

The Submarine Division of the Naval Safety Center Presents:

FLASH

Factual Lines About Submarine Hazards

Oct 2003 - Dec 2003

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Developing Traffic Safety

By FTFCM(SS/SW) Clements

Traffic safety is an inevitable part of a command safety program. However, it is one of the least implemented programs. Usually, most of us think about this issue when one of our own is injured or

worse yet, dies. Although the holiday season is over, we need to increase the command's awareness to traffic safety throughout the year. Statistically, we still lose more than 60% of our

fellow Sailors to automobile crashes, more than from any other type of mishap.

The Naval Safety Center has begun to place more emphasis on traffic safety to comply with the Secretary of Defense's mandate to reduce mishaps by 50% in the next two years. On the Safety Center's web site, <http://www.safetycenter.navy.mil/ashore/motorvehicle/default.htm> there is a wide range of resources all commands can use to promote traffic safety. In particular, the Traffic Safety Toolbox for commanders, supervisors, and non-commissioned officers provides a multitude of valuable resources that will enhance your traffic safety program year round.

With all that in mind, here is a quick run down on some of the causalities that have occurred in the submarine force:

In July 2003, a 22-year-old SN of a Kings Bay, Georgia SSBN, was driving on Interstate 95, lost control of his vehicle, left the road, and skidded into several large trees. After they cut him out of the remains of his car they took him to the hospital. The result was a substantial brain injury with paralysis, which required his normal breathing functions to be assisted by a ventilator. He was later transferred to a facility for long-term ventilator patients.

In August 2003, a 20-year-old PO3 of a Kings Bay, Georgia SSBN struck a car while riding his motorcycle. The car pulled out in front of him unexpectedly. He hit the front passenger side of the car and was thrown from the motorcycle. The PO3 sustained a broken femur (two places, right leg) and minor abrasions. He was wearing a helmet, boots, long sleeve shirt, and goggles. By wearing the proper PPE the extent of his injuries were probably reduced.

In October 2003, an SR on a Pearl Harbor, Hawaii SSN lost control of his motorcycle while riding over loose material on the road. He was wearing all required safety equipment and had

recently graduated from the Navy Motorcycle Safety course. He received only minor abrasions and a broken wrist from the mishap. Also in October 2003, a 23-year-old PO3 of a SSN stationed in Bremerton, Washington traveling approximately 25 mph saw a deer in the road, swerved off the road and slid down a 15-foot embankment. He suffered three fractured ribs and a collapsed lung. He was wearing a seat belt.

In November 2003, 28-year-old ensign of a Pearl Harbor, Hawaii SSN ran over a reflective lane division marker and lost control of his motorcycle. He fell from his motorcycle and came to a stop about 15 feet behind his motorcycle. He received a fractured scapula and minor scrapes. He was wearing all of the required motorcycle safety equipment. He had no disability or lost days. Just like the previous two motorcycle mishaps, using the required PPE reduced the possibility of receiving more serious injuries.

Finally, in November 2003, a 26-year-old CPO of a Pearl Harbor, Hawaii SSN was riding his motorcycle at 0300 on a dark and rainy night and lost control while exiting a highway off ramp. The CPO stated that he had a couple of drinks during the evening at a local bar and was not fatigued. He received a six-inch laceration on his lower back, requiring 14 stitches, and multiple abrasions. He lost two days of work due to the crash. He was lucky. He had only one year of motorcycle riding experience, the off ramp was dark, and the road conditions were wet and slippery. The mishap message did not state what PPE was utilized, but I think you can gather from the previous motorcycle crashes, the correct PPE can save you life, if not a lot of skin.

Command involvement with traffic safety at all levels will help in reducing the current mishap rate and save lives, money, and unexpected losses of personnel.

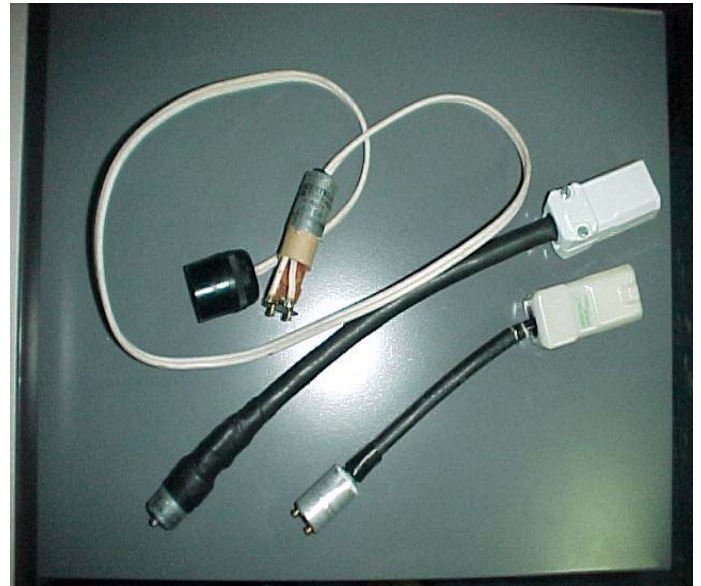
Electrical Safety

LT Vic Romano

Electrical safety practices continue to be one of the weak areas noted in afloat safety surveys, for both submarine and surface ships. A disturbing and continuing trend we're seeing is the unauthorized modification and use of lighting circuit starter adapters to power 110VAC personal electrical / electronic loads in berthing spaces. As you can see from the picture attached, the quality of the craftsmanship varies, however, no matter how professional the jury rig is completed, all are unsafe and unauthorized for shipboard use. Electrical shocks and Class Charlie fires are common mishap reports provided to the Naval Safety Center. We have been fortunate in that no Sailor has been injured or killed due to these starter adapter fire and shock hazards. It is imperative that supervisory personnel identify and correct these hazards during berthing and zone inspections. No CD or DVD is worth the cost of a shipmate's well being.

REF: NSTM Chapter 300

Need more electrical safety information? Contact me at victor.romano@navy.mil or 757-444-3520 ext. 7201.



MSDSs Do Provide Valid Data

HMCS (SS/SW) Flannery

CLASS BRAVO FIRE!! That's exactly what can happen when we fail to adhere to documented data. Unfortunately, one particular afloat unit experienced this phenomenon first hand with a contaminated swab.

Here's how it went; A swab that was saturated with a cleaning solvent was used to clean oil from a deck and then suspended from an overhead chill water pipe. To make matters worse, personnel frequently used the space, where this swab was stowed to smoke. Eventually, the swab that was saturated with oil, grease, JP-5 fuel, and a

cleaning solvent erupted in flames. The source of ignition remains undetermined. However, it is suspected that there may have been spontaneous combustion due to the mixture of chemicals or from an embedded cigarette.

So what are some of the causes of this mishap? First, the correct procedure for cleaning oil spills is with the use of rags, which are then placed in plastic bags and turned into the command's hazardous material personnel for disposal. Second, material safety data sheets (MSDS) warn of the dangers of spontaneous combustion for

materials contaminated with oil-based products and not stored in accordance with MSDS requirements. Next, although the space where the swab was stowed is not an authorized smoking area, personnel revealed that the space was frequently used for smoking. I'd almost be willing to bet that somewhere on that MSDS for the cleaning solvents, JP-5, oil, and grease, there is a warning statement concerning exposure to open flames or source of ignition (e.g., a lit cigarette).

With all that background, what human factors occurred to cause this mishap? Supervisors failed to ensure materials saturated with cleaning agents were disposed of in accordance with MSDS requirements, and were not aware of the potential for spontaneous combustion. Additionally, it was discovered that supervisors failed to inform and enforce personal protective equipment (PPE)

compliance during the oil clean up. Finally, supervisors failed to implement measures to prevent smoking from occurring in the unauthorized space. In summary, improperly stowed hazardous materials (saturated swab), poor housekeeping, and possible unauthorized smoking all contributed to this mishap.

MSDS give strict guidance for handling hazardous materials. As supervisors, we must ensure personnel are trained and aware of the dangers of working with hazardous materials. See your supply department if you do not have the required MSDS. They receive updated MSDS and hazardous material data on a regular basis. Fortunately, this mishap was controlled and extinguished quickly which resulted in no equipment/space damage and no one being injured.

Whose Line Is It Anyway?

MMC (SS) Nixon

Recently there seems to be confusion in the fleet as to who owns the mooring lines when attached to the boat and what kinds of lines should be used to moor the boat. Two types of lines are currently in use, the standard synthetic mooring lines and the Aramid[®] mooring lines. Aramid[®] mooring lines, as pictured on the next page, are light blue in color and have different characteristics than standard synthetic mooring lines. Aramid[®] mooring lines are four strand and standard synthetic lines are three strand double-braided nylon lines. One strand on the Aramid[®] line is designed to break before the others as a safety feature and to help release stored energy gradually. Associated with this are a loud bang and a cloud of smoke that aids in warning the handler of danger. Aramid[®] lines have low stretch properties (6%) unlike standard synthetic mooring lines (30% to 65%).

MRC 5821/021 R-11D was added to the MRC deck in SFR 2-03, which requires ships force to inspect the tattle-tales daily on the mooring lines in use. Standard synthetic mooring lines require that tattle-tales be installed. Due to the low stretch properties of the Aramid[®] lines they do not require tattle-tales, although NSTM Chapter 613, Wire and Fiber Rope and Rigging, recommends installing the tattle-tale as an indicator to the user that the line has reached its stretching capacity. This R-11D check should be on the PMS schedule every day while in port.

Although the squadron owns the mooring lines used to moor the boat, once attached to the sub they become the ship's responsibility. Therefore, the maintenance should be completed and properly documented. Additional information on mooring lines can be found in NSTM Chapter 582, Mooring and Towing, and NSTM Chapter 613. As with any

other pier service provided to the ship, ensure that a thorough receipt inspection is completed with discrepancies reported to port services before the ship takes ownership.



Electrical Safety Issues with IMA/Contractors

ETC (SS) White

Whether you call them refits, upkeeps, SRAs, or any number of nondescript naval terms, in port availabilities are stressful and hectic. **The pace is demanding**, but this OPTEMPO should not counter our policies and procedures established to mitigate shipboard electrical safety hazards.

The IMA and outside contractors provide a valuable service to the Fleet. They are onboard our ships to perform vital system upgrades, preventive and corrective maintenance, and increase both our quality of life and war fighting capabilities. Their intent is noble, but quite often their process is flawed when it comes to the Electrical Safety Program.

During recent safety surveys, analysts have seen a marked increase in the number of electrical safety

discrepancies that can be attributed to outside activities performing work. These discrepancies include, but are not limited to; 440 VAC welding machine cable insulation pulled beyond it's compression fitting, exposed conductors, long extension cords routed so that they become a trip hazard or could foul rotating equipment, portable lighting with frayed / damaged components, and improperly dead-ended cables.

NSTM Chapter 300 is the bible with regard to shipboard electrical safety. When it comes to inport availability electrical safety and Chapter 300 requirements, I have a **NSC Late Show Top Ten List** that help solve the problems:

10. 300-H.3 Elec Pwr Connections
9. 300-4.6.10 Cable Fittings

8. 300-4.6.9 Dead Ended Cables
7. 300-4.6.8 Cable Repair and Splicing
6. 300-4.6.5 Physical Damage to Cabling
5. 300-2.7.4 Portable Cables
4. 300-6.6 Portable Electrical Tools
3. 300-2.7.3 Portable Electrical Equipment
2. 300-2.7.5 Tests & Inspection of Portable Electrical Equipment

And the **number 1 section** to review, (insert drum roll here)... **300-6.7 Things to be Done to Protect Against Electrical Shock.**

It is imperative that the measures taken to ensure personal and ship's safety are maintained when we have guests working on our systems. Just as security measures have been "beefed up" to ensure adequate protection against potential hostile acts, ship's force needs to ensure that all equipment brought onboard is "electrically safe" and does not pose a potential danger. This should be done for contractor, IMA, and personal items alike. We don't expect the petty officer of the deck to perform these "electrical safety checks," but instead rely on the keen eye of all "wire rates" and the supervisory control of supervisors and chiefs to make this happen.

Inflatable Radar Balls

FTCM (SS/SW) Clements

Do you have the right inflatable radar ball for the inherently buoyant jackets and life rafts? During my last several safety surveys, the few boats that had the inflatable radar ball's, most had the incorrect size on their inherently buoyant life jacket. A&I N1970 gave each boat (except Trident class) twelve radar balls. Two of the UN-60/O (the larger ball in the picture provided) are issued for each of the life rafts (non SEIE suit boats) and ten of the UN-30A/W's (the smaller ball in the picture provided) for inherently buoyant life jackets.

Some of the confusion comes from the fact that the large radar ball comes in the small pouch and the small one comes in the large pouch. This is due to the small one (UN-30A/W) having a large CO2 inflation bottle. The model UN-60/O is inflated through a manual tube similar to the Steinke hood. The model UN-30A/W is activated by a salt-water activated CO2 cartridge and a manual inflation tube.

Currently there is no PMS for the radar balls. I submitted a PMS feedback report requesting PMS coverage. As soon as I have an answer, I will get it out to the fleet. The accompanying photo shows both radar balls fully inflated. A 12-inch ruler is shown in the foreground for scale. If you have any questions,

please call me or e-mail me with your concern at chris.clements@navy.mil or (757) 444-3520, ext. 7099.

REF: AEL 2-120014062 & AEL 2-120014061



Submarine Scuba Lockers

By CWO2 Birmingham

Recent safety surveys have identified several discrepancies. Out of the 11 submarine scuba lockers looked at in the past 12 months, four of them received a substantial number of discrepancies resulting in the recommendation that the command secure diving operations until they correct discrepancies. The Safety Center works for the commanding officer when we are onboard performing a survey. Our goal is to ensure his scuba locker is operating safely. The goal of this article is to list the discrepancies identified and provide recommendations to correct some of these discrepancies. Several of the discrepancies listed below do not have explanations due to the obvious corrective actions.

1. No PMS coverage for scuba equipment.

Recommendation: Review LOEP to ensure all scuba diving equipment is listed. Submit a PMS feedback report (FBR) if LOEP does not list all scuba equipment.

2. Scuba equipment not approved for Navy use.

Recommendation: Ensure scuba regulators, cylinders, manifolds, and buoyancy compensators are listed on the Diving Equipment Authorized for U.S. Navy Use (ANU) located at <http://www.supsalv.org/> before procuring equipment.

3. Scuba equipment PMS records do not reflect accurate documentation of completed situational requirement maintenance checks.

Recommendation: List all scuba diving equipment using single line items. This will increase the accuracy of recording PMS that was accomplished.

4. Scuba equipment is not serialized.

Recommendation: Serialize all scuba equipment using locally generated numbers. By serializing each piece of equipment, the maintenance records will reflect what piece of equipment has received the maintenance. Example: Scuba regulator will have each second stage and first stage numbered using the same number.

5. Diver not performing minimum number of dives required by MILPERSMAN 1220-260 and requals are not updated in divers' service records.

Recommendation: Review MILPERSMAN 1220-260 for diving requalification guidance and review all divers service records to ensure entries are up to date. Use MILPERS 1220-100 exhibit four as a template to document requals in service records.

6. Diving officer/diving supervisor are not formally qualified and have no letters of designation.

Recommendation: Implement Diving Officer/Supervisor PQS and ensure all qualified diving officers and supervisors have a letter of designation signed by the commanding officer.

7. Required diving instructions not available.

Recommendation: Obtain a copy of the Naval Safety Center's submarine diving checklist located at www.safetycenter.navy.mil. The checklist lists all required diving instructions.

8. Diving manual does not have current changes.

Recommendation: Current diving manual is U.S Navy Diving Manual Rev 4 (with change A) dated 3/01/01. To obtain a copy go to www.supsalv.org. Password is HOOYAHDEEPSEA.

9. Only two qualified divers onboard.

Recommendation: Work to fill all billets with qualified scuba divers. Four qualified scuba divers onboard is the recommended number of scuba divers to conduct diving operations. Submarines that have only three qualified scuba divers assigned are authorized to conduct dives with a non-diver commissioned officer acting as the diving supervisor.

10. Dive Reporting System not used in a timely manner (more than a year since last report).

Recommendation: If you are having difficulty using the DRS contact the Naval Safety Center at (757) 444-3520 ext. 7606.

11. Command does not have complete file of messages sent to AIG 239.

Recommendation: To obtain copies of the AIG 239 messages go to www.supsalv.org. Password is HOOYAHDEEPSEA.

12. Command does not have current "Diving Safety Lines."

Recommendation: Obtain copy of the latest as well as past issues of "Diving Safety Lines" at www.safetycenter.navy.mil

13. Scuba regulator over bottom test gauge is OOC, not calibrated, or command does not have an over-bottom test gauge.

Recommendation: Calibrate over-bottom pressure gauge IAW MIP 5921/032-C2. Over-bottom

pressure gauges are considered critical gauges and require calibration every 18 months.

14. The command's only scuba bottle pressure gauge is OOC.

Recommendation: If the scuba pressure test gauge is used to accomplish comparative accuracy test on the submersible pressure gauges, ensure the pressure gauge is more accurate than the gauge that is being compared and that the test gauge is calibrated.

15. Scuba bottles out of static test and are still in use.

Recommendation: Do not use scuba bottles that exceed five years since last hydrostatic test was performed. Ensure all scuba bottles are hydrostatic tested IAW, MIP 5921/019.

16. Divers not CPR qualified.

17. Inadequate stowage of diving equipment.

18. Full facemask regulators not covered by PMS.

19. Latest PMS force revision not implemented.

20. Diving smooth logs are not filled out correctly and are not signed by diving supervisor or by diving officer.

21. Diver's physical has expired.

22. Scuba depth gauges out of calibration.

23. No diving supervisors onboard.

24. Divers not issued wet suits.

We encourage you to contact us for any assistance your command needs to ensure your scuba locker is operating correctly. Our phone numbers are COM: (757) 444-3520, DSN 564-3520 ext. 7606 or e-mail us at safe-diveslavage@navy.mil.

Editor's Thoughts

HMCS (SS/SW) Flannery

On a daily basis, I have the opportunity to view most of the mishap reports submitted to the Naval Safety Center. It is troubling to see how many of them are motor vehicle safety mishap reports. We do our best to take care of Sailors within the lifelines of the boat, but as one skipper remarked, "I'm not so comfortable with our efforts outside the lifelines... but suffice to say, all we can do is talk about safe measures and application of ORM with our Sailors before they leave the ship."

Motor vehicle crashes claim the vast majority of the annual Sailor deaths. The causes range from excessive speed, use of alcohol, loss of situational awareness from use of cell phones, eating or drinking, stereos, other passengers, driving while fatigued, and failure to wear seat belts. This list of excuses is enormous and is usually a mixture of events and causes.

How do we make a difference? **Implementing a proactive Traffic Safety Program is a good beginning.** Once the basics of the program have been established, it's a matter of constant vigilance and education of all personnel, at all levels. Those Sailors that receive and take traffic safety to heart could one day be our next CO or COB, versus another statistic.



