10 each, local cache option.

Storage and Shelf Life Checks - none

NOZZLE, TWIN TIP

NOZZLE, twin tip, combination, 1" NPSH-F

NFES #000024

Initial Inspection/Disposal Criteria

1. Inspect for obvious damage, cracks, and large burrs.
2. Inspect for gasket and screen.
3. Inspect handle for damaged or missing screw. Ensure handle is in the correct position and turns freely into the proper positions.
4. Inspect for fire damage. Fire damage may cause failure in the future.
5. Inspect hose coupling threads for damage.
6. Return to stock if nozzle is clean and shows no sign of damage or use.
7. Refurbish if damage is repairable or if missing components are replaceable.
8. Dispose of item if damage is excessive, or if nozzle fails *Testing for Performance* and deficiencies are not correctable.

Refurbishing Procedures

A. Testing for Performance

2. Install nozzle on pump.
3. Open handle on nozzle.
4. Turn on water.
5. Inspect pattern on fog-tip to see if clogged. Clear obstructions if present.
6. Close handle.
7. Turn on pump to 300 PSI.
8. Inspect for leaks:
 - Gasket.
 - Under the handle.
 - At both tips.

B. Cleaning

1. Clean in a dish washing detergent with brush, scouring pad or high-pressure wash as needed. Do not soak for extended periods of time as the detergent will corrode the metal.
2. Rinse thoroughly, stand upright with handle in open position and allow to air dry.

C. Repair

1. Replace handle and ball with a new kit if needed.
2. Replace tail gasket and/or screen if missing, cracked, or stiff. Nozzle will have a 3/16" straight-stream tip (NFES #000637) and a 2-4 gal/min fog tip (NFES #000635).
3. Lubricate with appropriate dry lubricant such as graphite.

D. Retesting

1. Following completion of any repairs, retesting of nozzles must be completed following *Testing for Performance*, above.

E. Repackaging

1. Stand upright and dry completely prior to repackaging.
2. Package in units containing nozzle body with a 3/16" straight-stream tip, NFES #000637 and 2-4 gal/min fog tip, NFES #000635.
3. Package 20 each in NFES #8010 carton (16 3/8" x 13 5/8" x 7" w/ insert).

Storage and Shelf Life Checks - none

PACK & PACKSACK

PACK, fireline, blue, complete (w/canteen case and stuff sack)
PACK, personal gear
PACKSACK, waterproof, w/straps

NFES #000674
NFES #001855
NFES #000744

Initial Inspection/Disposal Criteria

1. Visually inspect fabric for cuts, tears, burns, and areas of abrasions. Inspect seams for breaks in stitching and for areas where the fabric is unraveling into the seams, check all straps and webbing for cuts or excessive wear. Ensure straps are securely attached to the fabric; inspect zippers for broken coils and missing or broken sliders. Ensure they are securely attached to the fabric. Open and close the zippers to ensure a smooth and proper function. Ensure all hardware, buckles and Velcro closures are correctly attached. Inspect all buckles and hardware for cracks or breaks. Fasten and unfasten all buckles and hardware to ensure a smooth and proper function. Ensure all Velcro closures are securely attached.
2. Return to stock if item is clean, free of damage, and in unused condition.
3. Refurbish if item passes inspection, and repair is economically feasible.
4. Dispose of if there's any indelible writing or markings on the item, or if item is beyond economical repair.

Refurbishment Procedures

A. Cleaning - CLASS 1 CORDURA (MACHINE WASH OK)

1. Allow any mud or loose dirt to dry then remove using a stiff-bristle brush. If stains remain, wash as recommended below.
2. Remove light oil and dirt stains by brushing with a solution of warm water and a mild detergent, rinse thoroughly, and hang to dry. "Mild detergents" includes most home laundry detergents that contain no chlorine bleach or added scents.
3. For heavier oil or grease, soak in water-soluble biodegradable degreaser for at least 30 minutes, brush with a bristle brush, rinse thoroughly, and hang to dry.
4. If machine washing, use only cold water on a gentle cycle and air dry.
5. Where no other method is cleaning the fabric, wash with pressure washer set at wide fan, warm water, and only allow nozzle close enough as necessary for cleaning, the further away the better for the fabric.

DO NOT MACHINE DRY. DO NOT USE BLEACH TO CLEAN FABRIC.

B. Repair

1. If necessary, replace buckles and hardware.
2. Repair any tears, holes or areas of excessive abrasion if economically feasible.
3. Repair any seams that are worn or that have torn loose.
4. Repair or replace webbing.

C. Test for performance

1. Test any buckles, zippers or Velcro that has been replaced for functionality.

D. Repackaging

1. For NFES #000674, insert 2 blue canteen case and blue stuff sack into main compartment. Close all buckles, secure the shoulder yoke. Pack 10 packs per box.
2. For NFES #001855, pack 10 packs per NFES #002030 carton (24" x 16" x 12").
3. For NFES #000744, pack 20 per local cache carton preference.

PAD, SLEEPING

PAD, Sleeping, gray, 3/8" X 23" X 75", foam

NFES #001566

Initial Inspection/Disposal Criteria

1. Visually inspect for exposure to bodily fluids, any cuts, splits, tears, holes or cracks, cleanliness or the presence of foreign matter. Inspect for uniformity in material; if it contains large voids or inclusions.
2. Return to stock if item is in clean serviceable condition with no signs of soiling, use, or damage.
3. Refurbish if item is easily cleaned and in serviceable condition.
4. Dispose of item if item has been exposed to bodily fluids, contains cut or damage, voids, inclusions, or the presence of foreign matter that cannot be removed through cleaning.

Refurbishing Procedures

A. Cleaning

1. If pad is wet, wash with a mild detergent, expose to sun or other heat source until dry.
2. If pad is dry, brush with stiff-bristle brush to eliminate dirt or other foreign matter.
3. Blow off remaining dust or fine dirt particles with high-pressure air hose or vacuum.
4. Disinfect with mild detergent and air dry.

B. Repair - none

C. Testing for performance - none

D. Repackaging

1. Repack 50 each in original carton (if serviceable) or use NFES #000134 carton (76" x 22.50" x 20.50").

Storage and Shelf Life Checks - none

POLE, RIDGE

POLE, Ridge, 16'

NFES #000089

Initial Inspection/Disposal Criteria

1. Visually inspect for use, damage, bent pole, or missing parts—dispose of damaged pieces (salvage usable parts).
2. Return item to stock if it passes inspection, is clean and shows no sign of use.
3. Dispose of item if it does not pass inspection and it is not repairable.
4. Refurbish if item has been used and/or damage is repairable.

Refurbishing Procedures

A. Cleaning Procedures

1. Remove all foreign material.
2. Clean with damp cloth
3. Use adhesive remover if there is sticky residue from tape

B. Repair

1. Replace missing or damaged parts

C. Testing for Performance -- none

D. Repackaging

1. Package in carton NFES #008004 carton (43" x 7" x 4 3/4").

Storage and Shelf Life Checks - none

POLE, UPRIGHT

POLE, Upright, adjustable

NFES# 000083

Initial Inspection/Disposal Criteria

1. Visually inspect for use, damage, bent pole, or missing parts—dispose of damaged pieces (salvage usable parts).
2. Return item to stock if it passes inspection, is clean and shows no sign of use.
3. Dispose of item if it does not pass inspection and it is not repairable.
4. Refurbish if item has been used and/or damage is repairable.

Refurbishing Procedures

A. Cleaning

1. Remove all foreign material.
2. Clean with damp cloth
3. Use adhesive remover if there is sticky residue from tape.

B. Repair

1. If top pin is bent or broken, replace with a steel pin.
2. Replace adjuster pins and cables when missing.

C. Testing for Performance

1. Extend pole to see if pole telescopes freely.

D. Repackaging

1. Package 6 each in carton NFES #008004 carton (43" x 7" x 4 3/4").

Storage and Shelf Life Checks -- none

PULASKI

PULASKI with plastic sheath

NFES #000146

Initial Inspection/Disposal Criteria

1. Head is within specifications as per gauge (NFES# 000510).
2. Grubbing end is not bent or twisted.
3. Blade or grubbing hoe ends have not been tapered or rounded to point the tool cannot be sharpened to meet gauge standards.
4. Handle is twisted, bent, or open grain.
5. Cracks, or suspect based on sound of hammer rap on end of handle (sharp ringing sound is good; dull thud sound is suspect), or pressure application to side of handle.
6. Head is loose and/or contains metal wedges.
7. Handle has been shortened.
8. Nonstandard handle.
9. Dispose of tool if there is obvious structural damage to cutting edges or head.
10. Dispose of tool if modifications have been made to head, such as rivets through side of head to hold handle.
11. Return to stock if item does not show signs of use and passes inspection
12. Refurbish if damage and/or use is detected and can be repaired.

Refurbishing Procedures

- A. Cleaning Remove dirt, rust and grime from head with wire brush or hose
 2. Let dry or wipe dry.
 3. Wipe handle with damp cloth.
- B. Repair
 1. Sharpen tool to specifications as per tool sharpening gauge NFES #000510.
 2. Tool should NEVER be ground to the degree that the metal temperature raises high enough to remove temper, i.e., blue or burned edges
 3. Ensure that blade corners are square.
 4. Apply rust inhibitor to tool head.
 5. Sand handle if it is chipped, dinged, rough or has tape residue. Wipe handle with linseed oil after sanding.
 6. For handle replacement utilize NFES #001857 handle with plastic wedge or wood wedges secured using epoxy of appropriate type.
 7. Metal wedges can be added only in the field as an emergency measure for field refurbishing.
- C. Testing for Performance – none
- D. Repackaging
 1. Install plastic sheath NFES #000257.
 2. Package 10 each in carton NFES #000338 carton (37" x 18" x 7").

Storage and Shelf Life Checks

Excessively dry storage may cause handles to loosen. Periodically check tools if dry conditions exist.

PULLER, FENCE

PULLER, Fence

NFES #000011

Initial Inspection/Disposal Criteria

1. Visually inspect for broken or missing parts.
2. Inspect for structural damage, bent upright or handle, if so dispose of. Salvage usable parts.
3. Return to stock if item passes inspection, is clean and shows no sign of use.
4. Dispose of item if it does not pass inspection and is not repairable.
5. Refurbish if item has been used and/or damage is repairable.

Refurbishing Procedures

A. Cleaning

1. Remove all foreign material with a stiff brush.
2. Wipe with damp cloth and let dry.

B. Repair

1. Replace bolts and pins if bent or broken
2. Repaint if necessary to prevent rust or corrosion.

C. Testing for Performance

1. Inspect to see that all parts function correctly once refurbishing is complete.

D. Repackaging - none

Storage and Shelf Life Checks - none

PUMP, 2 CYCLE

PUMP, fire, lightweight, 2 cycle

NFES #000124, #000253

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after pressure washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose and/or missing parts or mounting hardware; tighten or replace as needed.
2. Check condition of spark plug, air filter, and fuel filter; clean or replace as needed.
3. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
4. Inspect exhaust system; make sure there are no cracks or leaks. Clean spark arrestor of excess carbon build-up, replace screen if damaged.
5. Ensure all decals (operations and warning) are affixed and legible.
6. Check to make sure that all gaskets on the pump fittings/adapters are in place and functioning properly.

C. Test for Performance

1. Refer to the owner's manual for operations and specifications information specific to pump model.
2. Check condition of fuel mix. Ensure fuel is fresh and the correct mix oil ratio is used for running tests.
3. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
4. Ensure pump packing or mechanical seal is not leaking; repair or replace as necessary.
5. Should any function fail a test, refer to the manufacturer's repair manual and troubleshooting guide to correct the problem.
6. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of fuel.
7. Remove all water from pump end. Grease pump as necessary.

D. Repackaging

1. Use nylon "zip-tie" to tie off (seal) starter rope to the frame.
2. Attach certification tag that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks –

Date Last Tested (DLT) not to exceed 12 months.

PUMP, 4 CYCLE

PUMP, fire, lightweight, 4 cycle

NFES #006000

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be serviced and test run as quickly as possible after pressure washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose and/or missing parts or mounting hardware; tighten or replace as needed.
2. Check condition of engine oil, spark plug, air filter, and fuel filter; clean or replace as needed.
3. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
4. Inspect exhaust system; make sure there are no cracks or leaks. Clean spark arrestor of excess carbon build-up, replace screen if damaged.
5. Ensure all decals (operations and warning) are affixed and legible.
6. Check to make sure that all gaskets on the pump fittings/adapters are in place and functioning properly.

C. Test for Performance

1. Refer to the owner's manual for operations and specifications information specific to pump model.
2. Ensure fuel is fresh for running tests
3. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
4. Ensure pump packing or mechanical seal is not leaking, repair or replace as necessary.
5. Should any function fail a test, refer to the manufacturer's repair manual and troubleshooting guide to correct the problem.
6. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of gas.
7. Remove all water from pump end. Grease pump as necessary.

D. Repackaging

1. Use nylon "zip-tie" to tie off (seal) starter rope to the frame.
2. Attach certification tag; that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

PUMP, HIGH PRESSURE

PUMP, fire, portable, high pressure w/fuel line

NFES #000148

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be serviced and test run as quickly as possible after pressure washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose and/or missing parts or mounting hardware; tighten or replace as needed.
2. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
 - Ensure over-bored Mark-3 cylinders are marked with actual size of bore
3. Check condition of spark plug, air filter, and fuel filter; clean or replace as needed.
 - Re-oil foam air filter with “foam type” filter oil.
 - Replace fuel filter on Wick 375 engine at each service.
4. Ensure Mark-3 carburetor shroud does not have a guard covering the high speed mixture screw. Either cut off the guard or replace carburetor shroud with a modern version without guard.
5. Inspect exhaust system; make sure there are no cracks or leaks. Clean spark arrestor of excess carbon build-up, replace if screen is damaged.
 - Re-torque muffler bolts on Wick 375 engines to 18 lb. ft. at each service.
6. Ensure all decals (operations and warning) are affixed and legible.
7. Paint exposed metal on frame, cowling, and pump body.
8. Check to make sure that all gaskets on the pump fittings/adapters are in place and functioning properly.
9. Inspect: NFES# 000113, Fuel Line Assembly. Check for cracks, cuts or other defects to fuel hose, priming bulb or fuel tank fitting (O-rings). Repair or replace as necessary.
 - Replace priming bulb if it cannot be easily squeezed.
 - Complete assembly is approximately 5' in length with a minimum overall length of 4'.

C. Test for Performance

- Pumps are tested using: 1½” suction hose at pump intake and 31/64” discharge (machined square edge orifice). The use of a full bore 1½” shut-off valve will be necessary to test for maximum pump output pressure. Grade 1A liquid filled pressure gauges with 5 PSI graduation are recommended.

Table 1 and Table 2 reflect minimum output pressures for refurbishing high pressure pumps as a function of elevation. A one foot lift should be used as a standard drafting height.

Elevation (ft.)	Shut-off pressure ¹ (PSI)	Working pressure @ 31/64" orifice ² (PSI)
0	295	135
1000	280	135
2000	270	130
3000	255	130
4000	245	125
5000	230	125
6000	215	120

¹ Based on the formula, Pressure = -0.0129 * (Elevation) + 294.24

² Based on the formula, Pressure = -0.0026 * (Elevation) + 135.27

Elevation (ft.)	Shut-off pressure ³ (PSI)	Working pressure @ 31/64" orifice ⁴ (PSI)
0	335	150
1000	320	145
2000	305	140
3000	295	135
4000	280	130
5000	265	125
6000	250	120

³Based on the formula, Pressure = -0.0138 * (Elevation) + 334.7

⁴Based on the formula, Pressure = -0.0044 * (Elevation) + 148.75

1. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
2. Start pump and allow engine to warm up for two minutes.
3. Ensure mechanical pump seal is not leaking, repair or replace as necessary.
4. Ensure idle speed and low speed mixture screws are properly adjusted.
5. Using full throttle set high speed adjustment by turning high speed mixture screw to achieve maximum engine RPM, then richen mixture screw until there is a drop in pump output pressure of 5-10 PSI (approx.).
 - Engine should be responsive and accelerate quickly.
 - Ensure high speed circuit of Wick 375 will achieve an overly rich condition. If not; there is an obstruction in the inlet or the high speed circuit of carburetor, clean and repair as necessary.
6. Perform shut-off pressure test at full throttle; note maximum pressure at full discharge shut-off ensuring pump output meets minimum standards as outlined in table 1 or 2 (above) depending on pump model.
7. Perform pressure test with the 31/64" square edge orifice at full throttle; note working flow pressure, ensuring pump output meets minimum standards as outlined in table 1 or 2 (above) depending on pump model.

Continued –

PUMP, fire, portable, high pressure w/fuel line

NFES #000148

8. Use loss of prime method to test over-speed protection cut-out switch, adjust as necessary to manufacturer specification.
 9. Should any function fail a test, refer to the manufacturer’s repair manual and troubleshooting guide to correct the problem
 10. Allow engine to cool down for one minute at idle.
 - Remove fuel source and run engine until carburetor is completely empty of fuel
 - Remove all water from pump end.
 11. Lubricate pump head bearing with specified grease. If pump head is fitted with a sealed shaft bearing; ensure that the pump housing is marked/ labeled appropriately.
- E. Repackaging
1. Use nylon “zip-tie” to tie off (seal) starter rope to the frame.
 2. Attach certification tag that indicates date last tested (DLT), property #, and name of individual certifying performance.
 3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

PUMP, FLOATING

PUMP, 1½” floating, Waterous

NFES #007646

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after pressure washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose and/or missing parts or mounting hardware; tighten or replace as needed.
2. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
3. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
4. Check condition of spark plug, air filter, and fuel filter; clean or replace as needed.
5. Inspect exhaust system; make sure there are no cracks or leaks. Check for loose or missing mounting hardware, tighten or replace as needed.
6. Check throttle float. Make sure all pieces are present and the float moves up and down freely.
7. Make sure there are no holes in the boat.
8. Check water intake for debris (weeds, sticks, etc.).
 - Make sure that the intake screen is in place and securely fastened.
9. Ensure all decals (operations & warning) are affixed and legible.

C. Test for Performance

- Pumps are tested using a 1½” discharge and a 1/4” nozzle.
1. Set idle speed to 2400 RPM manually hold throttle float down.
 2. To adjust high speed: Using full throttle, lean out high speed adjustment screw to achieve maximum RPM, then richen until pump output pressure drops 5 PSI. Minimum output pressure: 100 PSI.
 3. Should any function fail a test, refer to the manufacturer’s repair manual and troubleshooting guide to correct the problem.
 4. Allow engine to cool down for one minute at idle.
 5. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of fuel.
 6. Remove all water from pump end.

D. Repackaging

1. Use nylon “zip-tie” to tie off (seal) starter rope to the carry handle.
2. Attach certification tag; that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

PUMP, MULTIQUIP

PUMP, 1½” Multiquip, 5.5 HP

NFES #007647

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after pressure washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose and/or missing parts or mounting hardware; tighten or replace as needed.
2. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
3. Check condition of spark plug, air filter, and fuel filter; clean or replace as needed.
4. Inspect exhaust system; make sure there are no cracks or leaks. Check for loose and/or missing parts and hardware, tighten or replace as needed.
5. Ensure all decals (operations and warning) are affixed and legible.
6. Ensure all gaskets on the pump fittings/adapters are in place and functioning properly.

C. Test for Performance

1. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
2. Engine should start easily, run smoothly, be free from fuel leaks, and provide sufficient power to the pump end.
3. Ensure engine controls are operational and functional; stop switch, throttle and choke.
4. Adjust carburetor by setting idle speed to 1200 RPM, Maximum engine speed is 3500 RPM.
5. Check max PSI with nozzle closed. Minimum pressure: 50 PSI.
6. Ensure pump packing or mechanical seal is not leaking, repair or replace as necessary.
7. Should any function fail a test, refer to the manufacturer’s repair manual and troubleshooting guide to correct the problem.
8. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of gas.
9. Remove all water from pump end.

D. Repackaging

1. Use nylon “zip-tie” to tie off (seal) starter rope to the frame.
2. Attach certification tag that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

PUMP, CENTRIFUGAL

PUMP, 2½", 6.5---13HP, centrifugal

NFES #007648

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose and/or missing parts or mounting hardware; tighten or replace as needed.
2. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
3. Check condition of engine oil, spark plug, air filter, and fuel filter; clean or replace as needed.
4. Inspect exhaust system; make sure there are no cracks or leaks. Check for loose and/or missing parts and hardware, tighten or replace as needed.
5. Ensure all decals (operations and warning) are affixed and legible.
6. Ensure all gaskets on the pump fittings/adapters are in place and functioning properly.

C. Test for Performance

1. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
2. Engine should start easily, run smoothly, be free from fuel leaks, oil leaks, and provide sufficient power to the pump end.
3. Ensure engine controls are operational and functional; stop switch, throttle and choke.
4. Adjust carburetor by setting idle speed to 1200 RPM, Maximum engine speed is 3500 RPM.
5. Check max PSI with nozzle closed. Minimum pressure: 50 PSI.
6. Ensure pump packing or mechanical seal is not leaking, repair or replace as necessary.
7. Should any function fail a test, refer to the manufacturer's repair manual and troubleshooting guide to correct the problem.
8. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of gas.

D. Repackaging

1. Use nylon "zip-tie" to tie off (seal) starter rope to the frame.
2. Attach certification tag that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

Pump, Wick 250

PUMP, portable, Wick-250

NFES #007650

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose and/or missing parts or mounting hardware (especially the carburetor and muffler), tighten or replace as needed.
2. Inspect power-head (engine) for freeness of all moving parts, ensuring that the crankshaft, piston/cylinder and all engine bearings are not damaged.
3. Check condition of spark plug, air filter, and fuel filter; clean or replace as needed.
4. Check frame for cracks, repair or replace as necessary.
5. Inspect exhaust system; make sure there are no cracks or leaks. Check for loose and/or missing parts and hardware, tighten or replace as needed.
6. Check throttle linkage, tighten bolts as needed.
7. Ensure all decals (operations and warning) are affixed and legible.
8. Ensure all gaskets on the pump fittings/adapters are in place and functioning properly.

C. Test for Performance

1. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
2. Engine should start easily, run smoothly, be free from fuel leaks, and provide sufficient power to the pump end.
3. Ensure engine controls are operational and functional; stop switch, throttle and choke.
4. Test for performance:
 - a. Pumps are tested with 1 ½” dia. inlet hose w/foot valve, 1 ½” dia. discharge hose and ¼” nozzle
 - b. Adjust carburetor:
 - i. Set idle speed to 2400 RPM.
 - ii. To adjust high speed mixture use full throttle and set pump output pressure to 120 PSI. Lean out adjustment screw to achieve max RPM, then richen until pressure drops 5 PSI.
 - c. Check max PSI with nozzle closed. Minimum pressure: 140 PSI.
5. Use loss of prime method to test engine over-speed protection cut-out switch.
6. Ensure mechanical pump seal is not leaking, repair or replace as necessary.
7. Should any function fail a test, refer to the manufacturer’s repair manual and troubleshooting guide to correct the problem.
8. Lubricate pump head bearing with specified grease.
9. Remove fuel source from engine and run engine until carburetor is completely empty of fuel.
10. Remove all water from pump end.

D. Repackaging

1. Use nylon “zip-tie” to tie off (seal) starter rope to the frame.

Continued –

PUMP, portable, Wick-250

NFES #007650

2. Attach certification tag that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

Pump, Volume

PUMP, volume, trash 2", trash 3"

NFES #000683, #001222

Initial Inspection/Disposal Criteria

1. Visually inspect for evidence of use (dust, oil, starter seal broken), damage or missing parts.
2. Return to stock if there is no sign of use or damage and date last tested (DLT) does not exceed 12 months.
3. Refurbish as necessary if unit has been used or fueled, damaged, or shelf life is exceeded.
4. Dispose of the unit if it is not economically repairable.

Refurbishment Procedures

A. Cleaning

1. Remove dirt and oil, using detergent or degreaser as necessary.
2. Use pressure washer to remove heavy deposits of oil and grease.
3. Equipment should be repaired and tested as quickly as possible after washing to minimize rust formation on metal parts.

B. Repair

1. Check for loose and/or missing parts or mounting hardware; tighten or replace as needed.
2. Check condition of engine oil, spark plug, air filter, and fuel filter; clean or replace as needed.
3. Inspect exhaust system; make sure there are no cracks or leaks. Check for loose and/or missing parts and hardware, tighten or replace as needed.
4. Ensure all decals (operations and warning) are affixed and legible.
5. Ensure all gaskets on the pump fittings/adapters are in place and functioning properly.

C. Test for Performance

1. Ensure recoil starter functions properly. Check for damage or fraying of pull cord; repair or replace as necessary.
2. Engine should start easily, run smoothly, be free from fuel leaks, and provide sufficient power to the pump end.
3. Ensure engine controls are operational and functional; stop switch, throttle and choke.
4. Test for pump performance (see owner's manual for specific performance data).
5. Ensure pump packing or mechanical seal is not leaking, repair or replace as necessary.
6. Should any function fail a test, refer to the manufacturer's repair manual and troubleshooting guide to correct the problem.
7. Remove all gasoline from fuel tank and run engine until carburetor is completely empty of gas.
8. Remove all water from pump head.

D. Repackaging

1. Use nylon "zip-tie" to tie off (seal) starter rope to the frame.
2. Attach certification tag that indicates date last tested (DLT), property #, and name of individual certifying performance.
3. Ensure that all identification (property #, serial #, owner ID) is affixed and legible.

Storage and shelf life checks

Date Last Tested (DLT) not to exceed 12 months.

PUMP, TROMBONE

PUMP, trombone, backpack, single action

NFES #000151

Initial Inspection/Disposal Criteria

1. Inspect for obvious damage.
2. Inspect for burns and cracks if so dispose of.
3. Inspect for damaged threads, if beyond repair dispose of.
4. Place hose in water and pump handle to validate that pump works properly.
5. Return item to stock if it shows no sign of use or damage.
6. Dispose of item if unable to repair.

Refurbishing Procedures

A. Cleaning

1. Wash and clean all items of foreign matter, such as mud, dirt, and grease.
2. Clean in mild detergent with brush or scouring pad as needed.
3. Rinse thoroughly

B. Repair

1. If pump pressure is not sufficient, remove pump unit and replace O-rings.
2. Ensure quick connection on pump has proper seating.
3. Check hose connection to pump for tightness; if loose, use a hose clamp.
4. Check supply hose on pump assembly for obstructions and tight connections, bent push rods, and clogged tips.
5. Check spring and ball bearing.
6. Lubricate slide with appropriate lubricant, e.g., Chevron NLGI2 or equivalent.

C. Testing for Performance—none

D. Repackaging

1. Suggested packaging 10 each in NFES #000385 carton (7.25" x 9.25" x 26") or 25 each in NFES #002006 carton (23" x 19" x 10").
2. Mark with date of inspection and testing.

Storage and Shelf Life Checks - none

RAKE, COLLAPSIBLE

NFES #000659

RAKE, collapsible

Initial Inspection/Disposal Criteria

1. Inspect for damaged/missing tines, if so dispose of.
2. Inspect for damage to handle sliding-locking mechanism.
3. Inspect all welds to see if cracked or broken.
4. Inspect grips for tears/loss of grips.
5. Inspect nuts and bolts to make sure they are in place (2 each).
6. Inspect pin in locking mechanism.
7. Return to stock if item passes inspection and shows no sign of use.
8. Dispose of item if it is damaged beyond repair.
9. Refurbish item if economically repairable.

Refurbishing Procedures

A. Cleaning

1. Damp wipe with mild detergent solution to remove dirt, mud, and grease.
2. Let stand and dry.
3. Lubricate slide mechanism with WD 40 or similar solution.

B. Repair

1. Repair/replace nuts, bolts, and pins as needed. Various nuts, bolts, and locking pins may be procured at a local hardware store.
2. Replace rubber handles.

C. Testing for Performance

1. Inspect slide mechanism to see if moves freely and does not bind up when expanding tines of rake.
2. Expand all tines to see if secure and stable.

D. Repackaging

1. Place 10 each in carton NFES #000338 (37" x 18" x 7").

Storage and Shelf Life Checks - none

RAKE, COUNCIL TOOL

RAKE, fire (council tool) w/sheath

NFES #001807

Initial Inspection/Disposal Criteria

1. Inspect handle for cracks, splinters, and warping.
2. Inspect cutting teeth for cracks, excessive wear, and loose rivets.
3. Inspect mounting head for cracks and loose handle.
4. Return to stock if item is clean and has not been used.
5. Refurbish if item has been used and/or is repairable.
6. Dispose of rake if tool is not repairable and mounting head is cracked.

Refurbishing Procedures

A. Cleaning

1. Clean head with fine wire brush.
2. Clean handle with damp cloth.

B. Repair

1. Replace broken, cracked, or splintered handles.
2. Replace broken or cracked tooth, flat surface inside.
3. Tighten or replace loose rivets.
4. Grind on even bevel, use sickle stone.
5. Retain square point on cutter teeth. **DO NOT ROUND CORNERS.**
6. Paint head with rust inhibitor.
7. Smooth handle with fine sandpaper
8. Oil cutting edge.

C. Testing for Performance - none

D. Repackaging

1. Sheath with NFES #001854 McLeod sheath.
2. Package 10 each in carton NFES #000305 (56" X 20" X 11").

Storage and Shelf Life Checks

Per local cache requirements to ensure proper serviceability of tools.

REDUCERS

REDUCERS

NFES: #000009, #000010, #000417, #000418, #000685,
#000733, #002229, #002230, #000402

Initial Inspection/Disposal Criteria

1. Inspect for cracks in reducer body, damaged threads, dry, stiff, cracked, or worn gaskets, and any sign fire damage.
3. Return to stock if item is clean and appears to be unused.
4. Refurbish item if item passes inspection or minor repairs are easily completed.
5. Dispose of if the item does not pass inspection or *Testing for Performance*.

Refurbishing Procedures

A. Cleaning

1. Clean in mild detergent with a brush or scouring pad or high-pressure wash.
2. Rinse thoroughly.
3. Stand upright to drain and dry.

B. Repair

1. Replace any gaskets that are stiff, damaged, or missing.
2. Use a triangular file to remove burrs and dings from damaged threads.

C. Testing for performance

1. Ensure smooth fit with appropriate female adapter.

D. Repackaging

- 10 each of NFES #000009, #000010, #000733 in NFES #008076 carton (8" x 4" x 4").
- 20 each of NFES #000685, #002229, #002230 in suggested NFES #008189 carton (16 x 8 x 8").
- 40 each of NFES #000417 in NFES #008064 carton (10" x 8" x 6").
- 60 each of NFES #000009, #000010, #000418, #000733 in NFES #008064 carton (10" x 8" x 6").

Storage and Shelf Life Checks - none

SHELTER, FIRE

SHELTER, fire, complete, M-2002

NFES #000925, #000975

Components:

SHELTER, fire, M-2002

NFES #000926, #000973

CASE, carrying, fire shelter, M-2002

NFES #000927

LINER, fire, shelter carrying case, M-2002

NFES #000928

Initial Inspection/Disposal Criteria

1. Inspect the following:

a. Shelter

Do not open polyvinyl liner for inspection.

- i. Inspect polyvinyl bag for cuts, puncture, or torn seams. If the bag has any anomaly that may affect the integrity of the bag or the shelter, remove shelter from service.
- ii. Inspect that the red pull rings are unbroken and the quick-opening tear strip is sealed to the bag the entire length and is unbroken. Dispose of shelter with damaged or missing red tear strip.
- iii. Look through bag at shelter for tears in shelter material along seams. If any tears are evident in the shelter material or polyvinyl bag, or if significant gray discoloration of the interior of the polyvinyl bag has obscured interior inspection, remove shelter from service and dispose.
- iv. Further inspection should include identifying PVC bags which have unreinforced yellow pull tabs. Per Cache Memo #07-4 "Polyvinyl Bag Retrofit" Some shelters may have a glued webbing reinforcement visible on the PVC bag yellow pull strap. Any shelter lacking webbing reinforcement (glued or stitched) should be removed from service.
- v. Fire shelters with a yellow re-bag label or lacking any label inside of the PVC bag should be removed from service.

b. Carrying Case

- i. Inspect for cuts, tears, torn seams or flaps.
- ii. Ensure that M-2002 Use Instructions (English on one side, Spanish on the other) are in the "Use Instructions" pocket on the front.
- iii. Check for two belt clips and ensure they are working properly.

c. Liner

- i. Inspect the polyvinyl liner for cracks or tears.
 - ii. Return to stock if Item shows no sign of use.
 - iii. Refurbish, clean only.
 - iv. Dispose of item if any damage. Any doubt as to the condition to the shelter, REMOVE FROM SERVICE.
2. Return to stock if item is new or like new, passes inspection and does not require refurbishment.
 3. Refurbish if item passes inspection but light cleaning is required.
 4. Dispose of item if it fails inspection.
 - Shelters that show signs of damage can be used as practice shelter. Clearly identify each as PRACTICE ONLY This item may be used for practice when clearly marked, as practice only.

**Continued -
SHELTER, fire, complete, M-2002**

NFES #000925, #000975

Components:

SHELTER, fire, M-2002

NFES #000926, #000973

CASE, carrying, fire shelter, M-2002

NFES #000927

LINER, fire, shelter carrying case, M-2002

NFES #000928

Refurbishing Procedures

A. Cleaning

Do not open polyvinyl liner for refurbishment.

1. Clean the Shelter, Case, and Liner with a damp cloth.
2. Brush dirt off heavily soiled case with a stiff brush.
3. Remove oils from carrying case using a solution of warm water and detergent and brush.
4. Rinse with clear water and let dry.

B. Repair – none

C. Testing for performance- none

D. Repackaging

1. 10 each of NFES #000925, #000975, #000926, #000973 in NFES #008059 carton (24" x 12.5" x 10").
2. 100 each of NFES #000927 in suggested NFES #002006 carton (23" x 19" x 10").

Storage and Shelf Life Checks - none

References

[T&D Tech Tips Fire Shelter inspection Guide and Rebag Direction](#)

[What's New With the New Generation Fire Shelter](#)

[Cache Memo #04-1 "New Generation Fire Shelter Retrofit Plan"](#)

[Cache Memo #07-4 "Polyvinyl Bag Retrofit"](#)

[Cache Memo #09-3 "Re-Bagging New Generation Fire Shelters"](#)

SHELTER, PRACTICE

SHELTER, fire Practice M-2002 (Complete)

NFES #002678, #002799

Components:

SHELTER, fire, PRACTICE ONLY , M2002, w/o case & liner	NFES #002679, #002798
CASE, carrying, fire shelter M2002, PRACTICE ONLY , orange	NFES #002680
BAG, polyvinyl, practice fire shelter, M2002	NFES #002681
LINER, fire, shelter carrying case, M2002	NFES #000928

Initial Inspection/Disposal Criteria

3. Inspect the following:
 - a. Shelter
 - i. Unfold practice fire shelter and inspect for tears, ripped seams, punctures.
 - b. Polyvinyl Bag
 - i. Inspect the bag for cracks or tears.
 - ii. Inspect Velcro pull strip for damage.
 - c. Case
 - i. The M-2002 Practice Fire Shelter Carrying Case is orange in color.
 - ii. Inspect for cuts, tears, torn seams or flap.
 - iii. Ensure that an M-2002 instruction sheet and a folding instruction are in the *Use Instructions Pocket* on the front.
 - iv. Check that there are two belt clips and that they are in working condition.
 - d. Liner
 - i. Inspect the plastic liner for cracks or tears.
4. Return to stock if item is in new condition and does not require refurbishment.
5. Refurbish by patching rips or tears. Velcro strips on bag can be replaced if damaged or missing.
6. Dispose of practice fire shelter if damage is extensive and cannot be recycled.

Refurbishing Procedures

- A. Cleaning Clean the Shelter Package with a damp cloth.
 2. Brush dirt off heavily soiled case with a stiff brush.
 3. Remove oils from carrying case using a solution of warm water and detergent and brush.
 4. Rinse with clear water and let dry.
- B. Repairs
 1. Repair as needed and economically feasible.
 2. Replace Use Instructions with M-2002 Use Instructions, English/Spanish and/or Folding Instructions with M-2002 Folding Instructions if missing or damaged.
 3. Replace belt clips and polyvinyl bag if missing or damaged.
 4. Mark each shelter as Practice Only shelter.
- C. Testing for performance-none
- D. Repackaging
 1. 10 each of NFES #002679, #002679, #002798, #002799 in NFES #008059 carton (24" x 12.5" x 10").
 2. All other items, local cache option.

Storage and Shelf Life Checks - none

SHIRT, FIRE

SHIRT, fire

All Sizes

Initial inspection/Disposal Criteria

1. Inspect for holes, cuts, tears, or torn seams. Inspect for color change (yellow to white/pink) caused by exposure to heat. Dye sublimation is the result of heat baking the dye out of the fabric. Areas of fabric with dye sublimation do not affect the performance of the shirt. Charring (hard brittle fabric that will then form a hole) in association with sublimation will decrease the performance of the fabric and the item should be disposed of. Inspect for loose or missing buttons, burn marks, stains and any sign of exposure to poison ivy/oak/sumac.
2. Return to stock if item is clean and in unused condition.
3. Refurbish any missing buttons, holes or seams. Launder each item following cleaning instructions.
4. Dispose of item when repairs are not economically feasible or would make item unsafe for use.

Refurbishing Procedures

A. Cleaning - **DO NOT USE BLEACH TO CLEAN FABRIC.**

1. Follow the cleaning procedures described in the publication, Nomex®- Aramid Fiber -Laundering Guide (H-71603), http://www2.dupont.com/Personal_Protection/en_US/assets/downloads/nomex/h71603launderingguidefornomexaramidfiber.pdf
Additional information can be obtained by calling DuPont at 1-800-453-8527 or by writing:
DuPont
Advanced Fibers Systems
Chestnut Run Plaza
Laurel Run Building
Wilmington, DE 19880-0705
2. Abbreviated washing procedures from above publication:
 - a. "Garments of NOMEX® should be washed separately from other articles to avoid contamination with lint of flammable fibers."
 - b. "Tests show that formulations designed for use at a temperature of 140 °F (60 °C) or less – such as high-surfactant, low-alkalinity products - adequately clean NOMEX® and provide the best fabric color retention."
 - c. "For heavily stained and oily garments of NOMEX®, a higher temperature wash formula may be required for adequate cleaning."
 - d. "Garments made of NOMEX® must be adequately rinsed to remove residual wash chemicals."
 - e. "In some instances, tumble dry conditioning is the only finishing necessary for garments of NOMEX®."
 - f. "...dry cleaning is an alternative method of removing heavy soil and may be preferable to repeated high-temperature washing."
3. If items are taken to vendor laundry facilities for refurbishment; ensure that they receive a copy of this refurbishment standard. The laundry facility must satisfy both--the requirements as set by the manufacturer specification and the agreement made with the local agency.

RESEARCH

At the request of the National Support Cache Refurbishing Standards Committee, MTDC researched the practicality of laundering Nomex firefighting clothing that has been contaminated with urushiol oil (the allergen to which the body reacts) from poison oak/ivy/sumac exposure. Current cache practices range from normal washing procedures to disposal of shirts and pants that have known urushiol contamination.

A search of on-line sources didn't produce any special care instructions beyond normal laundering. Some examples:

- “All clothing should be laundered, and everything else that may be contaminated with urushiol should be washed thoroughly.” American Academy of Dermatology, <https://www.aad.org/public/diseases/itchy-skin/poison-ivy-oak-and-sumac>
- “...be sure to wash your clothing promptly with detergent...” Mayo Clinic, <http://www.mayoclinic.com/health/poison-ivy/DS00774/DSECTION=prevention>
- “Washing clothes with ordinary laundry soap will remove urushiol.” Missouri Department of Conservation, <http://mdc.mo.gov/conmag/2005/03/50.htm>

A phone conversation with Daniel Boelman, RN, BSN, Customer Service Manager with Zanfel Laboratories, Inc. also indicated no special treatment beyond normal laundering. (Zanfel produces a commercially available poison oak/ivy cream). Mr. Boelman recommended using vinyl gloves when handling contaminated clothing.

On 11/17/2008 the Forest Service filed a SAFENET Supplemental Corrective Action concerning poison oak reactions experienced by firefighters during the 2008 fire season in California. <http://safenet.nifc.gov/safenet.nsf/3e5de74de3df7e0087256c00000dbf79/BB5CAA2EF216986687257505000C39B1?OpenDocument>

In that posting, it is recommended that “All clothing and equipment should be laundered immediately ...A degreaser was recommended for helping to remove urushiol from clothing and equipment.”

RECOMMENDATION

MTDC recommends that fire clothing contaminated with urushiol oil be cleaned following normal Nomex laundering procedures. Extra care should be exercised when handling the contaminated clothing. Clearly labeled plastic bags should be used to separate contaminated clothing from other returned clothing. Commercial laundry personnel should wear long sleeves and vinyl gloves when handling contaminated clothing and dispose of any bags used for transporting the clothes to the laundering facility. As an extra precaution, supply cache and laundry workers could apply an over-the-counter skin-barrier product that contains bentoquatam (such as Ivy Block or Stokoguard) before handling contaminated clothing. Bentoquatam helps prevent urushiol from penetrating the skin. After exposure, workers' clothes should be washed and gloves disposed of.

B. Repairs

1. Repair holes, cuts, tears, burns, and torn seams by darning, patching, or by duplicating the original construction.
2. Use Nomex® (Aramid) patching material for all repairs.
3. Re-stitch frayed buttonholes using a buttonhole or zigzag stitch that has 50 to 60 stitches per buttonhole.
4. Replace damaged hook and pile fastener tape with tape of the same length, width, and quality as the original.

C. Testing for Performance

1. Inspect items after laundering to ensure all foreign matter and stains have been removed. If items fail second inspection spot treat problem areas or remove item from service.
2. Test all replacement hook and pile fasteners after repair.

D. Repackaging

SHIRT, fire

1. 30 each of same NFES #/size in NFES#002030 carton (24"X16"X12").

all sizes

Storage and Shelf Life Checks - none

SHOVEL

SHOVEL - with plastic sheath, Size #1

NFES #000171

Initial Inspection/Disposal Criteria

1. Inspect for damage to cutting head, step plate, and handle. Check for loose head and handle. Ensure blade is 3 ¾" from center to the edge at the base of the shovel and the shovel has not been modified, bent or distorted. Handle should be straight and free of cracks, chips, open grain, or residues (tar, sap, paints, etc.)
2. Return to stock if item is clean and has not been used.
3. Refurbish if item is unmodified and is repairable.
4. Dispose of item if blade is less than 7 ½" wide, shows blue or burned edges, or has been welded, cut or otherwise modified and cannot be taken back to original shape and condition.

Refurbishing Procedures

- A. Cleaning Wash and wipe dry. Repair Sand handle if it is rough, chipped, dinged, or has any type of residue.
 2. Sharpen cutting edge, using tool sharpening gauge NFES #000510
 3. Blade to be at least 7 ½ "wide. USE TEMPLATE
- C. Testing for Performance - none
- D. Repackaging
 1. Install plastic sheath NFES #001853.
 2. 10 each in NFES #000337 carton (55" x 12 ½" x 11 ¾").

Storage and Shelf Life Checks - none

SHROUD

SHROUD, face and neck, Nomex

NFES #001274

Initial Inspection/Disposal Criteria

1. Inspect for holes, cuts, tears, or torn seams. Inspect for color change (yellow to white/pink) caused by exposure to heat. Dye sublimation is the result of heat baking the dye out of the fabric. Areas of fabric with dye sublimation do not affect the performance of the shirt. Charring (hard brittle fabric that will then form a hole) in association with sublimation will decrease the performance of the fabric and the item should be disposed of.
2. Return to stock if item has no damage, is clean and in unused condition.
3. Refurbish if item can be laundered and is repairable.
4. Dispose of item if not economical to repair.

Refurbishing Procedures

- A. **Cleaning - DO NOT USE BLEACH TO CLEAN FABRIC.** Follow the cleaning procedures described in the publication, Nomex®- Aramid Fiber -Laundering Guide (H-71603), http://www2.dupont.com/Personal_Protection/en_US/assets/downloads/nomex/h71603launderingguidefornomexaramidfiber.pdf
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 - c. “For heavily stained and oily garments of NOMEX®, a higher temperature wash formula may be required for adequate cleaning.”
 - d. “Garments made of NOMEX® must be adequately rinsed to remove residual wash chemicals.”
 - e. “In some instances, tumble dry conditioning is the only finishing necessary for garments of NOMEX®.”
 - f. “...dry cleaning is an alternative method of removing heavy soil and may be preferable to repeated high-temperature washing.”
3. If items are taken to vendor laundry facilities for refurbishment; ensure that they receive a copy of this refurbishment standard. The laundry facility must satisfy both--the requirements as set by the manufacturer specification and the agreement made with the local agency.

RESEARCH

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- “...be sure to wash your clothing promptly with detergent...” Mayo Clinic, <http://www.mayoclinic.com/health/poison-ivy/DS00774/DSECTION=prevention>
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In that posting, it is recommended that “All clothing and equipment should be laundered immediately ...A degreaser was recommended for helping to remove urushiol from clothing and equipment.”

RECOMMENDATION

MTDC recommends that fire clothing contaminated with urushiol oil be cleaned following normal Nomex laundering procedures. Extra care should be exercised when handling the contaminated clothing. Clearly labeled plastic bags should be used to separate contaminated clothing from other returned clothing. Commercial laundry personnel should wear long sleeves and vinyl gloves when handling contaminated clothing and dispose of any bags used for transporting the clothes to the laundering facility. As an extra precaution, supply cache and laundry workers could apply an over-the-counter skin-barrier product that contains bentoquatam (such as Ivy Block or Stokoguard) before handling contaminated clothing. Bentoquatam helps prevent urushiol from penetrating the skin. After exposure, workers’ clothes should be washed and gloves disposed of.

B. Repair

1. Mend holes, cuts, tears, burns, and torn seams by darning, patching, or by duplicating the original item.
2. Replace damaged hook and pile fasteners with tape of same length, width, and quality.

C. Testing for Performance

1. Inspect items after laundering to ensure all foreign matter and stains have been removed. If items fail second inspection spot treat problem areas or remove item from service.
2. Test all replacement hook and pile fasteners after repairing.

D. Repackaging

1. Lay the Shrouds with inside up, fold both sides towards middle, and fasten hook and pile fasteners.
2. Recommended 20 EA in NFES #008064 carton (10” x 8” x 6”).

Storage and Shelf Life Checks - none

SPOUT, GAS

SPOUT, gas, flexible, 16' steel

NFES #000210

Initial Inspection/Disposal Criteria

1. Inspect for bent or crushed sections in flexible portion. Look for cracked or stiff gaskets. Inspect the locking flange to ensure it is in working order. Look for any obstruction in the spout.
2. Return to stock if item is clean and unused.
3. Refurbish if item is repairable and easily cleaned.
4. Dispose of item if cracked or crushed or otherwise unsafe to use.

Refurbishing Procedures

- A. Cleaning Clean completely with solvent or high-pressure wash.
 2. Stand on end or lay item down to drain and dry. Ensure item is completely dry before repacking.
- B. Repair
 1. Replace tail gasket if missing, cracked, or stiff.
 2. Replace screen if damaged.
- C. Testing for performance - none
- D. Repackaging
 1. Recommended 10 each in NFES #008070 carton (18" x 15" x 5.5").

Storage and Shelf Life Checks - none

SWATTER

SWATTER, fire

NFES #001868

Initial Inspection/Disposal Criteria

1. Inspect handle for cracks and warping. Inspect flapper and metal connection for cracks and broken or loose connection and components.
2. Return to stock if no repair is necessary.
3. Refurbish if damage is to the handle or connection can be repaired.
4. Dispose of item if flapper cannot connect to handle or there is substantial damage to the flapper.

Refurbishing Procedures

- A. Cleaning Clean flapper with wire brush.
 2. Wash flapper and handle with mild detergent and water.
 3. Rinse.
- B. Repair
 1. Sand handle until smooth. Replace handle as necessary.
 2. Ensure flapper/handle connection is tight.
- C. Testing for Performance
 1. Check that the connection between handle and flapper is in good condition.
- D. Repackaging - Local Cache option.

Storage and Shelf Life Checks - none

SWIVEL, CARGO

SWIVEL, cargo, 3,000 lb. capacity
SWIVEL, cargo, 6,000 lb. capacity

NFES #000526
NFES #000286



Initial Inspection/Disposal Criteria

1. Inspect swivel for rotation: Swivel shall rotate freely by hand (no binding) with no load. If swivel does not rotate freely, remove from service. If binding is suspected, perform the following free rotation test. Using a string, hang a 2 lb. weight to the hook. Close the hook and rotate the swivel slowly in one direction and then the other. The speed of rotation shall not be greater than 1 revolution in 5 seconds. If the binding of the swivel results in the string being carried around the rotation, remove the swivel from service.

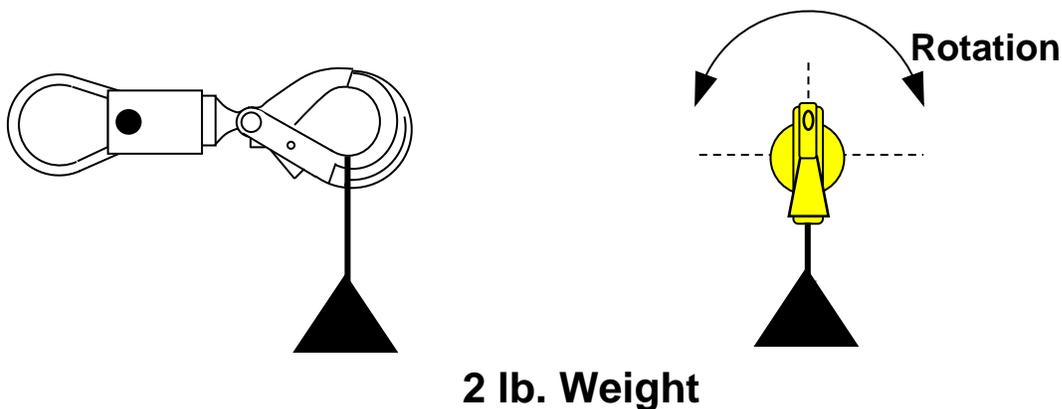


Figure 1. Free Rotation Test

2. Inspect for excessive lateral movement of the swivel. Excessive lateral movement is defined as 5 degrees (angular measurement) of total movement and may indicate bearing wear. Remove from service.

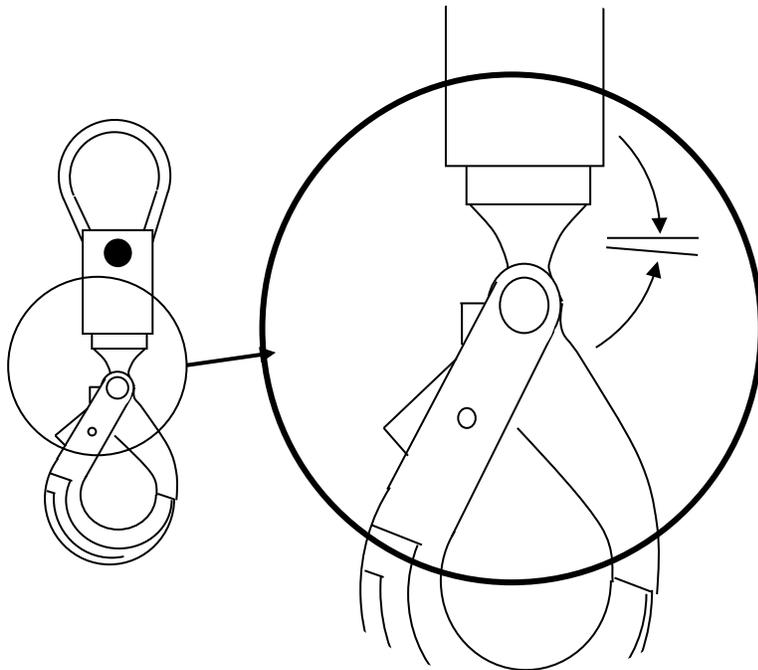


Figure 2. Excessive Lateral Movement

3. Inspect hook and linkage for damage, wear, and deformation:
 - a. Inspect swivel rotating body or hook for any cracks or gouges. If cracks or gouges are found, remove from service.
 - b. Inspect gate for type. If the gate is a spring gate (the hook opens by pushing the gate into the hook) it is an old style hook and needs replacement. Remove the swivel from service and refer to NFES Cache Memorandum No. 04-03, Cargo Swivel Retrofit Project dated 8/10/04: http://www.nifc.gov/nicc/logistics/cachememo/cm_NFES-cargo_08-10-04.pdf
 - c. Inspect the swivel for the dimensions shown in Figure 3 and Table 1. If dimensions exceed those in Table 1, remove the swivel from service.

Continued -
SWIVEL, cargo, 3,000 lb. capacity
SWIVEL, cargo, 6,000 lb. capacity

NFES #000526
NFES #000286

- d. Inspect the hook for the dimensions shown in Figure 4 and Table 2. If dimensions exceed those in Table 2, remove the swivel from service.
- e. Check the hook for damage such as cracks, nicks, wear, gouges, and deformation. Check operation and ensure that hook is not bent or distorted. If any damage is found, then remove from service.

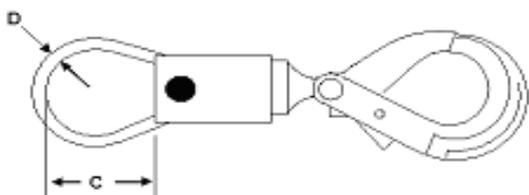


Figure 3. Swivel Dimensions

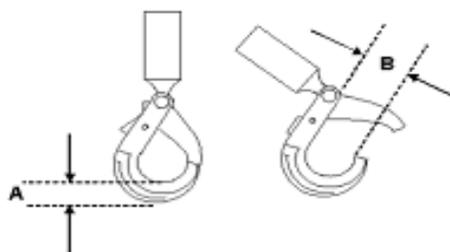


Figure 4. Shank Hook

Table 1. Swivel Dimensions

Style	C	D
3000 pounds	3 to 5 inch max	5/8-inch nominal
6000 pounds	3 to 5 inch max	5/8-inch nominal

Table 2. Shank Hook Dimensions

Style	A (max)	B (max)
3000 pounds	1.0 inch	1.33 inch
6000 pounds	1.3 inch	1.7 inch

- 4. Check the hook's locking gate operation.
 - Ensure safety latch open and close completely.
 - Examine latch for damage or distortion.
 - Examine lock latch for rounded lock shoulder, see Figure 5
 - Ensure spring loaded latch hold the latch in the closed position.
 - Ensure lock latch pin is secure and flush with the latch, see Figure 5. If latch is damaged, does not operate as required, is missing hardware, or does not meet dimensional requirements remove from service.

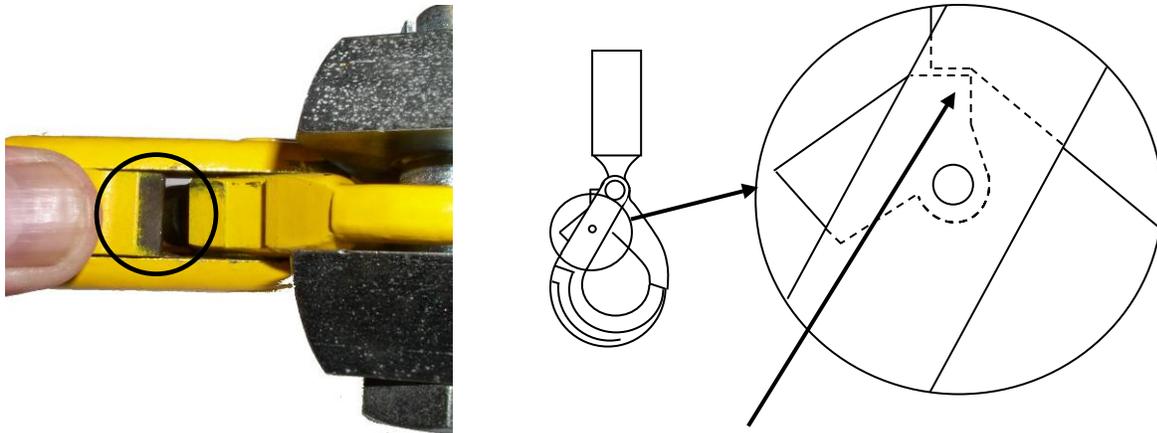


Figure 5. Examine Gate Lock Latch for rounding.

5. Inspect the link and link fastener.

- Check for damage such as cracks, nicks, wear, and gouges.
- Check link for deformations. The curved ends of the link (either oblong or pear) should be generally circular in shape. If overstressing has occurred, the end portions of the link will appear “pinched.” Figure 6 shows the pinched effect of overstressed parts.
- If the link is attached to the swivel with a threaded fastener with nut:
 - Ensure that no more than 2 threads are exposed.
 - Ensure that the fastener has not slipped by inspecting the paint indication, see Figure 7. If slippage is indicated, refurbish as necessary or dispose of item.
 - Inspect the fastener and nut for damage (cracks and gouges).
 - If the link is attached with a pin secured with roll pins, ensure that the roll pins are not bent or cracked.
 - If damage is observed, refurbish as necessary or dispose of item.

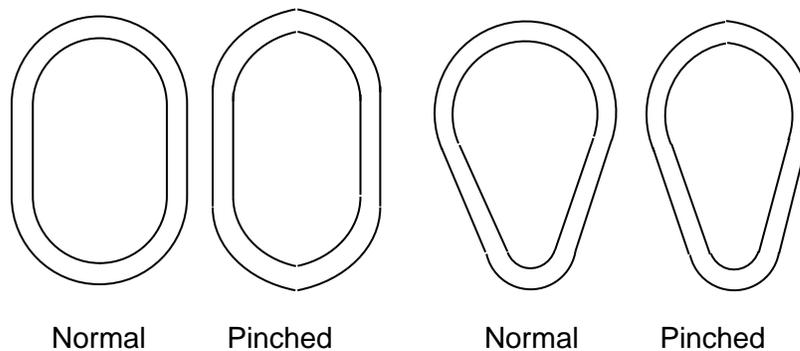


Figure 6. Normal and “pinched” link shapes.

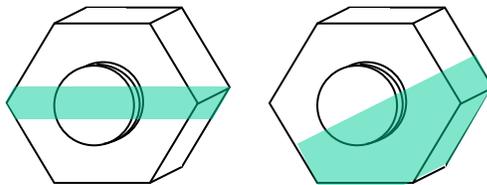


Figure 7. Slippage paint indication.

6. Return to stock if swivel is in sealed packaging and showing signs of usage.
7. Refurbish if swivel has been removed from packaging, is in a used condition, or if deficiencies have been identified in inspection.
8. Dispose of swivel if it fails *Initial Inspection or Testing for Performance* and repairs are not economical feasible to complete.

Refurbishing Procedures

A. Cleaning

1. Wipe clean. Paint as needed.

B. Repair - **Never repair, alter, rework, or reshape a hook, link, or swivel. Return to the manufacturer or qualified rigging company for repair.**

1. Swivel rotation binding and lateral movement repairs. These repairs shall be performed by the manufacturer or certified/qualified rigging facility. The typical repair is the replacement of the bearing. If the bearing is replaced, the replacement bearing shall be capable of a bearing load 3.75 times the swivel's rated capacity.
2. Hook and link problems. The hooks and links of a swivel shall not be altered, rework, or reshaped. They may be replaced. Replacement components shall have a strength capacity of 3.75 times the load carrying capacity of the swivel. Return the swivel to the manufacturer or certified rigging facility for all replacement parts or repairs.
3. Repaint the fastener slip indicator when necessary. Paint as shown in Figure 7.
4. All above repaired swivels (including replaced components) shall be tested per *Testing for Performance*.
5. Link retaining fastener: Threaded link retaining fasteners that use a bolt and self-locking nut may be retightened in accordance with the Table 3: Link Fastener Torque Values. Paint fasteners as shown in Figure 7. Other fastener systems shall be sent to the manufacturer to be repair.

Table 3. Link Fastener Torque Values

Fastener Size	Torque (Ft-lbs.)
5/16	12
3/8	20
7/16	25
1/2	30

Continued -
SWIVEL, cargo, 3,000 lb. capacity
SWIVEL, cargo, 6,000 lb. capacity

NFES #000526
NFES #000286

C. Testing for performance

1. Repairs must be performed and tested by the manufacturer or certified/qualified rigging facility.
2. Each and every repaired swivel shall be strength tested to 2.0 times its rated capacity. The swivel shall be placed into a tensile style loading device that has a current calibration. The swivel shall be tensile loaded to 2.0 times the rated capacity of the swivel. The swivel shall not show any signs of damage due to loading.
3. Each and every swivel whose bearing is repaired shall pass the following tests:
 - a. Free rotation. Open the hook. Rotate the swivel until the ‘jaw’ of the hook is down. Rotate the swivel slowly in one direction and then the other. The speed of rotation shall not be greater than 1 revolution in 5 seconds. The jaw should be held (due to gravity) to an orientation less than 135 degrees from vertical, see Figure 8. If the binding of the swivel results in the jaw of the hook rotating over the top the repair is unacceptable.
 - b. The lateral movement test described in *Initial Inspection/Disposal Criteria #2*, except that maximum lateral movement shall be less than 2 degrees, see Figure 2.

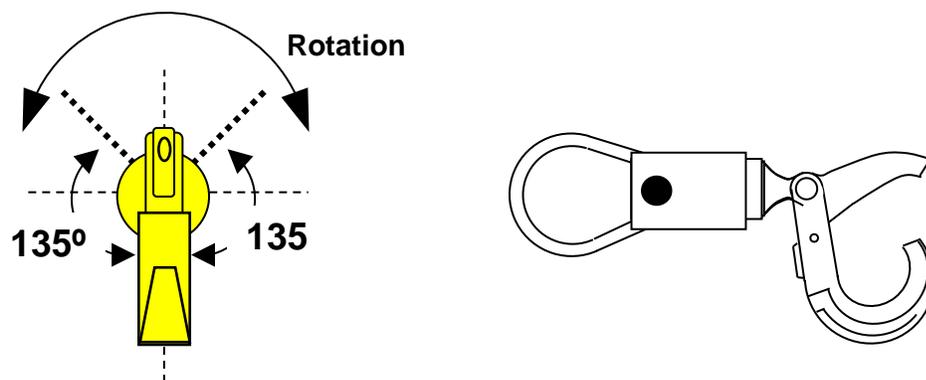


Figure 8. Free Rotation, Unloaded.

4. All replacement hardware (links, bearings, hooks) shall have a working load limit equal or greater than the working load limit of the corresponding swivel; and have a minimum ultimate strength equal to 11,250 pounds for 3000-lb capacity swivels and 22,500 pounds for 6,000-lb capacity swivels. Links and hooks shall meet the requirements of USDA Forest Service Specification for Swivel, 5100-506 for 6,000-lb swivels and 5100-501a for 3,000-lb swivels.
 5. For replaced shank style hooks, the threading of the hook shall follow the hook manufacturer’s recommendations.
- D. Repackaging**
1. NFES #000526 package 6 each in NFES #008018 carton (12” x 12” x 6”).
 2. NFES #000286 package local cache option.

Continued -

SWIVEL, cargo, 3,000 lb. capacity

SWIVEL, cargo, 6,000 lb. capacity

NFES #000526

NFES #000286

Storage and Shelf Life Checks - none

Reference

NFES Cache Memo No. 04-03;

http://www.nifc.gov/nicc/logistics/cachememo/cm_NFES-cargo_08-10-04.pdf

http://www.fs.fed.us/t-d/programs/fire/documents/5100_506.pdf

<http://www.fs.fed.us/t-d/programs/fire/FY09/documents/5100-501a.pdf>

TABLE

TABLE, mess, 4 person
TABLE, folding

NFES #001390
NFES #002698

Initial Inspection/Disposal Criteria

1. Inspect for table surface damage, broken or bent legs, rough edges, missing parts. Inspect for non-standard markings like stickers, carvings, or graffiti.
2. Return to stock if clean, unused, and undamaged.
3. Refurbish metal areas and surfaces as needed if possible.
4. Dispose of items if unable to refurbish.

Refurbishing Procedures

- A. Cleaning High-pressure wash or wipe tables with household cleaners suitable for table surfaces.
 2. Remove non-standard blemishes including markings, stickers, gum, pitch, and stains.
 3. Rinse and air dry completely.
- B. Repair
 1. Mess table - repair damage area by welding, pop riveting or by gluing.
 2. Folding table - Repair legs, straighten dents and miscellaneous damage as economically feasible.
- C. Testing for Performance - none
- D. Repackaging
 1. Mess table- band case. Local cache option
 2. Folding table - Local cache option

Storage and Shelf Life Checks - none

TANK, COLLAPSIBLE

TANK, collapsible, free standing 1,000GL-10,000GL

NFES #000588,
#000090, #000589,
#000668, #000568,
#006030, #006031,
#007744

Initial Inspection/Disposal Criteria

1. Separate tanks by NFES number. Inspect for punctures, tears. Look for damaged couplings, and drain plugs.
2. Return to stock if unused.
3. Refurbish item if tears and holes are repairable with local equipment and expertise. Contact manufacturer for repairs requiring materials or skills not found at the local cache to determine if it is economically feasible to have manufacturer repair tank.
4. Dispose of item if unable to refurbish.

Refurbishing Procedures

A. Cleaning Elevate tank, securing the tank to lifting system with a chain or straps to bear the weight of the tank.

2. Clean tank, inside and outside, with soapy water and a brush.
3. Rinse well with clean water from high-pressure washer.
4. Allow to air dry on both sides.

B. Repair

1. While tank is suspended, mark any holes or damage needing repair.
2. Patch any hole or tears. Small pin hole can be repaired with manufacturer recommended TEAR-AID® Type B or other similar material recommended by the tank manufacturer. Larger holes should be patched with material recommended by the manufacturer utilizing a vinyl welding process. For extremely large holes, contact the tank manufacturer for recommended repair or replacement options.
3. Replace all damaged hose couplings and drain plugs.
4. Stencil correct NFES # of item on collar of tank if missing or unreadable.

C. Testing for performance

1. Check all patches to insure they are secure and there are no loose edges.
2. Suspend tank again to spot holes while looking towards light.

D. Repackaging

1. Fold or roll tank as tightly as possible, secure with plastic banding or rope to keep from unrolling.
2. 1 each of NFES # 000568, #006030, #006031 in NFES #008158 carton (48" x 22" x 31").
3. 1 each of NFES #000090, #000588, #000589, #000668 recommended in NFES #000500 carton (22" x 22" x 36").

Storage and Shelf Life Checks - none

TANK, DIP, HELIWELL

NFES #000669

TANK, dip, 15,000 GL, heliwell

Initial Inspection/Disposal Criteria

1. Observe condition prior to take down or after setting up unit following manufacturer's assembly procedures.
 - Look at rim covers and inspect attached webbing.
 - Remove rim covers and inspect top of tank for abrasions or tears.
 - Look in tank for slices or holes and mark with felt pen if repairs needed.
 - Inspect panels to ensure they are not bent or misshapen and attached clips are functional.
 - Inspect turn buckles and cables for frays and burrs.
2. Return to stock if unused.
3. Refurbish item, if repairs are extensive, refer to SEI Industries website.
4. Dispose of irreparable components and replace as necessary.

Refurbishing Procedures

- A. Cleaning Clean tank liner and panels, inside and outside with soapy water and a brush or high-pressure wash and rinse.
 2. Rinse well with clean water from high-pressure washer.
 3. Allow to air dry on both sides.
- B. Repair
 1. Weld all cracked or broken welds on aluminum panels.
 2. Patch any damaged areas marked in liner. All patches should be welded with patch material that is recommended by the manufacturer.
 3. Rivet rim covers if missing.
 4. Straighten panels and replace clips if needed.
 5. File off burrs on turn buckles.
 6. Replace any missing or damaged fittings, valves, adapters or caps.
- C. Testing for performance
 1. Verify panels are close together by inspecting placement.
- D. Repackaging
 1. Fold tank liner into a shape that fits underneath one panel. See Heliwell operator's manual on SEI website
 2. Place folded liner on a pallet and stack panel atop tank.
 3. Box other components together and place on pallet.
 4. Strap down tank, panels, and boxed components securely.

Storage and Shelf Life Checks - none

References

<http://www.sei-ind.com/products/heliwell>

TANK, FOLDING

TANK, folding 1,000GL w/frame
TANK, folding 1,500GL w/frame

NFES #000661
NFES #000664

Initial Inspection/Disposal Criteria

1. Inspect frame for broken or bent parts, cracks or separations in the welds. Inspect the liner for pin holes, tears, or rips and missing grommets. Inspect for frayed or damaged rope or missing nylon ties securing liner to frame.
2. Return to stock if item is clean and in unused condition.
3. Refurbish item if able to clean and repair. For repairs requiring materials or skills not found at the local cache, contact manufacturer to determine if it is economically feasible to have manufacturer repair tank.
4. Dispose of item if damages are not economically feasible to repair.

Refurbishing Procedures

A. Cleaning

1. Clean tank liner and frame, inside and outside, with soapy water and a brush or high-pressure wash and rinse.
2. Allow to air dry on both sides.

B. Repair

Frame

1. Straighten frame.
2. Weld all cracked or broken welds on frame.
3. Remove rust. Paint as needed.
4. Lubricate hinges with appropriate lubricant.

Liner

1. Patch any hole or tears. Small pin hole can be repaired with manufacturer recommended TEAR-AID® Type B or other similar material recommended by the tank manufacturer. Larger holes should be patched with material recommended by the manufacturer utilizing a vinyl welding process. For extremely large holes, contact the tank manufacturer for recommended repair or replacement options.
2. Replace any missing grommets. If two or more grommets are missing in succession and new grommets cannot be installed, replace liner.
3. The use of cable ties or ¼” nylon rope is recommended for securing the liner to the frame. Ensure that ties or ropes are secure. Replace or tighten as necessary. When using cable ties, use one per grommet and utilize large cable ties at corner and midpoints. Use smaller ties in all other grommets. When using rope, secure one end to the frame. Using a lacing motion, go through the grommet, over the frame and through the next grommet. Continue this motion until entire liner is attached to frame. Secure end.
4. Stencil correct NFES # of item on side of tank if missing or unreadable.

C. Testing for performance

1. Verify hinges operate smoothly.
2. Check all patches to insure they are secure and there are no loose edges.

D. Repackaging

1. Fold the tank ensuring that liner is not pinched during process. Only a minimum, if any, amount of liner is to extend outside the metal frame.

Continued –

TANK, folding 1,000GL w/frame

NFES #000661

TANK, folding 1,500GL w/frame

NFES #000664

2. Band 1,000GL tank near ends, Band 1,500GL tank near ends and in the middle.
3. Secure on pallet.

Storage and Shelf Life Checks - none

TANK, GASOLINE

TANK, gasoline-5GL, pump adapted

NFES #000218

Initial Inspection/Disposal Criteria

1. Check for fuel in tank. Inspect for leaks or separation along seams. Inspect threads on connector for serviceability. Inspect for missing or cracked and damaged gasket on cap. Look for rust inside of tank. Inspect and tighten quick release fuel valve.
2. Return to stock if clean and in unused condition.
3. Refurbish item if tank is free of damage or rust.
4. Dispose of item if tank damage is significant, leaks are detected or rust is found inside of tank.

Refurbishing Procedures

- A. Cleaning Drain existing fuel and purge. Dispose of fuel according to hazardous material regulations and local policies.
 2. Use an air hose to dry the interior of the tank and remove debris inside the female opening of the quick disconnect coupling.
 3. Turn upside down with lids off to dry.
 4. Clean vent hole to ensure serviceability.
 5. Wipe down outside of container and repaint if necessary.
- B. Repair
 1. Replace missing, cracked or stiff gaskets.
- C. Testing for performance
 1. Check all threads on connector for serviceability.
- D. Repackaging
 1. Local cache option
 2. Recommended when shipping, pack in carton NFES #8052 (16"x14"x10")

Storage and Shelf Life Checks - none

TANK, PROPANE

TANK, propane, fuel, LPG, 20lb tank (5GL)

NFES #000491

Initial Inspection/Disposal Criteria

1. Check for rust, dents, punctures, broken valves, and weak valve handle. Verify handle type to ensure that tank meets current specifications for “OPD” valve
2. Confirm test date on propane tank. Tank must be recertified [hydrostatic testing] 12 years from manufacturer date and every 5 years after the first recertification.
3. Return to stock if unused and recertification is valid.
4. Refurbish item if tank is undamaged.
5. Dispose of item if unable to refurbish.

Refurbishing Procedures

A. Testing for performance

1. Apply soapy water to valve area, watch for bubbles indicating leaks.
2. If leaks are detected, tag immediately for repair or remove from service.
3. Safely dispose of tank contents per local HAZMAT disposal policy. Deliver tank to local LPG provider for tank testing, repairs, or disposal.

B. Cleaning

1. Power wash tank and let dry.

C. Repair

1. Replace any broken handles.
2. Ensure warning labels are visible and replace as necessary.
3. A painted stencil or decal reading “NOT FOR INDOOR USE” must be located in a highly visible location on the propane tank with red lettering at least 3/4 inches tall in size.
4. Install plastic cap or plug in valve opening if missing.
5. All other repair will be done by and authorized facility.

D. Repackaging

1. Ensure valve is in the “OFF” position before transporting.
2. Place on pallets and secure with wrap or ties to ensure tanks do not fall or tip over.

Storage and Shelf Life Checks

1. Store in secured (no-smoking) area. Tanks will vent fumes when they get hot. Store out of direct sun.
2. Refer to Forest Service Health & Safety Handbook, OSHA, NFPA, and local direction.

TANK, SNAPTANK

TANK, Snaptank, 1000GL
TANK, Snaptank, 1500 GL

NFES #007614
NFES #007700

Initial Inspection/Disposal Criteria

1. Inspect for all parts and components to form a complete tank; 8 vertical legs, 16 snap support bars, 1 liner, 1 carrying bag and one 3” plug. Inspect for broken or bent legs and support bars. Inspect liner and carrying case for rips, tears, or punctures. Check threads on plug and flange assembly for damage.
2. Return to stock if all components are accounted for and tank is clean and in unused condition.
3. Refurbish if damaged or dirty components are repairable and, can be replaced or cleaned. Refurbish liner if economically feasible. Contact manufacturer for repairs requiring materials or skills not found at the local cache to determine if it is economically feasible to have manufacturer repair tank.
4. Dispose of damaged components or complete tank if damage is excessive.

Refurbishing Procedures

A. Cleaning

1. Dismantle and wipe all metal parts with a damp cloth.
2. Power wash liner and clean bag with mild soap, using a stiff brush if necessary.

B. Repair

1. Replace missing or broken parts of frame.
2. File all burrs smooth on metal components.
3. Suspend tank and mark any holes or damage needing repair.
4. Patch all marked damaged areas. Patch any hole or tears. Small pin hole can be repaired with manufacturer recommended TEAR-AID® Type B or other similar material recommended by the tank manufacturer. Larger holes should be patched with material recommended by the manufacturer utilizing a vinyl welding process. For extremely large holes, contact the tank manufacturer for recommended repair or replacement options.
5. Replace all damaged hose couplings and drain plugs.
6. Stencil correct NFES # of item on collar of tank if missing or unreadable.
7. Ensure all locking buttons snap into place and lubricate as necessary.

C. Testing for performance - none

D. Repackaging - Local cache option.

Storage and Shelf Life Checks - none

References

SnapTank Portable Water Tank | Western Shelter Systems

TEE, HOSELINE

TEE, hoseline

NFES #000230, #000731, #001809, #002240

Initial Inspection/Disposal Criteria

1. Inspect for burrs, gaskets, and fire damage. NFES # 000230 ONLY: Ensure that 1" valve waterway is 0.50 inches in diameter is seated properly with O-rings in place.
2. Return to stock if item is clean, passes inspection and is in unused condition.
3. Refurbish if damaged components are replaceable, if burrs can easily be filed down and if gaskets can be replaced.
4. Dispose of item if it fails inspection, fails *Testing for Performance* or has fire damage.

Refurbishing Procedures

A. Cleaning

1. Powerwash with mild soap, using a stiff brush if necessary.
2. Rinse thoroughly and stand upright to dry.

B. Repair

1. Replace missing or cracked gaskets.
2. File burrs from threads if practical.

C. Testing for Performance

1. Check threads function by using appropriate female fitting.

Additional Testing for Performance (NFES # 000230 ONLY)

2. Install tee on pump.
3. Open handle on valve.
4. Turn on water.
5. Close handle.
6. Turn on pump to 300 PSI and hold for 3 minutes.
7. Inspect for leaks:
 - Gasket.
 - Under valve handle

D. Repackaging

1. Stand upright and dry completely prior to packaging.
 - Use NFES #008017 carton (18" x 12" x 10") for each of the following:
NFES #000230 and #000731 standard pack of 60 per carton.
 - Recommended use NFES #008064 carton (10" x 8" x 6") for each of the following:
NFES #001809 and #002240 standard pack of 20 per carton.

Storage and Shelf Life Checks - none

TENT, 2 PERSON

TENT, 2 person

NFES #000077

Initial Inspection/Disposal Criteria

1. Inspect immediately upon return for moisture, mold or mildew.
2. Inspect tent body and fly for any tears, holes, burns, zippers that do not provide adequate closure or unraveled seams that are not economically repairable.
3. Inspect for any missing components including any missing stretch cords or plastic hooks missing on rain fly, poles or stakes.
4. Inspect poles and stakes for cracks or broken poles, cracked or broken hinge joints, and bent or broken stake poles.
5. Return to stock if tent is dry, clean and in unused condition.
6. Refurbish if item is free of mildew and mold, easily cleaned and any damages are economically feasible to repair.
7. Dispose of tent if mold or mildew is present, if it fails initial inspection or if repairs are not economically feasible.

Refurbishing Procedures

A. Cleaning

1. Set up tent, sweep and remove dirt and debris.
2. Wash with water and mild soap, rinse, and air dry.
3. Remove dirt from tent stakes with a wire brush or water and mild soap.

B. Repair

1. Replace broken poles and nonfunctioning hardware.
2. Straighten bent stakes and remove burrs as necessary.
3. Repairs holes, tears and seams following manufacturer's recommendations.

C. Testing for Performance

1. Set up tent with the fly; test hinge joints for smooth operation. Open and close all zippers ensuring adequate closure.

D. Repackaging

1. 1 each in NFES #008073 carton (30" x 6" x 6").
2. 6 each in NFES #008081 carton (14.5" x 19.5" x 30").

Storage and Shelf Life Checks - none

TENT, WALL

TENT, wall, 14' x 16', without poles

NFES #000084

Initial Inspection/Disposal Criteria

1. Inspect for mold or mildew, rips and tears. Inspect for missing guy ropes and grommets, replace as needed. Validate that item meets NFES item description.
2. Return to stock if item is dry, clean and in unused condition.
3. Refurbish tent if tent damage is repairable and is economically feasible to complete.
4. Dispose of item if mold or mildew is present, if tent is non-standard or fails initial inspection with damage that is not repairable.

Refurbishing Procedures

A. Cleaning

1. Sweep with stiff brush. Wash with warm water and mild detergent and rinse. If necessary, clean stubborn stains with hot water pressure washer using a stiff bristle brush for scrubbing. Ensure tent is dried completely before storage.

B. Repair

1. Replace missing or damaged guy ropes (1/4" X 8' manila rope) and ridge lines (1/4" X 12' manila rope) and replace missing or damaged grommets with proper size grommets. Complete tent includes: 14 each – 8ft manila ropes and 2 each – 12ft manila ropes.
2. Patch small holes, rips and tears following manufacturer's recommendations.

C. Testing for Performance - none.

D. Repackaging

1. Fold tent with guy ropes in the center of folding. Fold so that tent does not have to be turned over when set up (outside of tent is facing up when folding). Package with: 14 EA of stakes--NFES# 000825 and 22 EA of pins--NFES# 000538.
2. Local cache option for carton usage.

Storage and Shelf Life Checks - none

TIP, NOZZLE

TIP, applicator, 3GPM
TIP, applicator, 15GPM,
TIP, nozzle, straight stream and fog

NFES #000735
NFES #000736
NFES #000635,
#000636, #000637,
#000638, #000094,
#000737

Initial Inspection/Disposal Criteria

1. Inspect for burns, cracks, and damaged threads. Inspect for missing, damaged or improper gaskets. Inspect tips for foreign matter obstructions.
2. Return to stock if item is clean, passes inspection and is in unused condition.
3. Refurbish item if gaskets can be replaced, or any damage is easily repairable.
4. Dispose of item if it fails inspection with damages beyond repair.

Refurbishing Procedures

A. Cleaning

1. Wash and clean all items of foreign matter (i.e., mud, dirt, and grease).
2. High-pressure wash or clean in mild detergent with a brush or scouring pad as needed.
3. Soaking in detergent for extended periods will corrode the aluminum.
4. Rinse thoroughly and stand upright to dry.

B. Repair

1. Replace gaskets as necessary.

C. Testing for performance

1. Attach to water source, turn on water and ensure that adequate flow and pattern are attained.

D. Repackaging – Local cache option

1. Recommended:

- Use NFES #008076 carton (8" x 4" x 4") for the following:
NFES #000735, #000736, #000737 standard pack of 20 per carton.
- Use NFES #008064 carton (10" x 8" x 6") for the following:
NFES #000635 standard pack of 40 EA per carton.
NFES #000636, #000637, #000638 standard pack of 60 EA per carton.

Storage and Shelf Life Checks - none

TOOL, COMBINATION

TOOL, combination shovel and grub hoe

NFES #001180

Initial Inspection/Disposal Criteria

1. Inspect for structural damage to pick, hoe blade or both that cannot be repaired or serviced by replacing components.
 - a. Inspect pick for the following:
 - If bent or twisted.
 - If shorter than 4½” long in extended position.
 - If cracks or enlarging exist around hinge leg bolt hole.
 - b. Inspect hoe blade for the following:
 - Cracks or looseness in the area of the hinge leg rivets.
 - If hinge leg bolt hole is enlarged or cracked.
 - If shorter than 6” (measure from turn step to blade tip).
 - c. Inspect handle for the following:
 - Cracked, bent, twisted, or has open grain.
 - Has been shortened (except for detachable handle smokejumper version, which has a 4” shorter handle).
 - Has a nonstandard handle.
2. Return to stock if item passes initial inspection, is clean, sharp and in unused condition.
3. Refurbish if damage is repairable or replaceable, or if handle reconditioning or tool sharpening are required.
4. Dispose of tool if it fails initial inspection or has been modified such that it cannot be return to like new condition.

Refurbishing Procedures

A. Cleaning

1. If friction nut does not turn freely, flush with water. Blow clean with air gun. (Wear safety glasses). If the nut does not turn freely after flushing, remove the hinge leg bolt and friction nut and clean the threads inside. Do not use oil on the friction nut threads or hinge bolt, since oil attracts dust and debris.
2. If tool head cannot be tightened, inspect hinge leg surface contact with friction nut. Remove hinge leg bolt; grind hinge legs as needed so they meet flush with friction nut.
3. Clean handle to remove dirt, tree sap, or other foreign debris.
4. Wash tool head with water and mild detergent. Dry completely before storage.

B. Repair

1. Sharpen both blade and pick at 45 degree angle per hand tool. Refer to tool sharpening gauge NFES #000510.
2. Tighten handle in ferrule by peening rivet head.
3. Scrape and sand handle if chipped, dinged, rough, or has tape or other residues.
4. Handle replacement:
 - a. Grind off end of rivet.
 - b. Punch it through the handle. Remove the handle from the ferrule.
 - c. Place the new handle in the ferrule and drill hole through handle.

**Continued -
TOOL, combination shovel and grub hoe**

NFES #001180

- d. Replace the rivet with #6 x 1-13/16 inch long rivet. Tap rivet with a hammer to mushroom the rivet head or until the handle is tightened. Replacement handles are available from DLA (NSN 5120-01-296-3592).

C. Testing for Performance

1. Extend hoe blade and pick at right angles to tool handle.
2. Tighten friction nut (wear gloves). Move blade and pick up and down and further tighten friction nut.
3. Repeat process to ensure that the blade and pick can be maintained tight by the friction nut.

D. Repackaging

1. 10 each in NFES #000384 carton (46" x 11" x 8").

Storage and Shelf Life Checks - none

TORCH, DRIP

TORCH, drip 1 ¼ GL (4.7L) capacity

NFES #000241

National Caches will no longer refurbish non-OSHA approved torches.

Non-OSHA approved torches must be removed from service by 2019

Initial Inspection/Disposal Criteria

1. Visually inspect tank for cracks, splits, and obvious damage that may cause tank to leak. Ensure lock ring and threads are not damaged and seal properly and air breather tube is not broken or missing. Ensure that discharge plug and chain are attached to tank cover assembly. Visually inspect for correct alignment of igniter, fuel trap and fuel outlet.
2. Return to stock if item is clean, undamaged, and in unused condition.
3. Refurbish if economically feasible and parts are available
4. Dispose of item if it fails inspection and is damaged beyond repair.
5. Salvage usable components and parts for future repairs.

Refurbishing Procedures

A. Cleaning

1. Remove and properly dispose of any residual fuel before any refurbishment.
2. Steam clean or wash with mild degreaser soap, rinse with water, inspect for and remove any scab deposits inside tank.
3. Carbon build-up on the igniter and screen can be cleaned with wire brush as necessary.
4. Tighten screw that holds igniter and screen in place.
5. Thoroughly dry all components with clean rag and air hose.

B. Repair

1. Replace igniter if screen is ruptured, crushed or burned. Tighten the screw that holds igniter and screen in place.
2. Replace igniter if screen is ruptured, crushed, or tiller is burned out or
3. Ensure that the alignment of; igniter, fuel trap and fuel outlet is correct (see insert below). Tighten screw that holds igniter and screen in place.
4. Install discharge plug into the fuel outlet seat.
5. Insert spout into tank and tighten lock ring.
6. Replace worn flammable liquid labels if damage
7. There are several different manufacturers of drip torches. Do not mix the components as the drip torch will not function correctly or will leak.

C. Testing for Performance

1. Fill tank with water to check for leaks, turn drip torch with spout down, open vent, water should flow, close vent water should stop.

D. Repackaging

1. 1 EA in NFES #008189 carton (16" x 8" x 8").

Storage and Shelf Life Checks - none

References - Pictured (figures 1& 2) are two D.O.T. approved shipping containers.

1. Note the UN Markings and Flammable Liquid Label. Drip Torch cans without these Markings and Label may not be used to transport fuel.

**Continued –
TORCH, drip 1 ¼ GL (4.7L) capacity**

NFES #000241

2. The Red can is the 'NEW' OSHA approved can for fuel dispensing.
3. Non-OSHA approved torches must be removed from service by 2019.

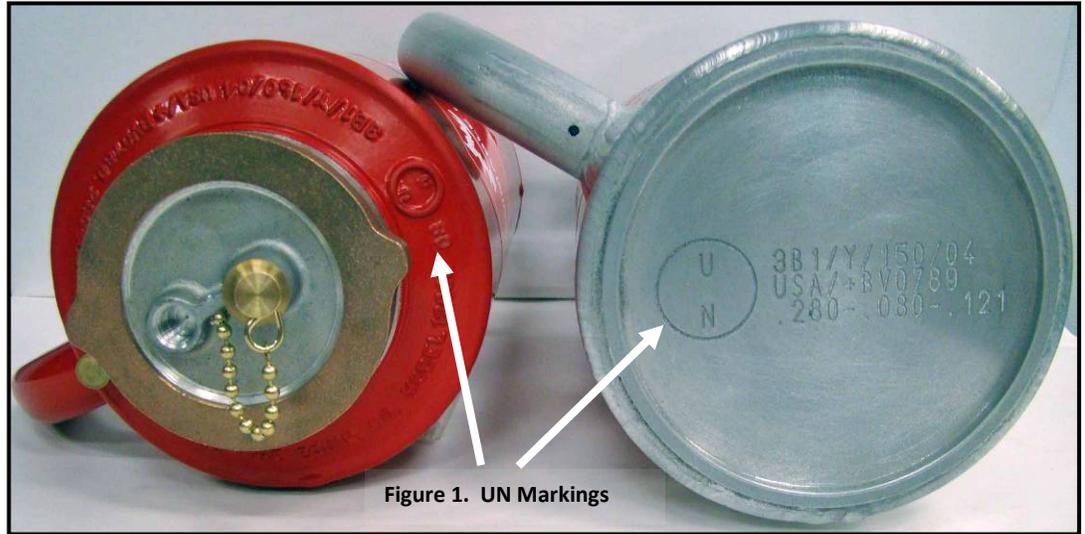


Figure 1. UN Markings

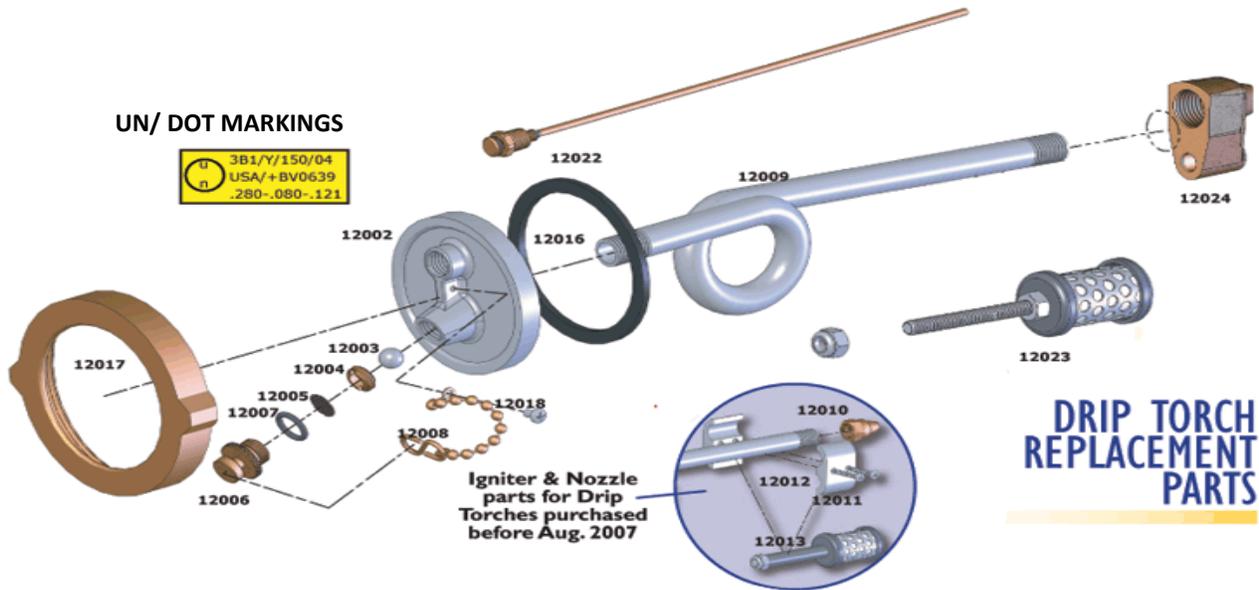


Discharge plug in transport position, fuel outlet is plugged.

Discharge plug in Parked position, fuel outlet is open

Continued –
TORCH, drip 1 ¼ GL (4.7L) capacity

NFES #000241



PART	DESCRIPTION
12002	TANK COVER
12003	CHECK VALVE BALL
12004	CHECK VALVE SEAT
12005	OUTLET SCREEN
12006	DISCHARGE SEALING PLUG
12007	DISCHARGE PLUG GASKET
12008	DISCHARGE PLUG CHAIN
12009	SPOUT AND FUEL TRAP
12010	NOZZLE 3/32 BORE
12011	IGNITER CLAMPS (PAIR)
12012	IGNITER CLAMP SCREW
12013	IGNITER
12016	TANK COLLAR GASKET
12017	TANK COVER LOCKRING
12018	CHAIN SCREW
12022	BREATHER TUBE ASSEMBLY
12023	IGNITER
12024	NOZZLE



NWCG Equipment Technology Committee

Equipment Bulletin



Date: February 25, 2016

ETC-EB-2016-01

Subject: Phase-out of drip torches that do not comply with US Department of Transportation and US Occupational Safety and Health Administration specifications

Issue: Some older drip torches do not meet US Department of Transportation (DOT) specifications for transportation of fuel and are not colored red to meet US Occupational Safety and Health Administration (OSHA) regulations.

Action Recommended By: June 2019

Background: Drip torches were not originally designed to meet DOT hazardous material¹ or OSHA container storage and color² regulations. DOT testing was completed to determine compliance for transportation of full drip torches, and the drip torch did not pass. Since the torches did not meet DOT specifications, they could not be legally transported with fuel in them. In 2003, drip torches were redesigned to meet DOT specifications and later were painted red to meet OSHA regulations for dispensing, storing, and transporting fuel.

All new drip torches purchased by the Federal land management agencies must meet Forest Service specification 5100-614. The specification requires that drip torches meet DOT specifications, including the addition of a flammable liquid label, and to be powder coated red.

In 2009, the Equipment Technology Committee recommended a 10 year phase-in of the new drip torches (see the Interagency Transportation Guide for Gasoline, Mixed Gas, Drip-Torch Fuel, and Diesel)³ in order to provide a reasonable transition period and to reduce the cost burden of meeting this recommendation. Units are strongly encouraged to transition to red drip torches that meet DOT specifications (as required in specification 5100-614) as fuel can be legally stored and transported in these drip torches. A United Nations (UN) symbol is cast or engraved into each drip torch that meets DOT specifications (figure 1).

¹ 49 CFR parts 171-180

² 29 CFR parts 1910.106 and 1910.144

³ refer to Chapter 14 of the *Interagency Standards for Fire and Fire Aviation Operations*



Figure 1. The UN symbol and required text is cast into the bottom of this drip torch.

Recommended Action: Federal land management agencies should discontinue use of all drip torches that do not have a UN marking and are not colored red by **June 2019**.

Additional Information: For further information, review the Interagency Transportation Guide for Gasoline, Mixed Gas, Drip-Torch Fuel, and Diesel (<http://www.nwcg.gov/pms/pubs/442/pms442.pdf>) and the Interagency Ground Ignition Guide (<http://www.nwcg.gov/pms/pubs/443/pms443.pdf>). For any questions, please contact Shawn Steber at the Missoula Technology and Development Center via email at smsteber@fs.fed.us or by phone at 406-829-6785.

VALVE, CHECK AND BLEEDER

VALVE, automatic check and bleeder 1 1/2" NH-F

NFES #000228

Initial Inspection/Disposal Criteria

1. Inspect for missing parts (valves, plugs, and gaskets). Inspect for missing or damaged handle, damaged threads and fire exposure damage.
2. Return to stock if item is clean, passes inspection, and is in unused condition.
3. Refurbish if item exhibits damage that is repairable and item passes testing.
4. Dispose of item if damaged beyond repair, fails *Testing for Performance* and cannot be repaired, or show signs of fire damage.

Refurbishing Procedures

A. Cleaning

1. Wash with mild soap, brush if necessary.
2. Rinse thoroughly and stand upright to dry.
3. Lubricate female coupling with appropriate dry lubricant such as graphite. Wipe off excess.

B. Repair

1. Replace missing or cracked gaskets and handle.
2. Lubricate female coupling with dry lubricant such as graphite.

C. Testing for Performance

1. Install valve on test pump.
2. Fill with water; close handle.
3. Attach caps or nozzle for testing.
4. Test for leaks at 300 PSI for 3 minutes.
5. Inspect for leaks around female coupling, the male flange, under the top of the handle shaft, on the bottom end of the handle shaft, and in the casing.
6. Remove from test pump and ensure the check valve (flapper is operational).
7. Retest valve after any repairs are made.

D. Repackaging

1. Dry completely prior to packaging.
2. 10 EA in NFES #000228 carton (12" x 12" x 8").

Storage and Shelf Life Checks - none

VALVE, FOOT

VALVE, foot, 1 1/2" NH-F w/ strainer

NFES #000212

VALVE, foot, 2" NPSH w/ strainer

NFES #000906

Initial Inspection/Disposal Criteria

1. Inspect for missing parts (screws, screen and adaptor) and damaged threads and gaskets. Inspect spring on check valve for smooth operation.
2. Return to stock if item is clean, passes inspection and is in unused condition.
3. Refurbish if item was used and requires refurbishment.
4. Dispose of item if it is damaged beyond repair or sustained damage due to fire exposure.

Refurbishing Procedures

A. Cleaning

1. Wash with water and mild detergent.
2. Rinse thoroughly and stand upright to dry.

B. Repair

1. Replace missing or cracked gaskets.
2. Repair or replace missing or damaged components.

C. Testing for performance

1. Ensure that valve assembly functions.

D. Repackaging

1. 10 EA in NFES #008064 carton (10" x 8" x 6").

Storage and Shelf Life Checks - none

VALVE, PRESSURE RELIEF

VALVE, pressure relief 1 1/2" NH-F

NFES #000229

Initial Inspection/Disposal Criteria

1. Inspect for damage to threads, missing or damaged parts, and missing or damaged handles.
2. Return to stock if item is clean, passes inspection and is in unused condition.
3. Refurbish if cleaning is required or deficiencies are discovered in the inspection process.
4. Dispose of item if it is damaged beyond repair or has damage caused by fire exposure or fails *Testing for Performance* and cannot be repaired.

Refurbishing Procedures

A. Cleaning

1. Wash with water and mild detergent. Brush if necessary.
2. Rinse thoroughly and stand upright to dry.

B. Repair

1. Replace missing or damaged handle.

C. Testing for performance

1. Pressure testing.
 - a. Install valve on test pump.
 - b. Close handle.
 - c. Attach cap or nozzle for testing.
 - d. Test for leaks at 300 PSI.
 - e. Inspect for leaks around female coupling.
 - f. Inspect for leaks under top of handle shaft.
 - g. Inspect for leaks on bottom end of handle shaft.
 - h. Inspect for leaks in casing.
2. Retest after repairs are made.

D. Repackaging

1. Ensure item is completely dry before packaging.
2. 10 EA in NFES #008105 carton (12" x 12" x 8").

Storage and Shelf Life Checks - none

VALVE, SHUT-OFF

VALVE, shut off, ball

NFES #001201, #001207, #000835, #000738

Initial Inspection/Disposal Criteria

1. Inspect for obvious damage including burrs and thread damage, gaskets missing or damaged, a female collar that must turn freely if applicable, and inspect for damage caused by fire exposure.
2. Return to stock if item is clean, passes inspection and is in unused condition.
3. Refurbish if deficiencies are discovered during the inspection process and item requires cleaning.
4. Dispose of item if damages are not repairable or item has sustained damage caused by fire.

Refurbishing Procedures

A. Cleaning

1. Clean in a mild detergent with brush and scouring pad or use parts washer or high pressure wash to remove foreign matter such as mud, dirt or grease. Rinse thoroughly.
2. Do not soak for extended periods of time as detergent will corrode the metal.
3. Stand upright with barrel in open position to drain water and dry.

B. Repair

1. Replace missing or damaged gaskets or components that are serviceable.

C. Testing for Performance

1. Install valve on test pump.
2. Turn on water to pump and open valve to expel air then close valve.
3. Turn on pump
4. NFES #001201 and NFES #001207 test at 300 PSI for 3 minutes.
5. NFES #000835 and NFES #000738 test at 100 PSI for 3 minutes.
6. Inspect for leaks around the gasket and at the handles while on test pump.
7. If valve leaks, repair as necessary or dispose of through local procedures.
8. Retest after repairs are made.

D. Repackaging

1. Ensure item is completely dry prior to packaging.
2. Packaging:
 - Use NFES #008066 carton (12" x 9" x 10") for the following:
NFES #001201, #001207 standard pack of 20 EA per carton
 - Use NFES #008064 carton (10" x 8" x 6") for the following:
NFES #000835 standard pack of 50 EA per carton
 - Use NFES #008076 carton (8" x 4" x 4") for the following:
NFES #000738 standard pack of 10 EA per carton

Storage and Shelf Life Checks - none

VALVE, WYE

VALVE, wye, gated

NFES #000259, #000231, #000272, #000904

Initial Inspection/Disposal Criteria

1. Inspect for the following:
 - a. Handles-bent, broken, missing, too tight, too loose, expansion pins coming out or missing, handles correct (left and right) and positioned properly.
 - b. Male flange-flange missing, lock-ring and set-screws functional, damaged threads, smooth flat surface on flange, burrs on threads, or loose male flange.
 - c. Female coupling-Coupling spins freely, gasket present and in good condition free of cracks or damage, burrs on threads.
 - d. Casting (body)-Fire damage—look for further damage, O-rings in good condition, corrosion, cracks, and burrs.
 - e. Plastic sphere-Inspect sphere while turning handle; if pitted or rough, replace.
2. Return to stock if item is clean, passes inspection and is in unused condition.
3. Refurbish if deficiencies are discovered during the inspection process and item requires cleaning.
4. Dispose of item if damages are not repairable or item has sustained damage caused by fire.

Refurbishing Procedures

A. Cleaning

1. Clean in a mild detergent with brush and scouring pad or use parts washer or high pressure wash to remove foreign matter such as mud, dirt or grease. Rinse thoroughly.
2. Do not soak for extended periods of time as detergent will corrode the metal.
3. Stand upright with barrels in open position to drain water and dry.
4. Lubricate with appropriate type of lubricant.

B. Repair

1. Replace missing or damaged O-rings and gaskets.
2. Replace broken, missing handles.
3. Repair or replace male flange if damaged is discovered on face or threads.
4. Replace female coupling or bearings if not spinning freely.

C. Testing for Performance

1. Install valve on test pump.
2. Turn on water to pump and open valve to expel air then close valve.
3. Turn on pump
4. NFES #000259 and NFES #000231 test at 300 PSI for 3 minutes.
5. NFES #000904 and NFES #000272 test at 100 PSI for 3 minutes.
6. Inspect for leaks around the gasket, at the handles, and around flanges while on test pump.
7. If valve leaks, repair as necessary or dispose of through local procedures.
8. Retest after repairs are made.

D. Repackaging

1. Ensure item is completely dry prior to packaging.
2. Packaging:

**Continued -
VALVE, wye, gated**

NFES #000259, #000231, #000272, #000904

- Use NFES #000823 carton (15" x 15" x 10") for the following:
NFES #000231, #000259 standard pack of 10 EA per carton
- Use NFES #008064 carton (10" x 8" x 6") for the following:
NFES #000904 standard pack of 50 EA per carton
- Use NFES #008076 carton (8" x 4" x 4") for the following:
NFES #000272 standard pack of 10 EA per carton

Storage and Shelf Life Checks - none

WYE

WYE, plain

NFES #000739, #000839, #000883

Initial Inspection/Disposal Criteria

1. Inspect threads for damage and cracks. Inspect for damaged, missing or stiff gaskets.
2. Return to stock if item is clean, passes inspection, and is in unused condition.
3. Refurbish if item has been used, cleaning and testing are required or components need to be replaced.
4. Dispose of item if it is damaged beyond repair or had damage due to fire exposure.

Refurbishing Procedures

A. Cleaning

1. High pressure wash or clean in a mild dishwashing detergent with a brush or scouring pad as needed to remove all mud, dirt, and grease.
2. Do not soak for extended periods of time as detergent will corrode the metal.
3. Stand upright with barrels in open position to drain water and dry.

B. Repair

1. Replace missing or damaged gaskets.

C. Testing for Performance

1. Install wye on test pump and cap male ends.
2. Turn on water to pump and open caps to expel air then close.
3. Turn on pump
4. NFES #000839 and NFES #000883 test at 300 PSI for 3 minutes.
5. NFES #000739 test at 100 PSI for 3 minutes.
6. Inspect for leaks
7. Retest after repairs are made.

D. Repackaging

1. Ensure item is completely dry prior to packaging.
2. Packaging:
 - NFES #000739-60 EA in NFES#008064 carton (10" x 8" x 6").
 - NFES #000839 and #000883 - Local cache option.

Storage and Shelf Life Checks - none