CHAPTER 12

LIGHTS

Section 12-1. Flashlight Type A-9

12-1. DESCRIPTION.

12-2. The Flashlight Type A-9 (MIL-L-8209) is a hand-generated flashlight which is used on liferafts in emergency situations.

12-3. CONFIGURATION.

12-4. The Flashlight Type A-9 consists of a plastic or metal housing containing a generator, a reflector, and lamp socket. It has an external lever for operating the generator (figure 12-1).

12-5. APPLICATION.

12-6. The Flashlight Type A-9 is intended for use in liferafts. The flashlight is operated by pumping the handle on the flashlight. The handle should be locked when not in use.

12-7. MAINTENANCE.

12-8. Maintenance of the Flashlight Type A-9 is limited to inspection.

12-9. INSPECTION. To inspect the Flashlight Type A-9, proceed as follows:

1. Operate handle to ensure proper function of flashlight.

2. Test spare lamp by removing installed lamp; replace with spare lamp and repeat step 1.

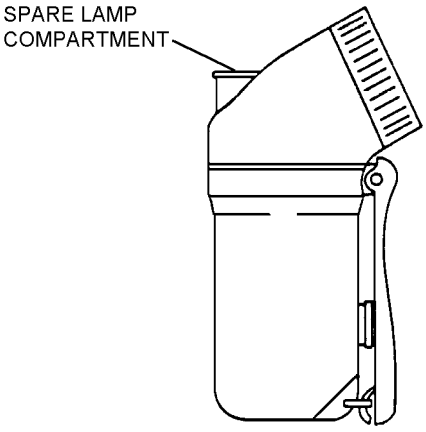

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Figure 12-1. Flashlight Type A-9

Section 12-2. Distress Marker Light Types SDU-5/E and SDU-39/N

12-10. DESCRIPTION.

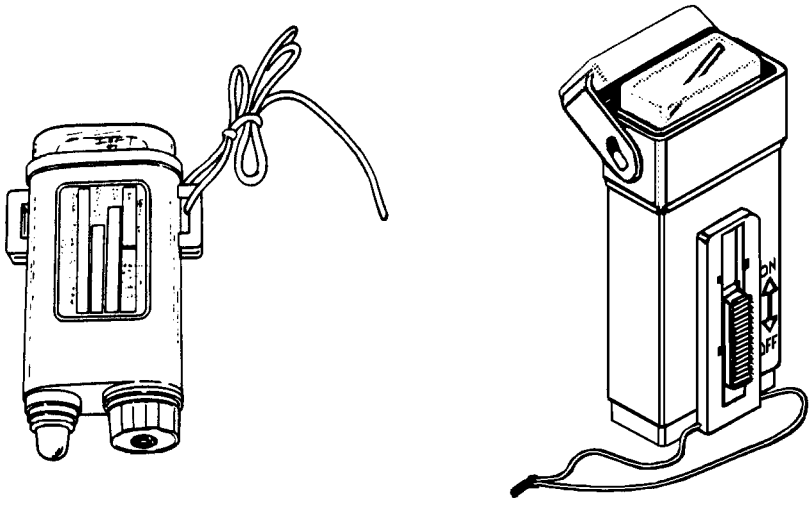
12-11. The SDU-5/E and SDU-39/N strobe lights (figure 12-2) emit a high intensity flashing light, visible for great distances and used to aid in rescue operations.

NOTE

The SDU-5/E along with the flash guard is no longer procurable and has been replaced by the SDU-39/N (NIIN 01-411-8535). All in-service SDU-5/E distress lights are still authorized for use until they fail inspection.

12-12. CONFIGURATION.

12-13. The SDU-39/N (NIIN 01-411-8535) is battery operated and capable of emitting high intensity light. The light incorporates blue and infrared filter lenses and uses standard “AA” batteries (NIIN 01-447-0950) or Energizer L91 lithium batteries (NIIN 01-333-6101) or commercial equivalent. The use of lithium batteries should be used for liferaft and other extended applications since they provide a longer life cycle.



SDU-5/E SDU-39/N 012002

Figure 12-2. Distress Marker Light

NOTE

Batteries for the SDU-5/E can be obtained from the following sources:

a. BA-5374/U (Lithium) NIIN 01-455-9646

b. BA-1574-U
Matthews Associates, Inc.
645 Hickman Circle
Sanford, FL 32771
(407) 323-3390

c. LLB-1
ACR Electronics
5757 Ravenswood Rd
Ft Lauderdale, FL 33312-6645
(954) 981-3333

12-14. APPLICATION.

12-15. The Distress Marker Light is intended for use by aircrew personnel as a visual distress signal. The clear lens is used as a high intensity visual distress signal. The infrared lens is used to avoid detection in a hostile environment. The blue lens is used by SAR Crewmembers as a means of re-establishing visual contact with the aircraft when the aircraft has lost sight of the SAR swimmer or when SAR swimmer is in distress.

12-16. MODIFICATION.

12-17. There are no current directives affecting the distress marker lights.

12-18. MAINTENANCE.

12-19. Maintenance or repair of the Distress Marker Lights shall be performed by Organizational Level or above unless otherwise specified. Maintenance consists of inspection, addition of masking to Distress Marker Light SDU-5/E, addition of hook tape to both distress marker lights, and stowage. Repair and fabrication instructions are listed in table 12-1.

12-20. INSPECTION. Distress Marker lights shall be inspected prior to placing in service, pre-flight, every 90 days or at intervals to coincide with inspection cycle of equipment in which it is installed. Inspect the SDU-5/E Distress Marker Light in accordance with paragraph 12-25. If the AN/PSS-23 Test Set is not available, inspect the SDU-5/E manually. The SDU-39/N Distress Marker Light must be inspected manually.

NOTE

Activate only one light at a time to prevent interaction between lights. The lights shall perform in both lighted areas and in conditions of total darkness. If lights do not operate at the required intervals, replace with new batteries and repeat procedure. If light still does not operate, remove light from service.

It is recommended that you acclimate your eyes in total darkness for a minimum of 5-minutes before performing IR lens test.

Failure of the Distress Marker Light during any portion of the place in service inspection renders the unit Non-RFI and shall be reported in accordance with OPNAVINST 4790.2 series.

12-21. Special Inspection. To perform the Special Inspection, proceed as follows:

1. Inspect Distress Marker Light for signs of damage, cracking, corrosion and battery leakage.

Table 12-1. Distress Marker Light Repairs and Fabrications

Description of Repairs or Fabrications	Application	Paragraph
Addition of Masking to Distress Marker Light SDU-5/E	All SDU-5/E Lights	12-28
Addition of Hook Tape to the Distress Marker Light SDU-5/E and SDU-39/N	All SDU-5/E and SDU-39/N Lights	12-29
SDU-39/N Configuration for SAR Swimmers	SDU-39/N Light used by SAR Swimmers	12-31

2. (SDU-39/N) Inspect felt insert in housing for signs of deterioration and security of attachment.

3. Inspect batteries in accordance with paragraphs 12-26 and 12-27.

4. (SAR Swimmers Configuration Only) Inspect for signs of damage, cracking, corrosion, battery leakage and wear of blue colored lens. Re-color areas of lens that have been worn using a blue permanent marker only.

5. Turn light on. Count number of flashes in a 2-minute duration. Light must operate at 50 flashes per minute ±10 flashes.

6. (Non-SAR Swimmers Configuration) Inspect the SDU-39/N in the IR mode for light leakage. Ensure housing is closed over light and IR lens cap is securely attached over lens. In a dark room, acclimate eyes for a minimum of five minutes. Turn SDU-39/N on and check for any white light leakage at all angles. No leakage is allowed.

NOTE

If leakage is detected around the IR lens, ensure IR lens cap is securely in place, then re-inspect. If leakage is detected coming from the bottom of the light, inspect felt insert in housing for security of attachment. Only the ends of the felt insert shall be attached to housing, the remaining felt will be unattached. This was designed and tested to prevent light leakage from emitting through the bottom of the light in the IR position.

7. Replace light and batteries as required.

12-22. AN/TS-23 TEST SET FOR SDU-5/E DISTRESS MARKER LIGHT. The AN/TS-23 test set (NIIN 01-085-9669) (figure 12-3) is a self-contained and powered, completely portable unit, with a digital alpha-numeric display, capable of checking the complete operational readiness of distress marker lights. It tests lights for operation in a nighttime environment and simultaneously tests flashing rates by means of a digital readout for proper operation in the 50 ±10 flashes per minute (FPM) acceptance range. An automatic test function is also provided to check the battery used with the SDU-5/E lights.

12-23. Installation of Battery Power Supply. The AN/TS-23 test set is shipped without a battery. To install the battery power supply, proceed as follows:

1. Remove the bracket labeled Test Set Battery on the left side of the unit and install a standard BA-1574/U battery.

2. Check unit for proper operation by inserting an operational distress marker light into the trap door on the front panel of the test set.

3. The digital display should light up. It is now ready to test the distress marker light and BA-1574/U battery.

12-24. Test Set Power Supply Battery Replacement. The battery (BA-1574/U) used to power the test set (located on left side of test set) will require periodic replacement dependent upon test set usage. When the digital display becomes dim and difficult to read, the battery should be replaced.

12-25. TESTING THE SDU-5/E DISTRESS MARKER LIGHT. To test the SDU-5E Distress Marker Light, proceed as follows:

1. Insert the Distress Marker Light, light end down, into trap door on front panel of AN/TS-23 test set and seat firmly on foam pad.

2. Push switch on Distress Marker Light to turn light on.

3. Allow light to flash a minimum of two times. Flashing light can be observed through the red window provided to the left of the trap door.

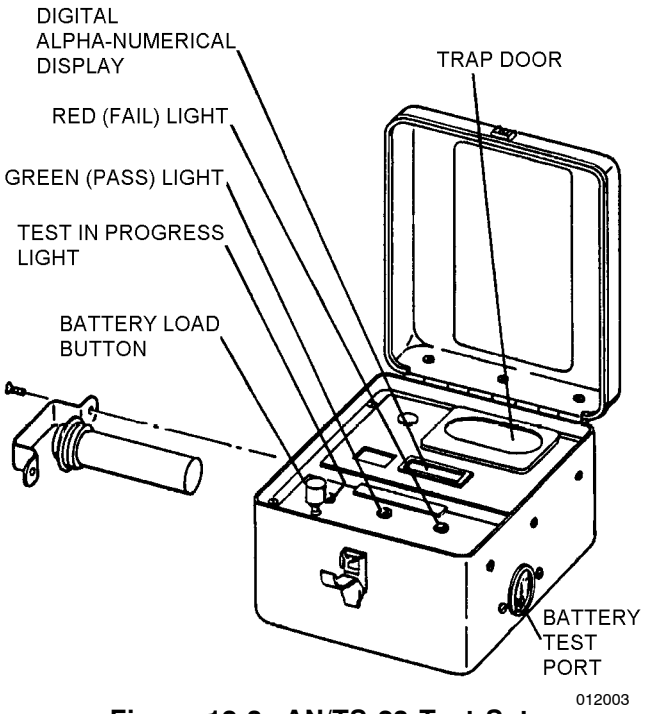


Figure 12-3. AN/TS-23 Test Set

4. Reading on digital display should be 100 to 150 for a good light. This corresponds to a flash rate of 50 ± 10 flashes per minute.

5. At completion of test, remove light and test set will automatically turn off.

12-26. TESTING THE BA-1574/U BATTERY. To test the BA-1574/U battery, proceed as follows:

1. Clean battery and check expiration date. Batteries expire 36 months from date of manufacture.

2. Insert the battery to be tested into the test port provided on the right hand side of AN/TS-23 test set.

3. Push and hold the button marked Battery Load on the front panel of the test set. Test in Progress light will come on.

4. After approximately 5 seconds, either the green (pass) or red (fail) light will come on. A green indication (pass) assures that the battery is safe for at least a 5 hour mission.

5. Immediately after testing, release the Battery Load button and remove the battery being tested.

12-27. TESTING THE BA-5374/U, LLB-1, L91, AND AA BATTERIES. To test the batteries, proceed as follows:

NOTE

Installed life shall be 2 years for liferafts and other extended applications and 2 years installed life for survival vest applications. Shelf life shall be 5 years from date of manufacture, 3 years for AA alkaline batteries.

1. Place-In-Service Inspection for BA-5374/U and LLB-1 Batteries.

a. Perform a load test by placing a 100 ohm, 1/2 watt or better load on the battery for 10 seconds. A reading of not less than 6.2 volts should be indicated.

NOTE

The initial load test verifies the new battery is sound.

2. Special Inspections for BA-5374/U and LLB-1 Batteries.

NOTE

Battery must be at room temperature for a minimum of 8 hours before performing test.

a. Attach the leads of a digital multimeter to the corresponding ends of the battery and take a reading. A reading of not less than 5.9 volts should be indicated on multimeter.

3. Place-In-Service and Special Inspection for L91 and AA Batteries.

NOTE

The L91 Battery used in the SDU-39/N is highly recommended for use in all applications since it has up to three times more energy than the alkaline battery.

a. Test the L91 and AA batteries using a standard digital multimeter. Attach the leads of a digital multimeter to the corresponding ends of the battery and take a reading. Voltage reading should be 1.5 volts or greater.

4. Replace batteries as required.

5. Record inspection data on appropriate forms in accordance with OPNAVINST 4790.2 series.

12-28. ADDITION OF MASKING TO DISTRESS MARKER LIGHT SDU-5/E. To mask the SDU-5/E for use with the FG-1B flash guard and MXU-507 filter, proceed as follows:

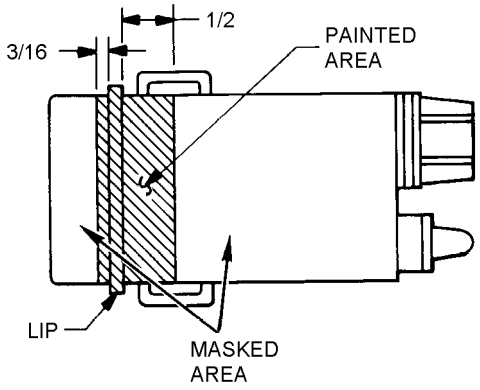
NOTE

Recently procured SDU-5/E distress signal lights will have a painted area added by contractor.

Materials Required

Quantity	Description	Reference Number
1	Light, Signal Inferred Filter	MXU-507 NIIN 00-783-5713
1	Flash Guard	FG-1B NIIN 00-401-2285
As Required	Lacquer, Type I, Black	TT-L-50
7 Inches	Masking Tape 3/4-Inch	—

1. Using tape, mask the portions of the distress signal light as illustrated.



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Step 1 - Para 12-28

2. Spray or brush a minimum of two coats of black lacquer on the exposed area, allowing sufficient time for drying between coats.

3. Remove tape. The light is ready for use with either the flash guard or the filter snugly installed over the clear plastic dome.

12-29. ADDITION OF HOOK TAPE TO THE DISTRESS MARKER LIGHT. To provide easy attachment of Distress Marker Light to aircraft personnel flight gear, proceed as follows:

NOTE

Recently procured SDU-5/E Distress Marker Lights will have masking and hook tape added by contractor.

Materials Required

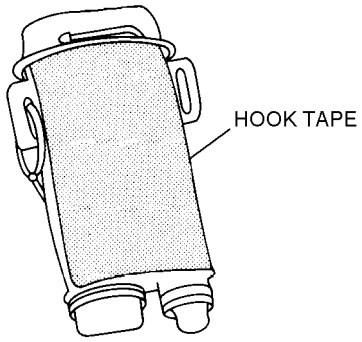
Quantity	Description	Reference Number
—	Fastener Tape, Hook, Type I	MIL-F-21840 NIIN 00-985-7450
—	Adhesive, Polychloroprene	MIL-A-5540 NIIN 00-515-2246

1. Cut proper size piece of hook tape.

   a. For SDU-5/E – 1 1/2 x 3 inches.

   b. For SDU-39/N – 1 1/2 x 1 1/2 inches.

2. Cement the hook tape to back side of the Distress Marker Light.



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Step 2 - Para 12-29

WARNING

Light may be inadvertently activated with cap off and may cause night blindness.

12-30. STOWAGE. Stow the SDU-5/E Distress Marker Light with the dome facing down. Stow the SDU-39/N Distress Marker Light with IR Lens Cap snapped securely in place, dome facing down and ON/OFF switch facing inboard towards the wearer. Stow SAR configured strobe light with blue lens facing down.

12-31. SDU-39/N CONFIGURATION FOR SAR SWIMMERS ONLY. The following configuration is for use on the TRISAR Harness and HBU-23/P Rescue Harness only. To configure the SDU-39/N for SAR Swimmers, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Fastener Tape, Hook, Type I, Black	MIL-F-21840 NIIN 00-454-9063
As Required	Adhesive, Polychloroprene	MIL-A-5540 NIIN 00-515-2246
As Required	Marker, Permanent, Blue or Equivalent	NIIN 01-015-1608

1. Remove housing assembly from light by grasping the housing with one hand and the body of the strobe light with the other and firmly pull the housing off the body of the light. Retain housing for future use, do not destroy.

2. Using a blue permanent marker only, color the clear lens completely with the blue marker. Let ink dry completely before proceeding.

3. Cut a 1 1/4 inch by 3 1/2 inch piece of hook tape. Glue the hook tape to the back side (opposite switch) of distress marker light. Let glue dry completely before proceeding.

4. Using an etching tool, etch the serial number and contract number on either side of the distress marker light.

Section 12-3. Survivor Locator Light (LPP-1 and -1A Life Preserver)

12-32. DESCRIPTION.

12-33. The Survivor Locator Light is a battery-operated light which is water-activated and used to attract attention of SAR aircraft.

12-34. CONFIGURATION.

12-35. The Survivor Locator Light (P/N 68A94C14-1, CAGE 30003) or suitable substitute (P/N 68A94C13-1) is a small compact unit consisting of a lens, connector wire, and battery case. The light emits a high intensity light visible for many miles and has an operational life of 8 continuous hours (figure 12-4).

12-36. APPLICATION.

12-37. The Survivor Locator Light is attached near the top right side of the flotation assembly to provide maximum visibility. The battery pack hangs below the light to ensure contact with water. When activated, a high intensity light is emitted to attract attention of SAR aircraft, ships, or ground rescue parties.

12-38. MODIFICATION.

12-39. There are no current directives affecting the Survivor Locator Light. Repair or other actions required shall be performed by Intermediate Level or above.

12-40. MAINTENANCE.

12-41. Maintenance or repair of the Survivor Locator Light shall be performed by Intermediate Level or above unless otherwise specified. Maintenance consists of inspection.

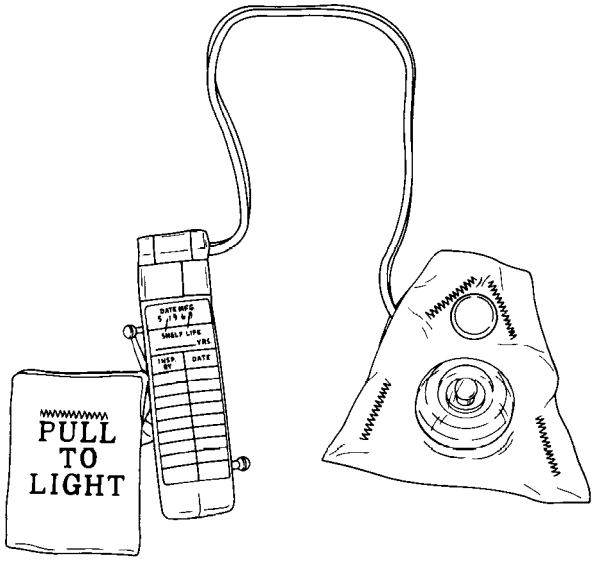

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Figure 12-4. Survivor Locator Light

12-42. INSPECTION. To inspect the Survivor Locator Light, proceed as follows:

1. Separate plug from battery pack.

2. Visually check the light for operation as follows:

a. Obtain a known good 1.5 volt dry battery (D cell) and two pieces of light gage wire.

b. Tape, solder, or hold one piece of wire to the negative terminal of the battery. Tape, solder, or hold the second piece of wire to the positive terminal of the battery.

c. Insert the two wires from battery into the two terminals of light assembly plug. If bulb is good, light will illuminate.

3. To check battery pack, proceed as follows:

a. Obtain an ohmmeter, and set to R X 10,000 scale, ensure leads are in proper jacks in ohmmeter.

b. Attach leads from ohmmeter to battery terminals on battery pack. Resistance shall indicate from 10,000 to infinity.

4. If Survivor Locator Light fails inspection, replace.

NOTE

Battery plugs having broken pull tabs should be discarded. However, if a replacement is not available, drill the plug and replace the pull with Type I nylon parachute cord. Battery plugs that are loose can be secured using a rubber band (NIIN 00-285-1787). Annotate on history card that rubber band is installed on light.

5. Reassemble unit by plugging light assembly into battery pack.

6. Record inspection date (quarter and year) on decal and attach to battery pack. Make necessary entries on appropriate forms in accordance with OPNAVINST 4790.2 Series.

Section 12-4. Penlight Flashlights

12-43. DESCRIPTION.

12-44. Penlight flashlights are water resistant, battery-operated flashlights with a black finish that emit either a red or white light. Figure 12-5 illustrates typical configuration.

12-45. CONFIGURATION.

12-46. There are several styles of penlights available (NIIN 01-395-5230, NIIN 01-419-4076 and NIIN 01-353-4468).

12-47. The following are the minimum requirements for Penlight flashlights: black finish, (some flashlights may have a rubber head or rubber grip or both), uses "AA" batteries, red and white exchangeable lenses, on/off switch and lanyard attachment point. (Refer to paragraph 12-51 for lanyard attachment point modifications).

NOTE

If the Penlight flashlights procured from supply do not meet the minimum requirements, it must be reported in accordance with OPNAVINST 4790.2 series.

12-48. APPLICATION.

12-49. The flashlights are intended to provide aircraft personnel with a temporary light source. The flashlights may be equipped with a red lens to eliminate any unnecessary glare if used in combat areas.

12-50. MODIFICATION.

12-51. REMOVAL OF FOD HAZARDS. To modify the flashlights for the prevention of possible FOD, proceed as follows:

1. Pocket Clip/Attachment Ring.

a. (For All Flashlights) Remove pocket clip if present.

b. (For flashlights with an attachment ring) Remove attachment ring on tail of flashlight if present. Route lanyard through hole vacated by ring.

c. (For flashlights without the presence of a lanyard attachment point) Cut a 60-inch length of type 1 or 1A nylon cord (MIL-C-5040) and sear ends.

(1) Tie an overhand knot in the one end and wrap end of cord one turn around the neck of light above the rubber ON/OFF switch cover. Tie with surgeons knot and position knot opposite of switch.

(2) Route cord to opposite end of light, just below the hand grip, and tie in the same manner as step (c)(1).

(3) Secure cord to light just below rubber ON/OFF switch cover using three turns of electrical tape MIL-I-24391. Repeat process at opposite end of light just above the knot.

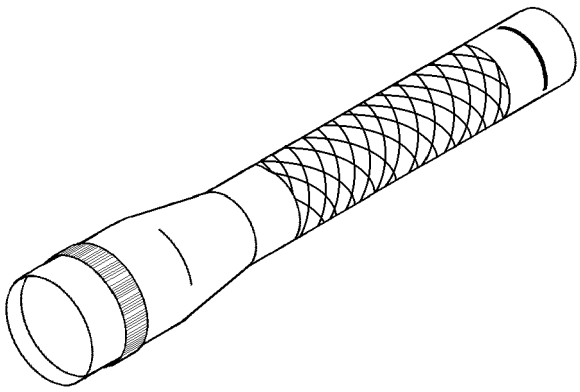

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Figure 12-5. Flashlight

(4) Fake remaining cord and secure with rubber band.

2. Lights With Loose or Removable Plastic Lenses.

a. Secure plastic lens in place by placing several beads of glue (white Elmer's glue or equivalent and toothpick or cotton swab) around inside perimeter of lamp head on top of lens.

b. Wipe any excess glue off lens face.

12-52. MAINTENANCE.

12-53. The penlight flashlight shall be inspected every 90 days or at intervals to coincide with the equipment in which it is installed. Maintenance of the Penlight flashlight is limited to a visual inspection and the removal and replacement of batteries and lamp.

12-54. INSPECTION. To inspect the flashlights, proceed as follows:

1. Inspect lamp for operation and corrosion. Replace if necessary.

2. Check lenses for scratches, clarity, and (for lights with removable plastic lenses) security of glue. (See paragraph 12-51 for FOD modification).

3. Inspect batteries for corrosion or leakage, and replace if necessary.

NOTE

Use alkaline batteries (NIIN 00-985-7845) or Lithium batteries (NIIN 01-333-6101).

4. Inspect lanyard for security of attachment. Replace lanyard as necessary.

Section 12-5. Chemical Lights

12-55. DESCRIPTION.

12-56. The Chemical Light is a foil-wrapped plastic wand which emits a chemically activated light useful during nighttime rescue operations.

12-57. CONFIGURATION.

12-58. The Chemical Light is a plastic wand that encases two chemicals, one of which is in a thin glass vial. When the plastic wand is flexed and shaken, the vial breaks, the two chemicals mix, and light is emitted.

12-59. Six-hour general purpose Chemical Lights are available in four-inch (NIIN 00-106-7478) and twelve hour six-inch (NIIN 01-074-4229) sizes; these emit a green light. A thirty-minute high intensity yellow (NIIN 01-074-4230) and a five minute orange light (NIIN 01-247-0363) are also available. Each light is foil-wrapped to protect it from humidity and to increase its shelf life (figure 12-6).

NOTE

A six-inch, twelve-hour red, a six-inch, twelve-hour green and a six-inch, three-hour, infrared chemical light are used in the Cold Weather Survival Kits (Chapter 11, tables 11-1 and 11-2).

The five minute (NIIN 01-247-0363) and the twelve hour (NIIN 01-074-4229) chemical lights shall be replaced by cyalume S.O.S. chemical lights for life preserver application.

12-60. APPLICATION.

12-61. The Chemical Light is intended to aid in locating downed aircrewmembers and assist SAR crewmembers during nighttime rescue operations.

12-62. MAINTENANCE.

12-63. Maintenance of the Chemical Light is limited to inspection.

12-64. SPECIAL INSPECTION. The Chemical Lights shall be inspected at time of place in service, every 90 days or at intervals to coincide with the equipment in which it is installed. To inspect, proceed as follows:

NOTE

The shelf life of the Chemical Light is 48 months when left in an undamaged foil wrapper. The shelf life for the six-inch infrared chemical light is 36 months when left in an undamaged foil wrapper.

1. Inspect foil wrapper for puncture or tears. If damage exists, discard chemical light and replace.

2. Inspect expiration date on foil wrapper.

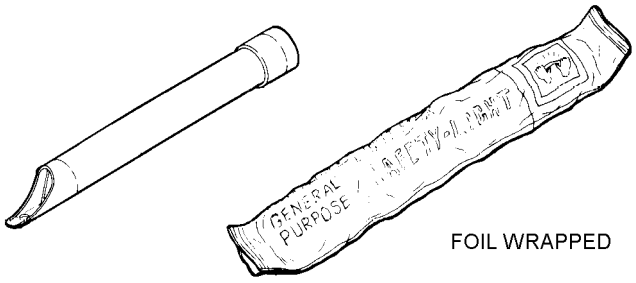

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Figure 12-6. Chemical Light

Section 12-6. CYALUME S.O.S. Signal and S.O.S. Light

12-65. DESCRIPTION.

12-66. Cyalume S.O.S. Lights (figure 12-7) consist of chemicals encased in plastic wands, which when activated produce high intensity light. Each wand is housed in a self-contained durable plastic casing. The Cyalume S.O.S. Signal Light (P/N 95277-81, NIIN 01-334-6826) and Cyalume S.O.S. Light (P/N 95277-80, NIIN 01-334-4274) are manufactured by American Cyanamid Company (CAGE 83289).

12-67. CONFIGURATION.

12-68. Cyalume Lights are available in two configurations; an S.O.S. Signal which emits a high intensity orange light for a duration of 5 minutes and an S.O.S. Light with a duration of 8 hours which emits a high intensity green light. Each light consists of a plastic tube, or wand, which encases two chemicals, one of which is in a thin glass vial. Each light tube is housed in a 5 1/2 x 3/4 inch durable protective casing which protects the chemical light and prolongs shelf life. The lights are activated by flexing the plastic tube to break the glass vial and shaking the tube to mix the chemicals which then emit a high intensity light. Replacing an activated light back into its protective casing and closing the cap will prevent almost all light from escaping. A lanyard is provided which is tied to the cap of the chemical light casing and the end of the lightstick. An attached lanyard enables user to swing the light for signaling.

12-69. The 5-minute chemical light is labeled, CYALUME S.O.S. SIGNAL, on the outer casing and has an orange seal wrapped around the upper portion of the casing and casing cap. A raised circular dot just below the orange seal aids identification in the dark. The 8-hour chemical light is labeled, CYALUME S.O.S. LIGHT, on the outer casing and has a green seal wrapped around the upper portion of the casing and casing cap. A raised triangle just below the green seal aids identification in the dark. The seal wrapped around each case shall be labeled to indicate the date of manufacture and expiration date of the enclosed chemical light.

NOTE

The Cyalume S.O.S. lights shall replace 5-Minute Chemical Light, NIIN 01-247-0363, and 12-Hour Chemical Light, NIIN 01-074-4229, through attrition.

12-70. APPLICATION.

NOTE

The Cyalume S.O.S. lights shall not be used with Search and Rescue Swimmer's Harness (P/N 205 NAVAIR 3477AS100) or Rescue Swimmer's Mask MPU-4/P. Inspect harnesses, and if they have been configured to use Cyalume S.O.S. lights, remove and reconfigure with two 4-inch chemlight, (P/N 95270-16, NIIN 00-106-7478) and two 6-inch Chemlight (P/N 95270-52, NIIN 01-074-4229).

12-71. The Cyalume S.O.S. Chemical Lights are intended for the use of downed aircrewmembers as an aid to search and rescue operations.

12-72. MAINTENANCE.

12-73. Maintenance of the Cyalume Chemical Lights is limited to Visual Inspection.

12-74. VISUAL INSPECTION. The Cyalume Chemical Lights shall be inspected when placed in service and every 90 days thereafter. To inspect, proceed as follows:

1. Inspect condition of seal around chemical light plastic casing. If damaged or open, replace seal.

2. Check expiration date on casing seal.

3. Inspect lanyard for cuts, fraying or other damage. If damaged, replace lanyard with olive drab Type III nylon cord (MIL-C-5040).

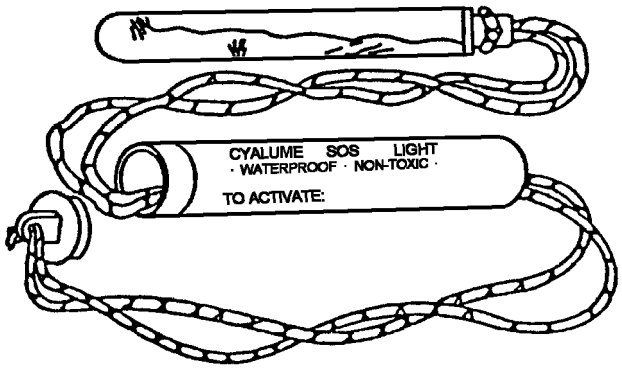

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Figure 12-7. Cyalume S.O.S. Chemical Lights

Section 12-7. Cyalume Personnel Marker Light (PML)

12-75. DESCRIPTION.

12-76. The Cyalume Personnel Marker Light (PML) consists of chemicals encased in plastic wand that produces a high intensity light. The Cyalume PML (P/N 9-27058, NIIN 01-086-8077) is manufactured by Omniglow Corporation. Refer to NAVAIR 13-1-6.7-1 for authorized configuration applications.

12-77. CONFIGURATION.

12-78. The Cyalume PML emits a high intensity green light that has a duration of 8 hours. The Cyalume PML is self-contained, water proof, and is 5 inches in length. The plastic wand has an attached handle and is protected by a plastic cover. A retention clip is used for attachment to the pouch type life preserver. Squeezing the handle, which breaks the internal glass vial in plastic wand, activates the light. Shaking the wand mixes the chemicals that produce the high intensity light. Once the light is activated, the protective cover should be discarded.

12-79. APPLICATION.

12-80. The Personnel Marker Light is for use with the pouch type life preserver. It is intended for use by troop passengers of Marine Corps helicopters to aid in search and rescue operations.

12-81. MAINTENANCE.

12-82. Maintenance is limited to a Visual Inspection.

12-83. VISUAL INSPECTION. The Personnel Marker Light shall be visually inspected when placed in service, and every 90 days thereafter or to coincide with the inspection schedule of the equipment in which it is installed. To inspect the Personnel Marker Light proceed as follows:

1. Inspect for damage and cracks in plastic handle and casing.

2. Inspect for presence of clip.

3. Inspect condition of seal around chemical light plastic casing. If damaged or opened, inspect plastic wand for activation. If not activated, replace seal.

4. Check expiration date on seal.

5. Replace Personnel Marker Light as required.

Section 12-8. Regular Standard, Right Angle, 2-Cell Flashlight

12-84. DESCRIPTION.

12-85. The Regular Standard, Right Angle, 2-Cell Flashlight (figure 12-8) is a battery-operated flashlight which emits white, red, and diffused light and is intended for general use.

NOTE

For night vision goggle compatibility, the flashlight may be used with a green indicator light filter (NIIN 01-369-1658).

12-86. CONFIGURATION.

12-87. The Regular Standard, Right Angle, 2-Cell Flashlight (MX-991/U, NIIN 00-264-8261) consists of a filter cap; clear lens; reflector; lamp holder; belt clip; battery case; switch; rear spring contact; battery retainer (end cap); spare lamp holder with lamp; lens storage area in end cap which contains diffused (1), blackout (1), red filters (2), and blue filter (1); and a suspension ring located on the bottom of the end cap. The flashlight is powered by two Type BA-30 (commercial, Size D dry cells) conforming to MIL-B-18.

NOTE

Use of alkaline batteries (NIIN 00-835-7210) is preferred. Carbon-zinc batteries may be used only when alkaline batteries are unavailable.

12-88. APPLICATION.

12-89. The Regular Standard, Right Angle, 2-Cell Flashlight is intended for general use. The flashlight is operated by a push slide type switch mounted on the side of the flashlight case. The switch provides a locked OFF, FLASHING, and positive ON position and can be operated with one hand. The filters can be changed (depending on the application) by means of unscrewing the filter cap, installing the filter in front of the lens, then screwing the filter cap back onto the front of the flashlight. If the lamp requires changing, a spare is located in a holder located in the battery retainer.

12-90. MAINTENANCE.

12-91. Maintenance of the Regular Standard, Right Angle, 2-Cell Flashlight is limited to inspection.

12-92. INSPECTION. To inspect the Regular Standard, Right Angle, 2-Cell Flashlight, proceed as follows:

1. Ensure that flashlight operates properly.
2. Inspect lamp and replace if necessary.
3. Inspect filters for cracks, etc.
4. Inspect belt clip.
5. Inspect suspension ring for attachment.
6. Inspect for corrosion.

NOTE

The standard issue flashlight is shown. To reduce FOD potential, carry only filters required. The suspension ring may be also removed.

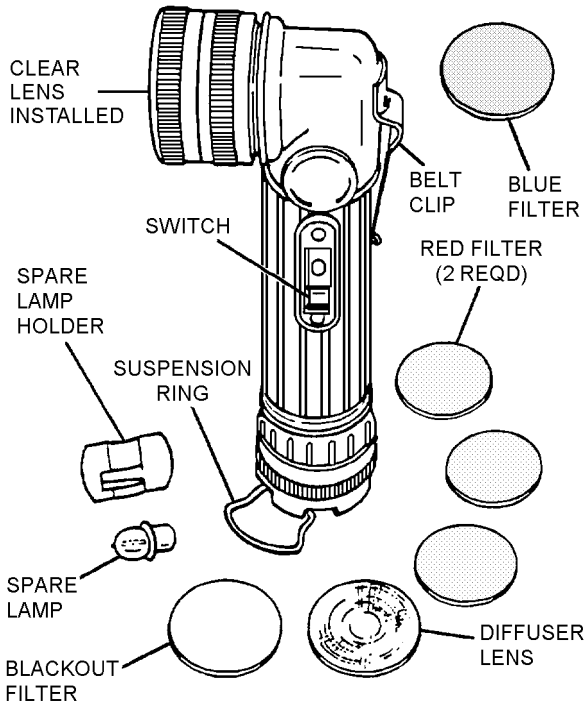

Figure 12-8. Regular Standard, Right Angle, 2-Cell Flashlight

Section 12-9. ACR/FA-11 and ACR/FA-11(M) Crew Light

12-93. DESCRIPTION.

12-94. The ACR/FA-11 and ACR/FA-11(M) are compact, water resistant, battery operated flashlights which emit white or red diffused light and are intended for utility or emergency use. Differences are in color, FA-11 orange and FA-11(M) olive green, and a short lanyard attached to the top of the FA-11. Both units are listed under NIIN 01-035-6077.

12-95. CONFIGURATION.

12-96. The ACR/FA-11 and ACR/FA-11(M) crew lights consist of a lamp lens; red sliding filter; switch; battery case; bottom cover (battery retainer); lanyard (ACR/FA-11 only); velcro backed belt clip; and a lamp extraction/installation tool which is discretionary with Type Commanders. The crew light is powered by two standard size AA (1.5V) batteries (figure 12-9).

NOTE

Use of alkaline batteries (NIIN 00-985-7845) is preferred. Carbon-zinc batteries may be used only when alkaline batteries are unavailable.

12-97. APPLICATION.

12-98. The ACR/FA-11 and ACR/FA-11(M) crew lights are intended for utility or emergency use. The lights are operated by a positive action lever ON/OFF switch located on the top of the units and can be operated with one hand. A built-in red filter slides over the lamp for night vision application. The stainless steel pocket/belt clip has velcro backing and the light is self-standing. The bottom cover is designed to serve as a spanner wrench for lens removal. All ports and openings are sealed with O-rings for water resistance.

12-99. MAINTENANCE.

12-100. Maintenance of the ACR/FA-11 and ACR/FA-11(M) crew lights is limited to inspection.

12-101. INSPECTION. To inspect the ACR/FA-11 and ACR/FA-11(M) crew light, proceed as follows:

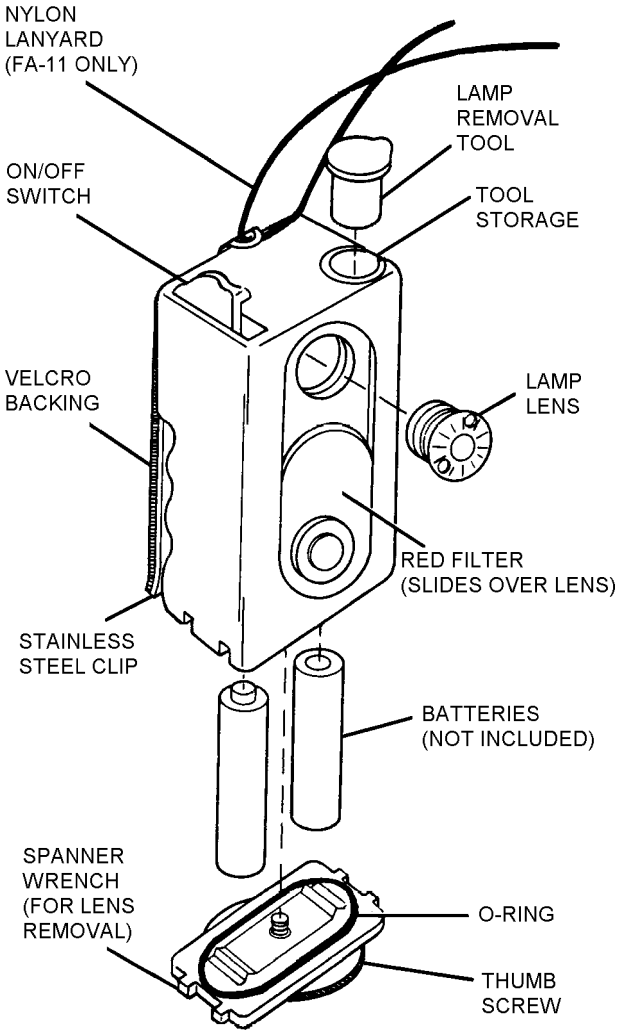

Figure 12-9. ACR/FA-11 and ACR/FA-11(M) Crew Light

NOTE

Lamp removal tool is a FOD hazard, remove during place-in-service inspection.

1. Ensure that light operates properly.

2. Inspect lamp lens and replace if necessary (GE Type 243 or equivalent).

3. Inspect red filter for cracks and freedom of movement.

4. Inspect pocket/belt clip and velcro backing.

5. Inspect for corrosion.

6. Inspect bottom cover for cracks.