

# NAVIGATION SYSTEMS ATON KIT

# ATON KIT

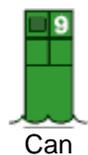
## (SHORT RANGE AIDS TO NAVIGATION)

*Every member while underway on an authorized patrol should be checking every Short Range Aid to Navigation—ATON that they pass and report all discrepancies they observe to the local CG Unit – ANT—Aid to Navigation Team. These aids are normally used as lateral marks and comply with the IALA-B Aid to Navigation System.*

**Port Side Marks** indicate the left side of channels when proceeding in the Conventional Directions of Buoyage. They normally show as a square or can in shape, are **green** in color, and have **odd** numbering. Beacons have green square daymarks while buoys are green cans or pillar buoys. **Green** lights of various rhythms are used on port hand marks. Note that the numbers on daymarks are the color of the aid while the numbers on buoys are white.

### Port Side Odd Numbered Aids

#### ■ Green Light Only



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**Preferred Channel to Starboard** - have no numbers but may be lettered.  
Used as port side aids in the primary channel; used as starboard side aids in the secondary channel. The topmost band is colored **green**.

## ■ Green Light Only

### Composite Group Flashing (2+1)



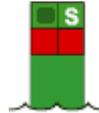
  
GR "A"  
FI (2+1) G 6s



Daybeacon



GR  
"U"



Can



GR  
C "S"

**Preferred Channel to Port** - have no numbers but may be lettered.

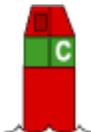
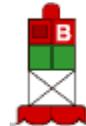
Used as a starboard side aids in the primary channel; used as a port side aids in the secondary channel. The topmost band is colored red.

## ■ Red Light Only

### Composite Group Flashing (2+1)



RG "B"  
FI (2+1) R 6s



Nun



RG  
N "C"



Daybeacon



RG  
"G"

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**Starboard Side Marks** indicate the right side of channels when proceeding in the conventional directions of buoyage. They normally show as a conical or nun shape, are red in color, and have even numbering. Beacons have triangular red daymarks while buoys are red nuns or pillar buoys. Red lights of various rhythms are used on starboard side marks. Note that the numbers on daymarks are the color of the aid while the numbers on buoys are white.

## Starboard Side Even Numbered Aids

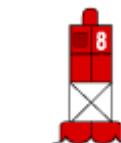
### Red Light Only

Flashing (2)	
Flashing	
Occulting	
Quick Flashing	
ISO	



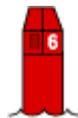
Light

Note that daymarks have colored numbers.



Lighted Buoy

Note that buoys have white numbers.



Nun



Daybeacon



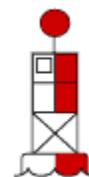
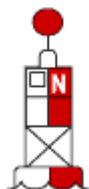
**Safe Water Marks** indicate that there is navigable water all around the mark. They usually mark fairways, midchannels, and offshore approach points. Safe watermarks have red and white vertical stripes, are spherical in shape and are never numbered. When a Safe Water mark is lighted or fitted with a sound signal, its buoy displays a red spherical top mark. Lighted safe water marks show a white light with a Morse Code "A" rhythm.

## Safe Water Marks

Have no numbers but may be lettered.

### White light only, shows a Morse code rhythm.

Mo(A)



# NAVIGATION SYSTEMS ATON KIT

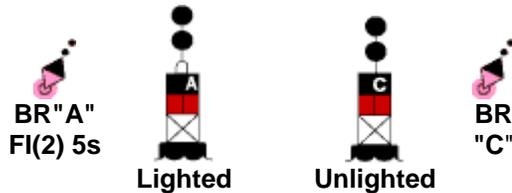
**Isolated Danger marks** are erected on, moored over, or placed immediately adjacent to an isolated danger that may be passed on all sides by mariners. They are black with one or more broad horizontal red band and are fitted with a top mark of two black spheres, one above the other. When lighted, they display a white light, group flashing (two) with a period of five seconds. These aids should not be approached closely without special caution.

## Isolated Danger Marks

Have no numbers but may be lettered.

White Light Only

FI(2) 5s



**Special Marks** are *not primarily intended to assist safe navigation*, but more to indicate a special area or a feature referenced on charts or in another nautical publication. They may be used, for example, to mark anchorages, cable or pipeline areas, traffic separation schemes, military exercise zones, ocean data acquisitions systems, etc. Special marks are colored a solid yellow and, when lighted, show yellow lights with a slow-flashing rhythm preferred. Special marks may not show a quick-flashing rhythm. Often, many special marks are private aids. ***Special aids are not part of the IALA-B Aid to Navigation System.***

**Special Marks** — May Be Lettered.

Yellow Light Only

Fixed

Flashing



**Major Lights** are lights of moderate to high candlepower and reliability that are exhibited from a fixed structure. ***They do not fall under the IALA agreement.*** While their signal characteristics are largely discretionary, they will be marked to provide maximum information while avoiding conflicts with nearby aids displaying IALA markings. The coloration and characteristic are often distinctive in order to avoid any confusion with nearby lights. The color of the structure is intended to allow the tower to clearly stand out from its background. Report any lights that are being absorbed into the background and are difficult to recognize from the sea. A major light may or may not have colored sectors with higher intensities.

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## Federal Aid Discrepancies

A discrepancy to an aid to navigation is defined as a defect on the unit, which, therefore, is not watching properly. Always reference the latest LNM in order to check whether the discrepancy on the aid was already reported. Discrepancies to Federal Aids are divided into three categories. The purpose of these categorizations is to establish a defect hierarchy for reporting the discrepancy to the Coast Guard. The three discrepancy categories for Aids to Navigation are **CRITICAL**, **URGENT** and **ROUTINE**.

**CRITICAL** identifies those discrepancies, where failure to report by the most expeditious means, **may result in loss of life or damage to a vessel.**

**URGENT** identifies those discrepancies, where failure to report will result in no danger or loss of life or vessel damage, but **may contribute to grounding or stranding of a vessel.**

**ROUTINE** identifies those discrepancies, where failure to report will result in very low likelihood of grounding or stranding, but where **corrective maintenance to the aid may be necessary.**

## **CRITICAL Discrepancies**

**Report Critical Discrepancies by the most expeditious means available to the local CG Unit or agency.** Depending on your District NS procedures, this could be a phone call, an E-mail, or a written report. Follow up with a hard-copy report within 24 hours to the designated function or NS Staff Officer in your District, who is assigned as liaison with the local C.G. Agency responsible for Federal Aids in your District. Hard copy follow up reports may not be required in some Districts. Restrict your CRITICAL reports to lateral aids and lights. The discrepancy number references on the ***NS-AN04 7054 Aid to Navigation Report*** match the discrepancy numbers shown on the ***NS-AN10 Aid Observation Worksheet***.

- 1. The aid is totally covered or shrouded with ice.**
- 2. The light signal is showing improper characteristics or rhythm.**
- 3. The light is obscured.** Explain the circumstances in the comment section of your report. What is obscuring the light? Normally, this problem must be observed after legal sundown.
- 4. The light is extinguished.** Normally, this problem must be observed after legal sundown.
- 5. The lantern is damaged.** This is a great photo opportunity that adds credibility to your discrepancy report. Has the damage caused a light failure?
- 6. The buoy is sinking.** Double check before reporting. Return to the scene after an elapse of time to check whether the buoy is actually sinking or is just an aid that floats low in the water.
- 7. The buoy is submerged.** The assumption is that you can still see the aid and, possibly, it has become a hazard to navigation. When you can't see the buoy, report it as missing.
- 8. The buoy has capsized.** This is a great photo opportunity.
- 9. The aid is off station.** Be sure you are correct before making this report to the Coast Guard. Check the guidelines in this study guide before making the report.
- 10. The aid is missing.** Enter the LAT/LON of the buoy as a waypoint on your GPS and use the "GO TO" command to try to locate the aid. ***Be sure to stay in the navigable channel during this procedure.***

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- 11. The buoy is adrift.** Radio or call the CG ANT for instructions from your OPFAC. You may be instructed to take it under tow or tie it off to another aid. Try to read the buoy's ID Number that is welded on the buoy's hull. This code pinpoints to the Coast Guard where the adrift buoy originated.
- 12. The buoy is stranded.** Use extra caution when operating your OPFAC near a stranded buoy. Report the buoy's characteristics and, if possible, report the serial numbers welded into the hull of the buoy. This data indicates to the Coast Guard where the buoy originated. Note that stranded buoys would be still attached to their anchor system and anchor.
- 13. The aid's RACON is off the air.** You need a RADAR set to activate the RACON in order to make this determination.
- 14. The aid's RACON is emitting improper characteristics per the Light List.** You need a RADAR set and must be able to read Morse code to make this determination.
- 15. The aid's Radio Beacon is off the air.** You need a RDF-Radio Direction Finder to make this determination.
- 16. The aids Radio Beacon has a timing error.** You need a RDF-Radio Direction Finder to make this determination.
- 17. The aid was vandalized.** (either in progress or the result of such action). If the vandalism is in process, do not approach the vandals. Notify the Coast Guard and request instructions. This is a good photo opportunity.
- 18. A dayboard or bird's nest is obstructing the aid's light.** This is a good photo opportunity to show the extent of the obstruction. Take photos while approaching the aid from both directions while in the navigable channel.
- 19. The aid's structure has collapsed.** A good series of photos will demonstrate the extent of the damage to the structure to the Coast Guard.

## **URGENT Discrepancies**

**Report by telephone or e-mail to your local C.G. Unit.** Depending on your District NS policy, this could be a phone call, an e-mail, or a written report. Follow up with a hard copy report within 24 hours to the designated function or NS Staff Officer in your District, who is assigned as liaison with the local CG Unit or agency responsible for Federal Aids in your District. *Hard copy follow up reports may not be required in some districts.* Restrict URGENT reports to lateral aids to navigation and lights.

- 1. The light is burning dim or showing reduced intensity.** Verify by close examination that the "burning dim" or "reduced intensity" condition is not being caused by smoke, other atmospheric conditions, or viewing angle.
- 2. The aid's light is partially obscured by dayboards.** This is a good photo opportunity.
- 3. Dayboard(s) is missing.** This is a good photo opportunity.
- 4. Dayboard(s) is damaged.** This is a good photo opportunity.
- 5. The sound signal, either a bell, a gong, a horn, or a whistle, is inoperative.** Sound signals may be electrically operated or manual--wave actuated. Manual signals can be actuated by creating a wave near the aid with the OPFAC and listening. Some sound signals may be remotely activated or triggered by a Fog Detector.

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- 6. The battery box is missing.** Note that many lighted aids are being equipped with Solar LED lanterns which do not need a battery box. The LED lights are self contained with the LED light, battery and solar panel bundled in a single unit.
- 7. The battery box is damaged.** This is a good photo opportunity. LED lighted aids do not need a battery box.
- 8. The fog signal is inoperative.** Be sure to check that the fog signal is not “VHF-FM radio actuated” before reporting it is as not working properly.

## ROUTINE Discrepancies

**Submit details by hard-copy report within 24 hours** to the designated function or NS Staff Officer in your District, who is assigned as liaison with the local C.G. Agency responsible for Federal Aids in your District. The numbers referenced for these routine discrepancies correspond to the numbers on the ***NS-AN04 7054 Aid to Navigation Report*** and ***NS-AN10 Aid Observation Worksheet*** available on the [www.uscgqaan.com](http://www.uscgqaan.com) web site.

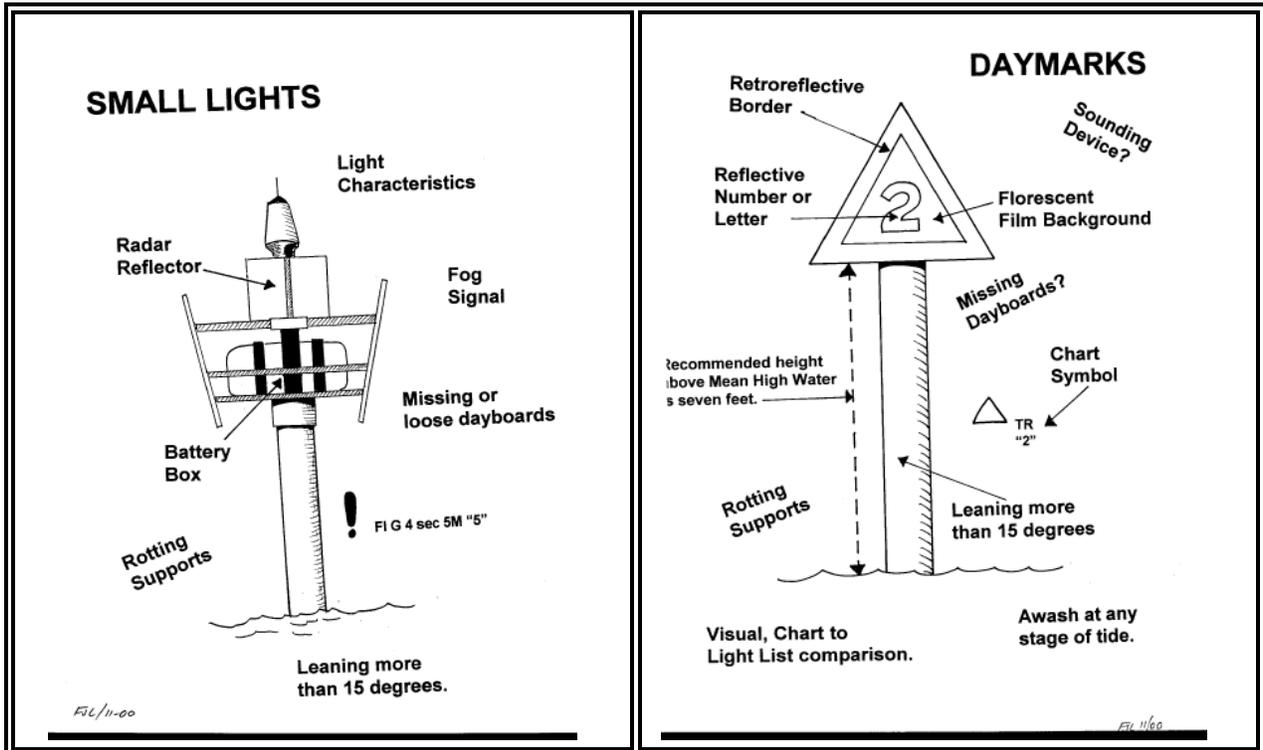
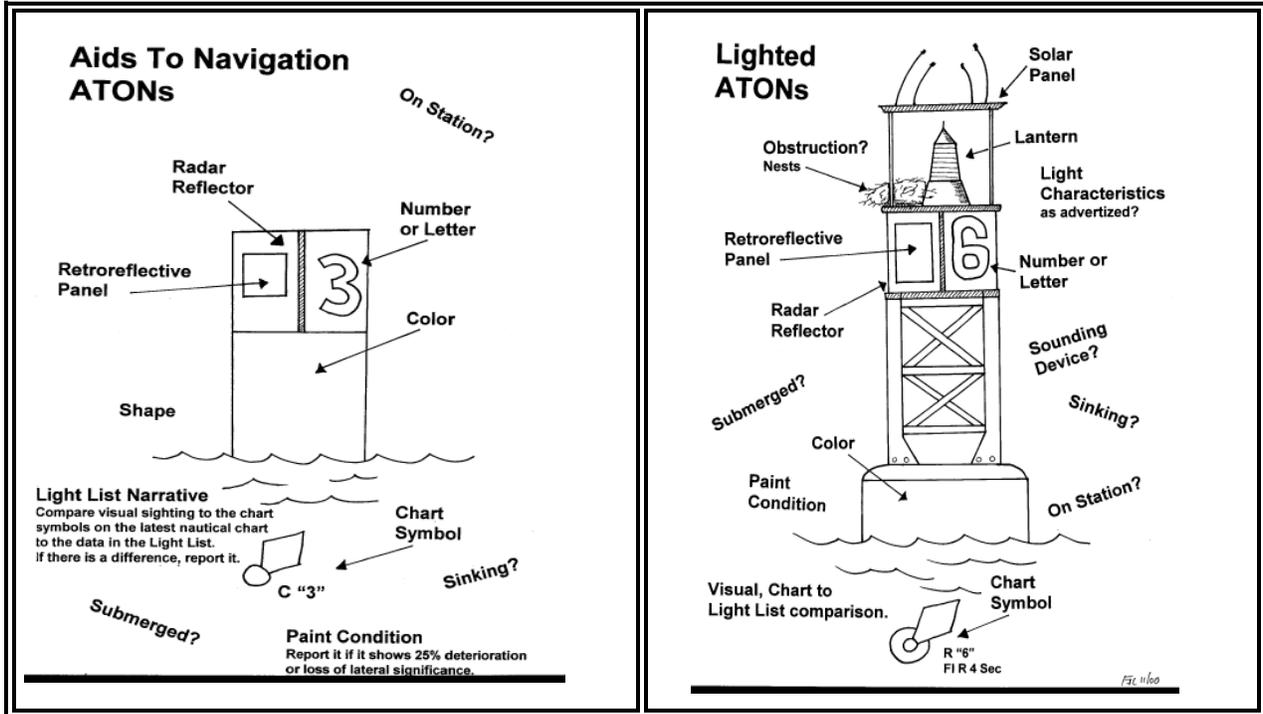
- 1. The aid is obscured by foliage or other objects that needs to be removed.** This could be classified as CRITICAL if the aid is completely obscured.
- 2. Dayboard(s) is faded so that the color of the aid is compromised.** The aid could be located in the water or onshore. Fading is a very subjective call. A good, clear photo will show the extent of the problem to the Coast Guard.
- 3. There is extensive bird fowling on the aid so that the color of the aid is compromised.** A good, clear photo will show the extent of the problem to the Coast Guard.
- 4. Aid is damaged by collision.** Detail the extent of the damage as part of your report. Submit photos and the registration numbers or name of the boat, if known. This is a good photo opportunity.
- 5. Paint deterioration is interfering with ability to identify the lateral color of aid.** This could involve peeling paint, fading, retro-material deterioration or missing, or rusting of the buoy. Normal annual maintenance usually corrects these problems. Report when lateral significance is compromised. A good, clear photo will show the extent of the problem to the Coast Guard.
- 6. Dayboard(s) is delaminating.** This is a good photo opportunity. Explain the problem in the Comments section.
- 7. The numbers on the aid are obliterated and not easily read or identifiable.** When all the numbers on the aid are missing, it is a ***CRITICAL*** discrepancy – “The aid is showing improper characteristics.” This is a good photo opportunity. Explain in the extent of the problem in the Comments section.
- 8. Wood supporting structure(s) have extensive deterioration and/or is rotting.** Good close-up photos will show the extent of the problem to the Coast Guard.
- 9. The aid’s structure is leaning - more than 15 degrees from the vertical.** This is a good photo opportunity. Do not report for floating aids.
- 10. The vent valve on a lighted buoy is missing.** Not applicable to new LED lanterns. If an older buoy body is being used, be sure to check that the vent valve openings on the body are capped off. Otherwise, this buoy is susceptible to sinking.
- 11. The vent tube(s) on a lighted buoy is broken.** Not applicable to new LED lanterns. Explain in Comments. Note that the broken vent tube can make a buoy susceptible to sinking.

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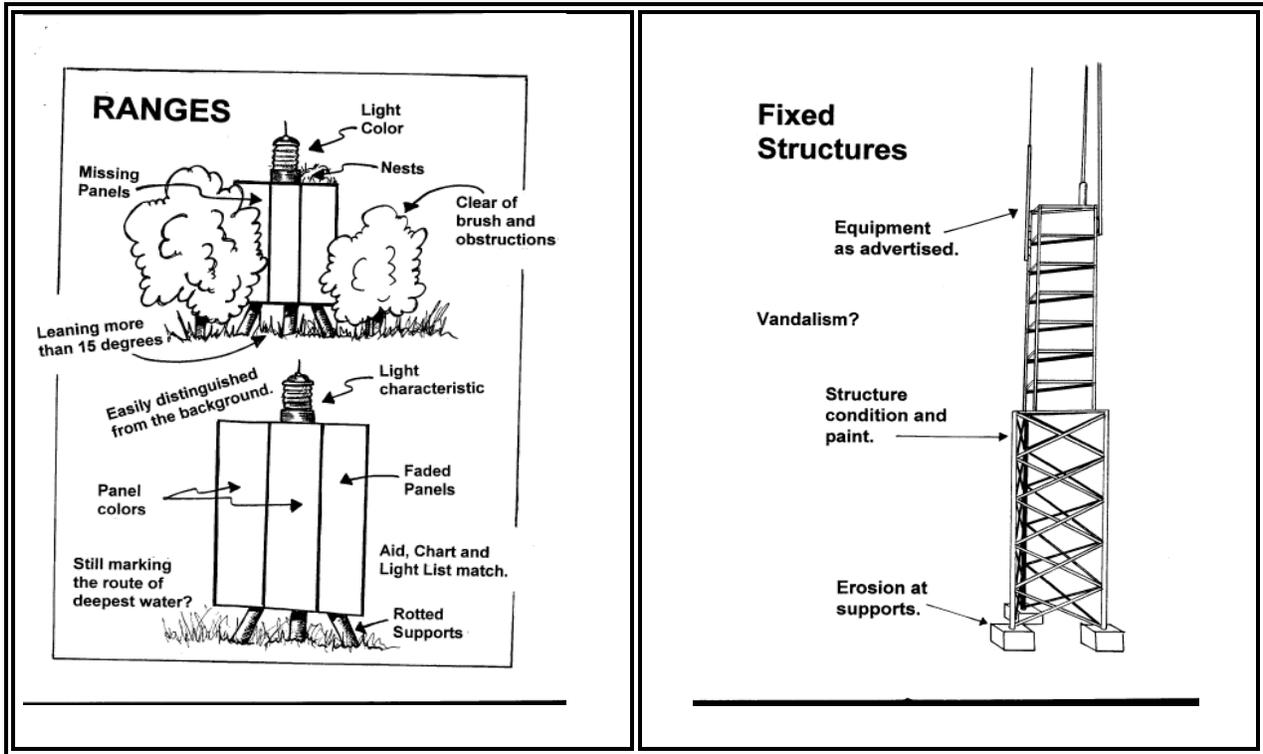
12. RADAR reflector is missing or severely damaged. Explain in Comments. This is a good photo opportunity.

13. The taper(s) on a sound signal is missing. Explain in Comments.

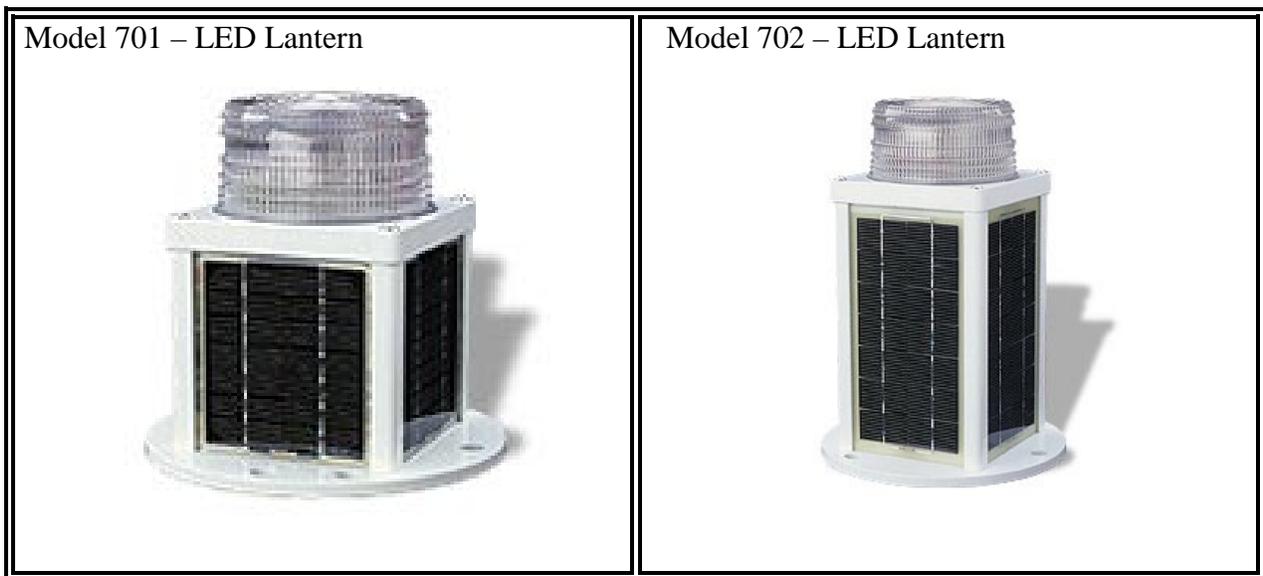
The following panels illustrate the typical discrepancies that you may encounter on an ATON—Aid to Navigation.



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These new LED Lanterns are currently being deployed.



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## What to report about Beacons, Daymarks and Small Lights.

### Shapes, Numbers, and Colors of the Daymarks.

- **Square-shaped** daymarks, colored **green**, with odd **green** numbers mark the left side of channel when returning from the sea.
- **Triangle-shaped** daymarks, colored **red**, with even **red** numbers mark the right side of the channel when returning from the sea.
- **Octagonal-shaped** daymarks, vertically striped **red** and white with white letters in the red panel mark the outer limit of a channel toward the sea.
- Always verify that the aid conforms to the IALA-B System, the Light List, the abbreviations and symbols on the NOAA chart. Also review any comments in the Coast Pilot about the daymark.

### Number or Letter on Daymark. [Per Light List and latest NOAA Chart]

- Usually, each daymark has a number or occasionally has a letter.
- The color of the retro reflective material used for numbers and letters on daymarks will reflect the color of the aid. Triangular-shaped daymarks will have red characters and square-shaped daymarks will have green characters.
- Always verify that the charted number or letter is correct per the Light List and the NOAA chart.

### Is Daymark awash at any time?

- Check and report the depth of water at charted datum on the navigable channel side of the aid only. Follow the guidelines for taking and reporting a depth as shown in the Federal Short Range Aid to Navigation Study Guide.
- “**Depths at datum**” that are less than the “**range of tide**” indicate that an aid can be awash or stranded at low water.
- “**Range of tide**” can be found on the almanac screen on your GPS.

### Light colors and characteristics of Small Lights.

- When lighted, a daymark is considered a minor aid or small light, not a daybeacons.
- Light characteristics on small lights are the same as for lighted buoys. Verify the light characteristic that you observe against the light characteristics published in the Light List and on the latest NOAA chart.
- The height of a small light is measured from MHW to the focal-plane of the lantern...
- Check the small light’s range of visibility as shown on your NOAA chart and in the Light List.
- Always check for lantern, battery, and solar panel damage and/or vandalism on small lights.
- Check that the solar panel is oriented toward the sun—normally a southern direction.

### Structural condition of Daymarks.

- Report all fixed aids to navigation that are leaning more than 15°.
- Report any aids that are knocked over.
- Check aid’s supports for rot either from the top down or the bottom up. This problem is more visible at lower tides. Always observe with your binoculars if you suspect shoaling near a fixed aid to navigation.
- Confirm that support and/or structural pieces on the daymark are not missing or broken.
- Confirm that the material around the base of the structure has not washed away or eroded?
- Verify whether any dayboards are missing?

### Purpose of the Daymark.

- When a dayboard is used as part of a range, check whether the panels are obstructed in any way?
- Verify whether the range panels mark the center of the navigable channel?
- Are the dayboard colors correct as advertised in the Light List and on your NOAA chart?
- Has the color of the daymark faded? This is very subjective. Report fading only when obvious color changes have occurred—green to yellow; red to light pink or white, etc.

### Growth of brush or structures near the Daymark.

- Overgrowth of brush is usually corrected during annual Coast Guard maintenance.
- Check with the CG ANT/Unit and volunteer to remove the brush for the Coast Guard.
- Has the aid’s effectiveness been lessened by brush growth height, tree growth, or any new construction?

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## Reporting ATON Patrols and NS Activity to AUXDATA

Three separate reports may be required. Do not confuse their use or purpose.

### **1. REPORTS TO THE COAST GUARD**

- a. **Report ATON Discrepancies** to your local C.G. ANT or Unit on an NS-AN04 ***Aid to Navigation Discrepancy Report***.
  - This report alerts the Coast Guard about the problem on the Federal aid.
  - When no discrepancies are observed on the ATON – Federal Aid (i.e., aid is watching properly), do not report it to the C.G. Unit or agency ***unless specifically requested to check the aid by the Coast Guard***.
  - The ***NS-AN04 Aid to Navigation Report*** alerts the Coast Guard about the discrepancy ***but does not interface with the AUXDATA system*** and you will not get credit for underway hours in the Boat Crew program and will not receive credit for your NS Mission activity in AUXDATA.
  
- b. **Report PATON Discrepancies** to your local C.G. ANT on-line via the Web-Based PATON System. **This is a Coast Guard requirement.**
  - This on-line report immediately alerts the Coast Guard about the problem on the private aid.
  - When no discrepancies are observed on the PATON – Private Aid (i.e., aid is watching properly), do not report it to the C.G. Unit or agency ***unless you are currently certified and qualified as an AV-Aid Verifier and are scheduled to verify the private aid***.
  - While the ***Web-Based PATON Report*** alerts the Coast Guard about the discrepancy. Now , there is a new feature where you can make a 7030 report on-line as part of the PATON Report
  
- c. **Report BRIDGE Discrepancies** to your local Coast Guard agency in charge of bridges on-line via the on-line Bridge Reporting System. **This is a Coast Guard requirement.**
  - This on-line report alerts the Coast Guard Bridge Branch about the problem on the bridge. You need a valid Auxiliary Logon in order to access the Bridge Reporting System. Access the Bridge Reporting System from the [www.uscgaan.com](http://www.uscgaan.com) web site.
  - When no discrepancies are observed on the Bridge (i.e., bridge is watching properly), do not report it to the Coast Guard Bridge Branch ***unless you are currently certified and qualified as an AV-Aid Verifier and are scheduled to perform an annual survey***.
  - While the ***Bridge Database Report*** alerts the Coast Guard about the discrepancy. now you can make a 7030 report on-line as part of the your on-line Bridge Report.

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Please do not report each bridge individually to AUXDATA. Make a summary report for the days activities.

## 2. PATROL REPORTS TO AUXDATA

- a. **ATON Patrols hours** are reported to AUXDATA on a **7030 Activity Report – Mission – Boat**, either manually prepared or submitted via POMs by the OPFAC's coxswain.
  - o When the NS activity is performed by private vehicle or on foot, this report is not required. Time is reported on the **7030 Activity Report – Mission – Individual (UI)** form.
  - o **Note:** The **7030 Activity Report – Mission – Boat** form that is submitted through POMs or as a standalone report to the IS Staff Officer initiates credit for your underway hours in the Boat Crew program, but does not provide any credit for your individual NS Mission activity. Also, this report does not inform the local C.G. Unit or agency of the discrepancy.

## 3. ACTIVITY REPORTS TO AUXDATA

- a. **All individual NS mission activity** is reported to AUXDATA either through the on-line reports in the PATON and Bridge Reporting System or on a **7030 Activity Report – Mission – Unit/Individual (UI)**, through your IS Staff Officer. ATON reporting to AUXDATA have the following restrictions:
  - o Basic Qualified Auxiliarists may report all ATON, PATON and BRIDGE discrepancy report activity to AUXDATA for aids reported as “***discrepant***” to the Coast Guard.
  - o Basic Qualified Auxiliarists may not report ATONs, PATONs or BRIDGES observed as “***watching properly***” to AUXDATA or to the Coast Guard.
  - o Currently certified and qualified AV-Aid Verifier, ***at the direction of the Coast Guard***, may perform ***ATON checks*** and report aids “***discrepant***” and “***watching properly***” to the Coast Guard and to AUXDATA.
  - o When multiple members are involved, only one member may submit a **7030 Activity Report Mission – Individual (UI)** report for each aid verified. ***Only one member can be listed on the 7030 (UI) report.*** In other words, ***credit for activity at a single aid cannot be split among multiple members.*** When multiple members report multiple discrepancies to the Coast Guard, credit may be allocated among the members. But, the total ATONs, PATONs, and Bridges reported as discrepant to the Coast Guard must always equal the total ATONs, PATONs, and Bridges reported to AUXDATA.

Submitting one report without the other two takes care of only one-third of the reporting job and leaves two important aspects of the ATON job undone.

All Auxiliary Aid to Navigation hourly statistics in support of the Coast Guard are retrieved from AUXDATA. In order to provide evidence of the support hours that the Auxiliary provides to the

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Coast Guard, reporting NS patrol time to AUXDATA is extremely important. Hours reported while underway on an authorized patrol are credited toward your annual underway hour requirements for the Boat Crew program, but only NS Mission activity is used to calculate the statistics for annual NS awards, not hours. Patrols to AUXDATA through the POMS System have no capability for reporting ATON, PATON or Bridge activity. An additional 7030 report must be made to AUXDATA to capture this information.

**In summary**, to successfully report NS patrol hours and NS Mission activity, you must understand the difference between:

1. Navigation System Patrols, (formally called ATON Patrols).
2. Individual Navigation System Missions, and
3. Individual Navigation System Activity Reports.

They are distinguished as follows:

## **1. NS Patrols:**

- Are only performed aboard a properly equipped and crewed operational facility (OPFAC) under orders. Reference the Operations Policy Manual for proper procedures.
- Should be of at least four hours duration. Time is not the primary issue. More important is the Navigation System activity that is accomplished during the Patrol.
- Time underway is recorded in AUXDATA by the coxswain or owner of the OPFAC as a Type 03 patrol using an **7030 Activity Report-Mission – Boat** form that is generated through POMS. Much Navigation System activity is also conducted as part of multi-mission patrols under other patrol type codes.

## **2. Individual Aid to Navigation Missions**

- NS mission activity is reported on an “**ANSC 7030 Activity Report – Mission – Individual (UI)**”, as follows:
  - Mission 30** – Federal Aid Activity (ATON)
  - Mission 31** – Private Aid Activity. (PATON)
  - Mission 32** – Bridge Activity. (BRIDGE)
- When NS activity is performed while acting as an authorized coxswain or crewmember on an authorized operational patrol, limit the time reported on the **7030 Activity Report – Mission – Individual (UI)** submissions to 15 minutes and report time outside of the time-window that was reported for the patrol.
- Remember, there can be no splitting of NS activity credit for checking an aid. Only one member can report one aid to AUXDATA at a time. The member who submits the 7030 report gets the AUXDATA credit for the activity. While there may be other crew members aboard the boat, multiple members can not take individual AN activity credit for the same aid.

**Recognition of the Navigation Systems Division and the Aids to Navigation / Chart Updating program by the Coast Guard and the Auxiliary depends on annual and periodic reports of the ATON support activity that is performed by Auxiliarists in support of the Coast Guard. The success and funding of the Aids to Navigation Program depends on your AUXDATA input data.**