

THE MINE AND DEPTH CHARGE

TROUBLESHOOTER

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SUPPLEMENT

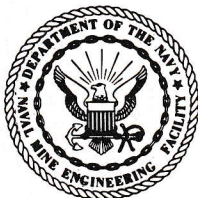


AN OFFICIAL NAVORD PUBLICATION

RADM MARK H. WOODS, USN
 Commander, Naval Ordnance Systems Command

The Troubleshooter is an official NAVORD publication which disseminates informative articles pertaining to assembly, testing, safety, configuration, maintenance, and delivery of U.S. Naval mines and depth charges. When the word **DIRECTIVE** appears as a part of the mine heading of the article, the content that follows contains information requiring action that is mandatory and shall be acted upon promptly. The Troubleshooter issue is your authority for subh action.

Troubleshooter is also the journal for the Rudminde Program, a world-wide defect-reporting system, which promotes a high level of readiness in U.S. Naval mines and depth charges. Problems with these weapons are to be reported via NAVORD Form 8500/1 (2-68) to the Naval Mine Engineering Facility as directed by NAVORDINST 8500.3.



CDR ROLAND H. ALMONRODE, USN
 OIC Naval Mine Engineering Facility

HAINES A. MILLER
 Technical Director

STAFF

THOMAS R. NEVITT
 Editor

LT M. D. HORN JR., USN
 Associate Editor

JOHN A. GILDAY
 Editorial Assistant

D. JACK LA BAR
 Art Director

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THE MINE AND DEPTH CHARGE

TROUBLESHOOTER

ISSUE 3-69

1 OCTOBER 1969

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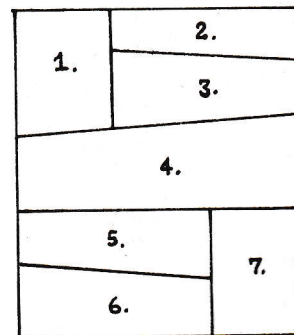
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COVER

Some views of the 25th Annual Mine Conference, NAVMINENGRFAC. 1. CDR Almonrode poses as a target for mine problems as he greets conference attendees. 4. Captain W. J. Maddocks, Commanding Officer NWS, Yorktown, welcomes station visitors while looking on, left to right, are Mr. D. R. Traina, Captain James E. Myrick, Mr. J. P. Blouin, representing NAVORDSYSCOM, and Commander Almonrode. 2, 3, 5. The camera gets some candid shots of conference attendees. 6. Visual aids were put to good use. 7. LT CDR H. E. Sprecher, MINELANT representative, is astonished to meet an old friend from Subic, "The Bull".



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FL SHOPTALK

NMEF FLEET LIAISON DESK • 703/887-2411 • AUTOVON 555-3480 • EXTENSIONS 492 & 695

FL Shoptalk is a column of observations general and specific, prepared by members of NAVMINENGRFAC's Fleet Liaison (FL) Department. Head of the department is LT Paul W. Hanks. Other members include LT M. D. Horn, Jr., LT R. L. Anderson, LTJG T. W. Mudd, and LTJG D. C. Tuttle.

NEW RUDMINDE DIRECTION

We're writing this to grease the skids for a new approach to RUDMINDE – a realistic approach, and one we think that most of you will agree with over the long haul.

Consider, for a moment, the real reason for RUDMINDE as it was developed way back when. It was an efficient, quick and dirty means whereby you could report unsatisfactory or defective mine or depth charge material. It precluded the need for a shop supervisor having to sit down to write a lengthy, rough letter, expounding on all the defects found, bouncing it thru his division officer (sometimes two or three times), and then having it introduced into the administrative chain where it would take an additional two or three days to undergo the necessary review, smooth typing, serialization, etc. For sure, the RUDMINDE report, with its recognized informality, was a welcome relief.

Like any new method for doing things, though, it took a long time for some people to accept RUDMINDE as a good thing. In fact, there are still some hard feelings kicking around here and there – and we are not saying that in some of these cases the feelings are not "legit". What we do say, though, is that RUDMINDE has done much more good than it has harm. It must be remembered that RUDMINDE grew up right along with the Facility – and it sure enough has had its share of tough times. With the experience of growth comes the pain of expansion – you have to loose some old teeth to make way for new ones.

So now it's time to take on some new teeth!!!! Methods have improved and become almost standard in every mine shop. The mine community of which all of us are a part, is developing a certain unity in our approach to concepts and development of procedures. There is a free exchange of ideas and opinion. Some are good, and some are not so good – but all are recognizable as expressing views toward improvement – and who was it that said you can't improve on a good thing, anyway???

Our new slant on RUDMINDE is merely a redefinition of its designed purpose – that of providing a quick and dirty means of reporting defective material. Over the past few years the program has exhibited a trend toward becoming a sort of "Mr Fixit" media – and it was neither designed nor intended for this purpose. Of a sudden – and perhaps because of our own lack of foresight and guidance – we find ourselves swamped with reports of every imaginable kind which don't relate to RUDMINDE – all being reported by RUDMINDE. It just ain't cricket!!!!

I guess what we're really trying to say is that we are going to put RUDMINDE back in the league in which it was intended to play. Problems that are reported which are philosophical in nature, or which directly relate to policy, just aren't in the ball game and shouldn't be

Continued on page 2

THE NEW LOOK

Readers who have reached this page of the Troubleshooter have already discovered your magazine has a new look, its first major face lifting since the first issue in 1958. Changes are not limited to its appearance but also to its content, so read the fine print on the inside front cover.

There has been some question in the past on the part of our readers concerning the authoritative content of articles that call for changes in procedures introducing the use of tools new to the mine business, new equipment or components, or their modification. Now there should be no doubt about what is what. The word DIRECTIVE in the heading of an article means it calls for action on the part of those activities responsible for the mine or mines which will be designated in the heading also.

Other articles may be of no less importance in supplying information the mineman may use if it helps. They may include shop practices that make a task easier, reports on new ideas that look to the future, etc.

A new feature has replaced the cartoon page on the back cover, vignettes of mine history. This feature may arouse a desire to read more so here is a short bibliography of books devoted to underwater mines and mining from which much of the information in the vignettes was culled.

"Infernal Machines" by Milton F. Perry, curator of the Harry S. Truman Library, tells the story of confederate submarine and mine warfare during the Civil War. Published by the Louisiana State University Press, Baton Rouge.

"America's Use of Sea Mines" by Robert C. Duncan, Ph. D., formerly chief physicist, U.S. Naval Ordnance Laboratory, writes of underwater mines from the Revolution to World War II, a scholarly approach. Published by the U.S. Government Printing Office.

"Mines, Minelayers and Minelaying" by Captain J.S. Cowie, C.B.E., Royal Navy, covers much of the same ground as that in Duncan's book from the british view. Published by The Oxford Press.

FL SHOPTALK

Continued from page 1

reported via RUDMINDE. There are other media at your disposal which can and must be used when questions concerning policy arise. In the final analysis we have no alternative but to take the stand that we are going to have to "bounce back" to you those RUDMINDES which don't fit the defect reporting description. There will probably be some flowery words to go with the bounce, but (to simplify things), it will mean your RUDMINDE properly belongs in another ball park, brother, and should be addressed in the manner which policy or decision-making matters demand. This puts a proper perspective on things and those policy matters will get the consideration they rightfully deserve.

Take a new look – and maybe a review of some of your past RUDMINDES – and we think that you'll concur that some of them would have had better treatment if they would have been forwarded as befits their importance and impact on the mine program. So, take a fresh look at NAVORD Instruction 8550.3 to jog your memory as to RUDMINDE's purpose.

NEC FOR PHASE "G"

Here are two basic considerations for you phase "G" qualified activities to ponder in order to assure a continuing capability:

1. A Class "B" graduate has a training entry made in his service jacket at time of graduation. A copy of this is sent to BUPERS where NEC-1201 will show up in the PAMI 1080-14 report for those MINEMAN so qualified. It is then the command's responsibility to make an appropriate service record entry in the man's jacket to effect this NEC.

2. The next step is a command initiated request to change your manpower authorization to reflect a requirement for NEC-1201 qualified personnel.

TO WEAVE A TALE (R.I.P.)

Some of the 'ol-timers will remember the problem with the old cloth-pressed gaskets way back in 1960. In fact there was a T-Shooter article about the problem, and it gave specific instructions for inspection and subsequent purging of stocks to get rid of these infamous rubbernecks.

Although this is past history and the T-Shooter article was cancelled, the problem is that some of the gray-haired ones still recall this article and in seeing some recent gaskets that had the intricate weave of the tell-tale cloth press, they became quite concerned that the problem was again coming to roost. In this case the good memory is providing for needless concern. Back in them thar' days, we did not have the manufacturing techniques, nor the backup QA inspection and acceptance criteria to assure we got the product we wanted – as far as gaskets were concerned. So, some batches got

through that weren't so good, and the means that provided ready identification was the cloth-press weave imbedded in the inferior rubber product.

Not so today – even though you will still find evidence of cloth press weave signs. As long as you have a gasket which meets the 10-year shelf life criteria as set forth in SPCC Instruction 4400.26 of 27 Jan '65, you can be sure you're on firm ground and have a good superior-grade gasket. So please put this one to rest, and if you notice what appears to be a slight weave design in the gasket, have no fear as long as it meets the age requirements. R. I. P.

MAINTAINABILITY!

This is a key word nowadays – on the lips of everyone who is talking the jargon peculiar to maintenance. Of course everyone has their own viewpoint of just what "maintainability" encompasses, relative to their own system. It may be a fire control system, an armament stores system or a mine system. From all of the presentations, correspondence or articles, one approach seems apparent, however. In relating "maintainability" to a specific system, the primary concern is that of achieving a program whereby operability, based on periodic test, maintenance, and inspection, can be assured over a period of time with a realistic reliability factor.

When the maintenance program was in its infancy, there was very little data to support the question of "when" these periodic tests should be provided. There was no such thing as failure mode analysis or component failure rate assessment, in support of establishing reliability. The question of "when" was usually determined strictly by an engineering estimate which usually was based on the expected life of the most critical component built into the system. There are definite age curves for some component parts, such as transistors, tubes, resistors, condensers, transformers, etc., and this established a fairly accurate base for an engineer to provide a "calculated guess". Don't knock it !!! In most cases these calculated guesses proved to be very accurate.

The state of the art has changed, however, and with progress comes sophistication. The question of "maintainability" has to answer the related questions of how, what, when, and where, and this is no easy task if all the considerations are examined minutely. It is ridiculous to conceive the idea that each and every problem for each weapon, for each activity, for each operational commitment, for each storage mode is answered in one maintenance program. It cannot be pure and simple. It is recognized that what is good for one activity is not necessarily good for another activity – based strictly on manpower resources and facility considerations alone. Yet we are constantly asked, in one form or another, to answer these problems by bastardizing prescribed maintenance procedures and concepts.

The prescribed maintenance program deals in warranties. Consider it for a moment. Just like your

Continued on page 3

BEWARE TERMITES

ALL AIR LAID MINES *DIRECTIVE*

Old Chief Barnacles back in Troubleshooter 1-68 gave some rules for insuring long life for parachute packs but he never thought to warn against termites and for good reason - he never heard of termites attacking parapacks before. Now the word comes from several activities that their stocks of parapacks have suffered termite damage. Of course, as far as can be learned, the only parapacks affected are those in wood boxes and not those on mines in magazines, and that the appetites of the termites were directed against the packaging, not the parapack itself. This however is objectionable because when the packaging is breached the pack is exposed to other conditions that may be harmful. Therefore, when termite infestation is discovered these steps should be taken promptly:

Remove parapack and destroy infested packaging by burning.

Contact local public works officer for assistance in pest control.

Examine parapack for evidence of damage. If of questionable serviceability follow instructions in OP 1452 Vol 3.

Repackage serviceable parapacks using new materials. A fiberboard box enclosed in barrier material and another fiberboard box is enough for shelf stow. If for shipment enclose in wooden box. Again see OP 1452 Vol 3.

Select a dry and ventilated area as described in OP 1452 Vol 3. Use of steel shelving would be ideal. Periodic inspection of the area shall be made to insure against the return of the pests.

FL SHOPTALK

Continued from page 2

car manufacturer, we are saying that, based on design engineering, quality assurance inspection, manufacturing techniques, and prescribed maintenance (which you'll find in every warranty as a clause), the "'ol jalopy" will be pretty reliable. And, just like your car manufacturer, we provide for red light indicators so you can pick out the lemons. The difference, of course, is that the savings realized is not one of capital but that of weapon reliability - which is the name of the game.

So the next time you sit down with pen in hand with the idea of proposing new maintenance concepts or asking for deviation or waiver from the program as prescribed, please keep this in mind and try to look ahead at some of the trade-offs that would eventually have to come to pass. Given some realistic thought, the question of "maintainability" can pose some interesting jolts that might not otherwise be apparent. Please keep it in mind.



This issue of The Troubleshooter initiates a report on mine publications to keep the fleet abreast of what is going on behind the scenes. It is not designed to compete with OP 3504 Vol 7. Only manuals, revisions, and changes for mine weapons that are listed in that publication are authorized for fleet use. The purpose of this report is merely to let you know what is going on in connection with technical manual projects reported at the Annual Mine Conference 25. Here it is:

Publications Released

OP 1684 Vol 1 Rev 4, Mine Mk 36-1, Assembly
OP 2608 Vol 1 Part 1 Rev 1, Mines Mk 52/55 - 1
thru 6, Descriptive Data
OP 3504 Vol 7 Rev 1 CH 1, Deployment References
OD 6678 Rev 8, Operation Assembly Charts, Mines
NAVMINENGRFAC Instruction 8011.1A, Allowance
List for Mine Test Sets, Special Tools, and
Handling Equipment.

Publications on the Press

OP 1811 Rev 2, Mine Mk 50-0, Assembly
OP 2608 Vol 1 Part 2 Rev 1, Mines Mk 52/55 - 1
thru 6, Assembly Instructions.

Publications in Final Preparation

OP 1452 Vol 3 Rev 4 CH 1 (adds descriptions; B-
tests; and subassembly, disassembly, and
overhaul instructions for Drill Float Mk 17 and
associated components).

OP 1798 Vol 1 Rev 4, Mine Mk 36-2, Assembly
OP 1892 Vol 1 Rev 3, Mine Mk 36-3, Assembly

Publications in the Works

OP 956 Vol 1 Rev 5, Mine Mk 25-0, Assembly
OP 1765 Vol 1 Rev 4, Mine Mk 25-2, Assembly
OP 1797 Vol 1 Rev 4, Mine Mk 25-1, Assembly
OP 3232, Air-Laid Mines, Preparation

This schedule generally reflects the one contained in NAVORDSYSCOM message 102101Z September 1969. We are out on a limb when we start forecasting but the above is today's picture. As the new mine assembly OPs are published they will be look-alikes, standardized on the basis of specifications laid down by MIL-M-38784 for format and MIL-M-81273 for content. This mine-pub standardization effort toward which NAVMINENGRFAC and NOL have been working for many months, is an improvement that should make everybody happier.

The revisions of OPs 1811 and 2608 referenced above were too far along into production to include all of the new format and content doctrine but they do include features designed to better satisfy fleet requirements. The new OP 1798, however, and all assembly manuals scheduled to follow it - whether, produced by NAVMIN-ENGRFAC or NOL - will exhibit the full treatment.

HOT STUPE

by B. Arnaclebutt, MNC

More on safety shoes

ALL MINES:

Dear B.B.

In Troubleshooter 1-68, in an article "Playing Safe with Detonators," conductive shoes were recommended. Perhaps you could tell more about FMSOINST 5101.1A of which we have no copy. Like how do we get proper sizes?

MN1 TSR

Dear TSR:

The FMSO Instruction was distributed only to authorized users of conductive safety shoes which include depots, ordnance laboratories, weapons stations, and weapons centers. Also ordnance facilities at Sasebo, Yokosuka, and St. Mawgan, NAVMAG Guam, Subic, and NAVORD-STA Indian Head.

Such authorized activities can requisition the shoes through normal 9D-Cog supply channels. Others must submit justified requests to the Navy Fleet Material Support Office, Mechanicsburg, Pa. 17055.

As for sizes, they are many and are assigned by FSNs listed in an enclosure to that FMSO instruction. They're also in the Navy Management Data List. We suggest, however, that any interested activity get a copy of FMSO-INST from their local supply office because it contains far more data than we have space to reprint here. I also suggest not trying to fit out every man aboard, remembering that the purpose of these Brogans is not walking (apologies to Nancy Sinatra) and observing some Yankee prudence. After all, a half or full size too big, during such time as they're serving their purpose, is not likely to kill anybody's feet.

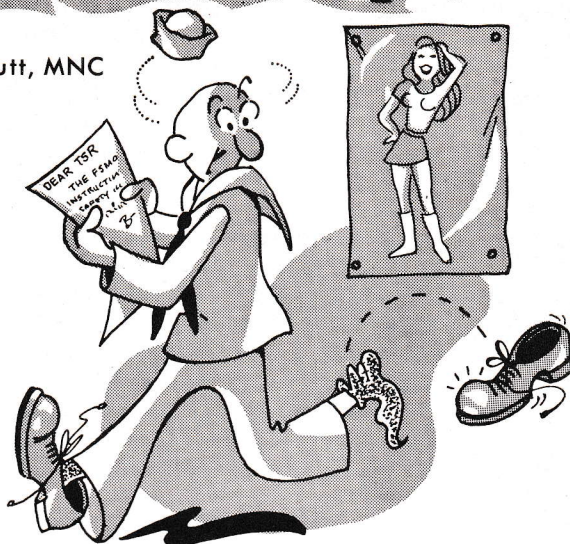
B. Arnaclebutt

Retainers not retained

MINE MK 36:

Dear B. Butt:

A requisition for 125 air-dryer retainers, needed for overhaul of Mine Mk 36 stocks, has been returned marked "Cancelled-Delete". The retainer lists in OP 3504 as MMC Code OC22195, FSN 1A1350-607-0530. We need these retainers to replace the old-



type air-dryer bracket in our 36-2 cases but will continue to use brackets until we get the wise word from you.

ADR

Dear ADR:

Retainer OC22195, which was added to the design documentation for Case Mk 36 Mod 2 in 1967, was dropped from stock lists through an oversight. Action has been taken to reinstate it. Activities needing this retainer in the meantime can treat it as a "mine item without an assigned stock number," and requisition direct from NAVMINENGRFAC per Troubleshooter Bulletin No. 200. Both NAD Hawthorne and WPNSTA Yorktown have these retainers in stock.

B. Arnaclebutt

SR-7 Mod 2 vs MK 25 Mod 0

MINES MK 25-2/27-3,5/36-3/49-2:

Dear B:

How does it happen that every time a requisition is sent out for Sensitive Relays Mk 25 Mod 0 we get SR-7 Mod 2's instead. I realize that the SR-7 is listed as an alternate for the Mk 25 but can you explain why the preferred item doesn't turn up more often?

MN LTK

Dear LTK:

No reason except that the SR-7 Mod 2's are in plentiful supply while the Mk 25 Mod 0's are not, a situation that will exist until supplies of Code A SR-7's are exhausted. The SR-7 will do the job in mines for which it is listed as an alternate just as well as the Mk 25. All known defects of the SR-7 Mod 2, as well as the Mk 25 Mod 0, have been corrected by OSR 013 so use them without reservation as long as you get them in packaging stenciled like this:

SENSITIVE RELAY (SR-7 MOD 2 OR MK 25 MOD 0)
CONTRACT
OSR LOT (ASSIGNED BY WORK DIRECTIVE)
QUARTER/CALENDAR YEAR OF OVERHAUL
OSR NUMBER
SERIAL NUMBER

There is a long chance that you may receive an odd ball SR-7 Mod 3. If you do don't sweat it, you just have a Mk 25 by another name as explained on page 11 of Troubleshooter 1-64.

B. Amulebutt

New cable for old

MINE MK 57-0: DIRECTIVE

Dear Barney:

In many instances a considerable amount of cable remains in the cable dispenser of Mark 57 Mod 0 FSMT mines after

recovery. These dispensers are discarded, but it appears that they could be reused as long as the length of cable is sufficient for another plant. For example, if the mine is planted in water up to 300 feet, approximately 670 feet of cable remains in the dispenser. Such a dispenser could be washed out with fresh water, blown dry, and reused.

RDC

Dear RDC:

Your idea has merit but just wouldn't pay off for these reasons:

The serviceability of the cable remaining in the Mk 1 Mod 0 dispenser would be questionable. Even after washing, as you suggest, the cable should also be removed from the dispenser for inspection; otherwise, some hidden defect caused by a previous plant could lead to a malfunction. Since special equipment, which is not available, is required to reinstall the cable in the dispenser, this inspection cannot be accomplished.

Further, the "reclaimed" dispenser would require special "For Limited Use Only" markings and would have to be segregated. This would involve costly logistic procedures, since more often than not post analysis is performed at sites other than those at which the FSMT mines are assembled.

In view of the small number of Mk 57-0 FSMT plants, three or four in a year, the cost of reclaiming the left-over cable would not make the savings realized by its reuse worth-while.

B. Amulebutt



Br-rr No matter where you are stationed you should feel better after looking at this cheerful group of minemen posing for their picture in the snows of Keflavik, Iceland, against the background of a landing craft. They are members of Lima Detachment, proving MOMAULANT will go anywhere. While snow is no uncommon sight in Iceland it is not often that you see an LCM covered with the stuff in a magazine area. Left to right are: J. D. Oliver, Chief J. J. Kennedy, MN3 M. S. Anderson, LT E. C. Oyer Officer-in-Charge, MN2 D. G. Willoughby, MN2 R. L. Moorhead and MN3 S. C. Jones.

Kneeling - MN1 D. Lozen, MN2 F. A. Tetor, MN3 D. W. Wood, MN2 K. L. Andersen, and MN3 L. B. Stoddard. Standing, MN1 N. M. Sivertsen, MN2 R. P. Mace, MN3 L. W. Seibert, MNSN B. F. Whitmire, MN3

Barely discernable is the Detachment mascot "Chief" with MN1 Lozen - the only sheep dog in Iceland that is afraid of sheep.

HANDLE MERCURY CELL BATTERIES WITH CARE

MINES MK 25/36/52/55/56/57 **DIRECTIVE**

Mercury batteries (BA-1300 series) when properly stored and utilized are quite as safe as any other cell-type battery. They are powerful energy sources and it is when they try to release all of their stored energy at one time, as in the case of a short circuit, that things happen. The warning in OP 1452 Vol 1 against discharge of mine batteries BA-1322, Ba-1359 and BA-1383 relates to misuse of these batteries in which abnormal loading discharges a battery too rapidly. Under these conditions internal heat generated by the resulting chemical reaction can form gases beyond the venting capabilities of the battery. The battery then may rupture with explosive force.

The safety features built into the BA-1300-series battery makes the occurrence of such a happening unlikely but possible. In one government agency shop, a 20-volt battery exploded after it was placed on a shelf with the alligator clip of one lead connected to the other insulated lead. The teeth of the clip had punctured the insulation causing a short. In another case a 10-volt battery exploded, hurling internal battery components 30 feet and caused mercury contamination to a test bench to such a degree, that the bench had to be salvaged.

It also can happen here as witness the story on page 12 of Troubleshooter 4-64. In this case a BA-1322 was misplaced in a Mine Mk 52 Mod 2 battery rack. When hooked up the error caused a reverse current to flow through the 1322's mercury cells and the pieces flew. Restrained by battery strap and spacers they didn't fly any distance, but they sure wrecked an instrument rack assembly.

When not restrained a faulty hook-up can turn a mercury battery into a missile. Safety people report a small 10.7-volt battery was installed in a portable radiation counter. A short time later a hissing noise was heard; a technician removed the battery and tossed it into a corner under a bench to get rid of it quickly; the battery exploded, ricocheted, and landed in another room 75 feet away.

None of these hazardous situations need happen if simple safety measures are observed, such as:

▶ Never handle a mercury battery roughly. (For economy's sake as well as safety.) Such treatment can cause an internal short.

▶ Take out of service any battery that shows signs of corrosion.

▶ Package or store batteries in nonconductive containers. This holds for charged or expended batteries. Place discarded batteries in wooden or sturdy cardboard boxes; never in metal trash cans or mixed with metallic scrap.

▶ Do not expose batteries to fire or external heat. It is the chemical reaction caused by heat, internal or external, that causes explosions. Dispose of expended batteries by burial in a designated safe area - never by incineration.

▶ In mercury batteries, the electrolyte is not an acid but a strong caustic. First aid should be given accordingly.

What ever happened to Charley?

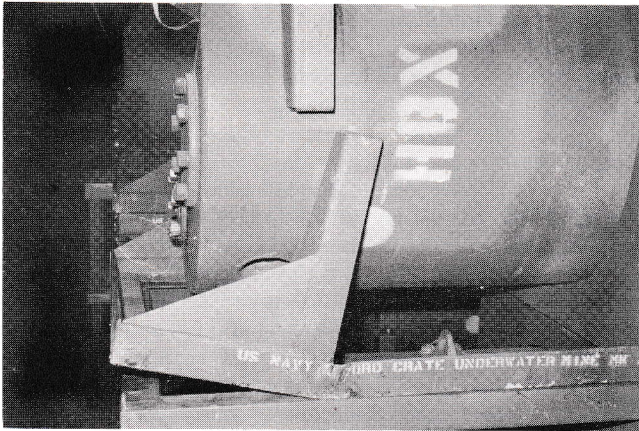
Here is the first annual updating of the TROUBLESHOOTER 3-68 article on Mineman LDO's. Again, this list is unofficial. Some rotation dates are missing and others are only educated guesses. So all you LDO's drop us a line with the correct information.

We here at FL, NAVMINENGRFAC have a question. What happened to the warrants? In 3-68, we asked you to let us know where you are. At press time, only two or three warrants have responded. So come out of hiding, warrants and send us the information on your duty station, year group, and estimated rotation.

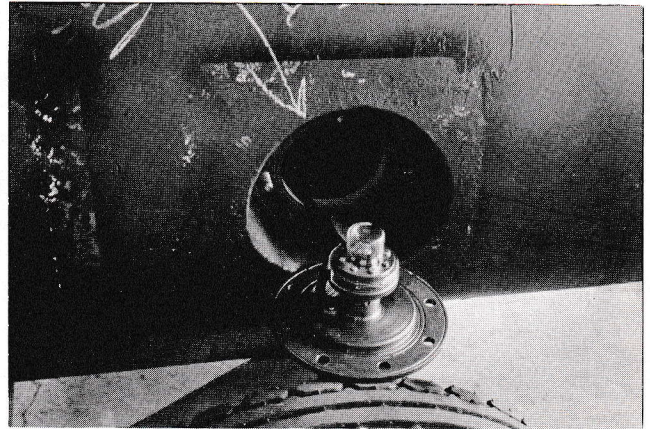
NAME	LOCATION	ROTATION
Year Group 57		
LCDR JOHN O'BRIEN	NAS Whidbey Island	Dec 1970
LCDR E. L. ROBERTS	NAVORDSYSCOMHQ	Sep 1970
Year Group 59		
LCDR H. E. SPRECHER	COMINELANT	Sep 1970
LCDR W. W. POOLE	NOTS China Lake	Oct 1970
LT E. J. MILANOWSKI	NAD Oahu	Nov 1970
Year Group 60		
LCDR L. M. STRYKER	NAVMINENGRFAC	Feb 1970
LCDR R. A. JANKE	KWESTEVDET	Feb 1971
LT W. G. CHERRY	NAD Bangor	Aug 1970
LT E. McGAW	NAVORDFAC Yokosuka	Jun 1970
LT T. K. WILEY	NAD Oahu	Dec 1969
Year Group 61		
LT A. R. BORREN	MAAG Turkey	Aug 1970
Year Group 62		
LT B. A. KREUSCH	EOD Long Beach	
LT D. A. DeCRONA	NAMAG Subic	Jun 1971
LT H. E. ELSTON	CO MOMAULANT	Feb 1971
LT F. A. DRAPER	WPNSTA Yorktown	Jun 1970
LT R. A. BILLINGS	MOMAULANT	Nov 1970
LT B. BENINTENDE	NAVORDFAC Sasebo	Jan 1970
LT L. E. RONAN	NAVSTA Pearl Harbor	
Year Group 63		
LT R. F. GREENE	NAVMINENGRFAC Misawa	May 1971
LT K. R. PETERSON	NAVSCOLMINNEWARFARE	Aug 1970
LT W. J. MEHARD	NAD Oahu	Nov 1972
LT H. M. CAMPBELL	MOMAULANT	Feb 1971
LT H. L. KOCHER	NAF Naha	Jun 1970
LT R. W. RINES	NAVMAAG Guam	Sep 1970
LT G. E. MEADOWS	POMFLANT	Jun 1971
LT C. J. WRIGHT	SERVPAC	Jan 1971
LT B. P. HERNANDEZ	WPNSTA Yorktown	Jul 1971
Year Group 64		
LT P. W. HANKS	NAVMINENGRFAC	Nov 1972
LT P. E. THOMAS	EOD	Jul 1970
LT E. C. OYER	MOMAULANT	Sep 1971
LT M. D. HORN	NAVMINENGRFAC	Jul 1970
LT R. L. ANDERSON	NAVMINENGRFAC	May 1970
LT J. T. W. MUDD	NAVMINENGRFAC	Jul 1970
Year Group 65		
LT W. A. ROBERTS	MINEPAC Staff	Dec 1970
LT R. F. RUHLAND	MOMAULANT	Jul 1970
LT G. A. SMITH	USS SARATOGA	
Year Group 70		
ENS G. W. RUSSELL	NAVSCOLMINNEWARFARE	Nov 1970

IT SHOULD *NEVER* HAPPEN ...

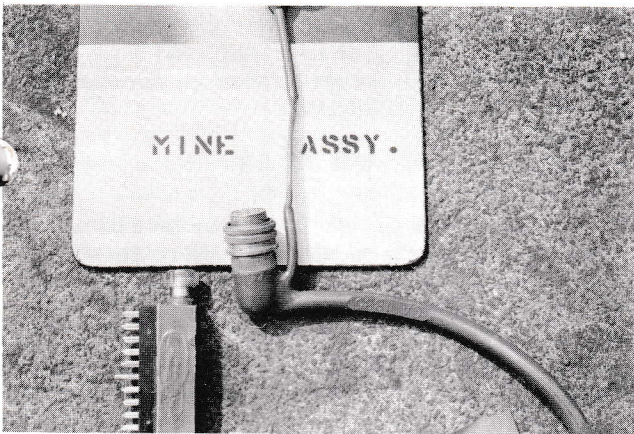
The pictures tell the story of some horrible things that can happen when assembly personnel get careless. These examples were found during inspection of Configuration C service mines.



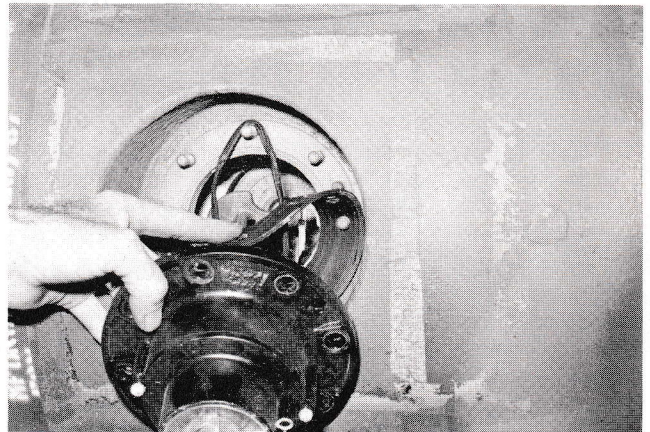
When all bolts are not used the crate no longer protects the mine and you have a problem straightening crates. Use all the crate bolts.



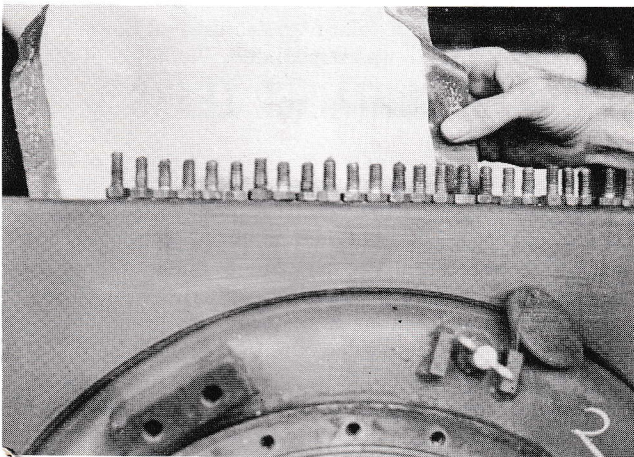
Of course if the gasket is omitted entirely, as in this Mine Mk 25 clock well, you can be sure of a leaker.



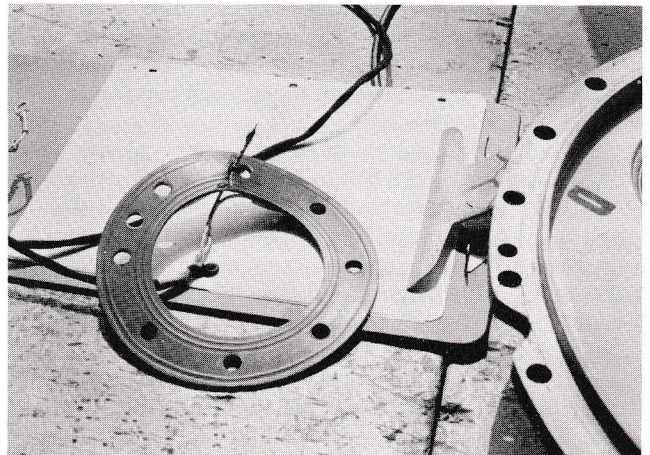
If P-3 leg of the instrument cable is not held clear while instrument rack is installed, the rack doesn't give, the cable does.



This Mine Mk 25 extender well gasket was not designed to go over a CA-410 - nor should the CA-410 be routed around the stud!

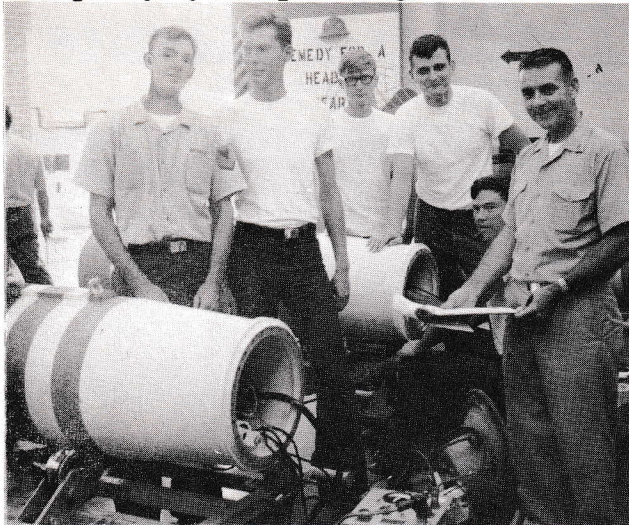


All the real Mine MK 49 tail cover screw step forward. You can't all be OC 24202.



Nor does the mine wiring call for the CA-410 to go through the gasket.

The proof of the pudding...



Just to make sure that it makes good sense when you read it MOMAULANT, Charleston, South Carolina lent NMEF writers the talents of its knowledgeable mineman to prove out job sheets for the assembly of Mine Mk 36, Mods 2 and 3. Members of this group, caught in the act are, left to right: MN 3 Robert Brookey, MNSN John Schepp, MN 3 Tom Lorich, MNSN Bill Sink, MNSN T. J. Reed, MNC E. F. Muszynski.

NEW LOOK AT MK 20 PARAPACK

MINES MK 36 (drill)/52-1 thru 6: *DIRECTIVE*

Some shops may still encounter Parachute Packs Mk 20 Mod 0 with ancient "Code A," or "Code F - Internal Use Only," markings guaranteed to puzzle assembly crews when they break them out for Mk 36 drill mines or Mk 52 service or drill. This is a holdover from 1963 when prevalence of a defect caused BUWEPS to send out a message directing fleet-wide screening by measuring the gap between the packs' housings and housing bottoms. If the gap measured 0-1/16 inch the pack was marked Code A and good for mines flown in bomb bay (internal use) or on wing stations. Packs with a gap more than 1/16-inch but not more than 1/4-inch were marked Code B and limited to use on mines in bomb bays only. Those with gaps greater than 1/4-inch were to be marked Code C and returned to depots. These ABC markings (as reported in Troubleshooter 1-64) were in accord with the old ammunition codes since superseded by today's Milstrip Condition Codes.

This interim solution to the problem was superseded by publication of OVS 059 in 1964, since superseded by OSR 059 which provides for the screening of all depot stocks, and for corrective action where required. Packs Mk 20 identified as having been reworked in accordance with OSR 059, or with a stencil indicating the gap has been checked OK, can be flown on any station, wing or bomb bay.

So what about those aforementioned "ancient markings?" If the pack has the Code A stencil, or the above OSR stencil, or if it passes OP 3379 (MRC) requirements, it is ok for use on any air-laid mine for which specified. If it does not meet one of these criteria - if it has the old "internal use only" stencil - don't use it. Request disposition and replacement.

ZMO CONSERVES PVO AND PV1

ALL DRILL MINES: *DIRECTIVE*

More information is required to identify MILSTRIP requisitions for material required in support of the drill mine program and other fleet exercises. There is a substantial amount of stock at issue activities in condition code B, which designates material restricted to drill or training use and which could be utilized to satisfy at least some portion of the program. If a requisition does not positively identify its requirement with the drill mine program or some fleet exercise, the issuing activity must utilize only code A stock to fill it, and thereby reduce the availability of these stocks for service use.

MILSTRIP requisitioning procedure (NAVSUP 437) provides a means of identifying "service" versus "drill" requirements by use of assigned project codes. These codes are: PVO for major service mine requirements in 2T and 6T cog; PVI for service mine support requirements in other cogs; and ZMO for drill or fleet exercise mine requirements. These codes should be inserted in card columns 57-59 on MILSTRIP requisition forms DD 1348 for guidance of the issuing activity.

Project codes should be used by mine activities when requisitioning mine assembly items to identify their requirements as either service or drill, and issue points should utilize condition code B stocks whenever possible to fill requisitions coded ZMO.

CHECK THOSE CA-182s

MINES MK 52/55: *DIRECTIVE*

You may have a bad CA-182 in your Mk 340 Test Set if the experience of technicians at NAVMINENGRFAC is any indication. In making static tests on the Mk 39 Control Box, two out of three CA 182s were found to be mis-wired.

To be sure you don't have a bad cable, check the wiring to see that it agrees with the schematic on MRC 0340 A-01, Vol 2, OP 3379. If it does, tag the cable - "Continuity Checked OK". If it doesn't, rewire and then tag.

When rewiring is required, initiate a Rudminde indicating the serial no. and manufacturer of the test set with which the cable was associated.

STOPPING CONTAINER LEAKS

MINES MK 52/55-3, 4, 6:

MOMAULANT Detachment, Keflavik, the voice of experience, reports that the first place to look when you find a leaking Mk 23 container is at the electrical connector or test plug. The detachment places the test plug ahead of the packing preformed (o-ring), as suspect when container pressure goes down.

The reason in most cases is that the test plug has been potted with glyptal instead of the potting compound called out in the article on page 3 of 1-67 Troubleshooter, now listed in OP 3504 as 5C00563. So take a tip from the men at Kefavik and look at the test plug for improper potting or no potting at all. Remove all glyptal before potting with the proper sealant.

Do You do this Job Right?

RELIEF FOR STICKY CUSHIONS

MINE MK 36-1: DIRECTIVE

For those who are experiencing trouble with those sticky Mk 18 and Mk 17 cushion sets in the Mine Mk 36 Mod 1 here are some ways to get around the problem, save tempers, and prevent damage to components they are designed to protect, or the cushions themselves, or both. Obviously nothing is to be gained by tearing down assembled mines just for the sake of accomplishing these procedures. The obvious time to make the change would be during the next annual or biennial maintenance cycle. Then, once accomplished subsequent disassembly and assembly in the performance of programmed maintenance should be much easier.

CUSHION SET MK 18

Back in Troubleshooter issue 4-68 the newsboard liner that is supplied with the Mk 18 cushion set was switched from insertion between mechanism compartment wall and cushion, to between Firing Mechanism M-9 and Cushion. This was an improvement but here is advance information on a better method which is now being prepared for release in OP 1684, the assembly manual for Mine Mk 36-1.

First discard the newsboard that you get with the cushion set and substitute index paper which makes a thinner, slicker liner. The paper to use in 5P00504, FSN 9310-160-7841 which comes in sheets 25½ by 30½ inches. Two liners 12½ by 28 inches can be cut from one sheet. The unit of issue is a package of 100 sheets.

Cut a piece of index paper to a width equal to the height of the M-9 mechanism plus 3 inches, and as long as its circumference. Then cut notches 3 inches deep along the length of the liner and fold this notched area down at a 90-degree angle; accomplish the task in the same manner as you would in installing fish paper on a booster.

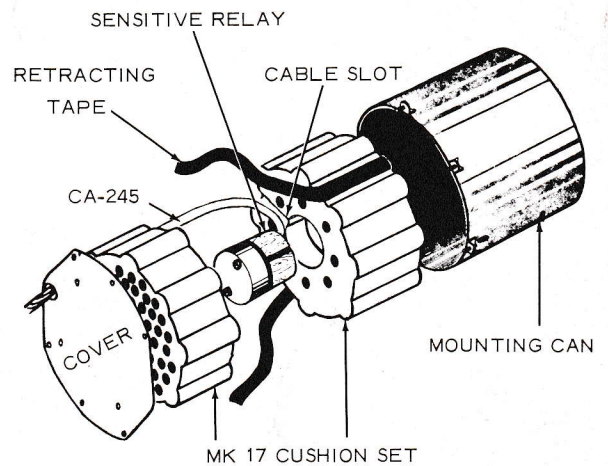
Wrap the index paper liner around the mechanism insuring a joint with no overlap (a gap is not objectionable), and with the folded-over portion at the base of the mechanism case. Tape joint with cellophane tape. Press tabs formed by notching flush against base. Cut out tabs that interfere with four nuts there and tape remaining tabs securely to base.

With the Firing Mechanism M-9 so encased you should have to use less force in pushing it into the cushioned compartment. But what is just as important is that, once the index paper liner is used, the M-9 should come out easier when the Firing Mechanism Puller 7P00160 is used.

CUSHION SET MK 17

The Cushion Set Mk 17 that protects the Sensitive Relay SR-6 in the can that mounts on the M-9 mechanism compartment cover also can be a problem. In this case it is one of withdrawal of the two cushions of the set with the SR-6 sandwiched between them. This is because the cushions have a tendency to adhere to the sides of the mounting can during prolonged mine storage.

To avoid this trouble use cotton tape, 5T00503, FSN 9D8315-641-4375 to pull out reluctant cushions. The unit of issue is a roll of 36 yards. This is the same procedure used to extract Cushion Set Mk 29 and the SR-7 in Mine Mk 36 Mod 3. Do it this way.



Place a 36-inch length of cotton tape across the flat side of bottom (thicker) section of cushion set and lead equal lengths of the tape along the sides of the cushion being sure they do not obstruct the cable slot. Then insert the cushion and the SR-7 in its mounting can.

The top cushion is inserted so cable slot aligns with cable slot in lower cushion. The tape is pulled straight and taut up the sides of the upper cushion and tied across the top. The can's cover can now go on in the usual manner.

Now when the time comes to pull the cushion out you have the tape to pull on.

The Editor

MINES, MINEMEN & MEMORABILIA

HISTORICAL SERIES # 1

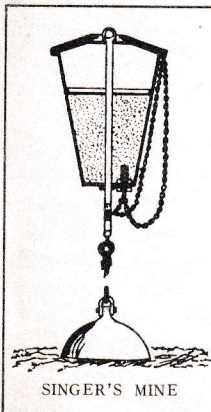
MINES AGAINST A NAVY

Among the first advocates of the use of underwater explosives to destroy enemy shipping were Bushnell and Fulton during the nation's Revolutionary War period. All they were able to accomplish was to prove that explosives could be detonated under water and, properly placed, could destroy a ship. How underwater mines, then called torpedoes, could be delivered to a target defeated them. The reason, naval powers considered them "infernal machines" and would not sponsor continued experiments. The time was to come when these brainchilds were to develop into today's underwater mine, torpedo, and submarine that have outlived the ship-of-the-line, the battleship.

It was not until the Civil War that sea mines were used on a relatively large scale by the Confederacy, which is credited with the first effective use of underwater mines, mines with safety devices that protected those who assembled and planted them. The south had no navy to speak of to combat the warships of the Federal forces so, dirty tactics or not, a sea mine was cheaper and easier to build than a warship. Even then the navy would not dignify mine warfare as part of its heritage and it was CSA engineers who developed the art while the navy devoted its energies to creating the more spectacular but less effective CSS Virginia (Merrimac).

The sea mines or torpedoes still presented the problem of delivery to the target area. They were contact mines, moored or drifting, or controlled mines used in restricted waters, harbor entrance channels, bays or rivers. One device, not strictly in the underwater category attempted delivery only effective in the dark of night and against moored vessels. It was the spar torpedo that was delivered to the target by manned mine vehicles - small boats, or specially designed craft, submersible to present a low silhouette. The responsibility of development of these devices rested with the Confederate Torpedo Bureau under the Confederate Army's Corps of Engineers.

With all the limitations of crude design, gun powder charges and make-do fuzes these civil war sea mines outscored artillery, naval or shore based, in destruction of Federal vessels or war. The record shows 35 Union vessels, a total of more than 15,000 tons, sunk. In addition, 5,000 tons of Union shipping suffered serious damage and 10,000 tons minor damage from torpedoes. Artillery fire is credited with sinking nine Federal vessels.



In the Singer Mine, gunpowder was carried in the lower half of the case while the top carried a cast-iron weight which could be dislodged by a slight blow. The weight was connected to a friction fuze by chain so that when knocked off by a passing ship the pull of the chain would ignite the fuze and fire the mine. One of the first safety devices was incorporated in the design. Shown are two bights of chain, one link of the shorter secured to a pin which took the weight of the cover if accidentally dislodged and did not pull the fuze. After laying, a slight tug on a line withdrew the pin, released the short bight of chain and armed the mine.

EDITOR'S NOTE: Sea mines, used in the historical context, first was applied to unmanned vessels loaded with delay-fused explosives which were usually sent against enemy ships at anchor in the same manner as fire ships. It is used here as a general term to cover floating explosives, explosives suspended from a float or delivered at the end of a spar, etc., as opposed to the terms underwater mine or the torpedo which has come to mean a self-propelled explosive delivered under water. The Confederacy in the Civil War used "torpedo" in the same sense as "sea mine".

On the other side of the ledger attempts against moored warships often cost the attackers their own destruction. The Confederate submarine H. L. Hunley sunk itself while sinking the Federal sloop of war Housatonic. Three Confederate transports and a blockade runner were sunk or seriously damaged by sea mines. Federal forces did not use sea mines extensively although a spar "torpedo" was mounted on a Union launch to sink the CSS Albermarle, an ironclad ram.

At the end of the war in 1865 the United States did not perpetuate experimentation in the use of sea mines in naval warfare and the concept all but died with the Torpedo Bureau. In 1871 Congress did add underwater mines to the duties of U. S. Army engineers but these were limited to controlled mines and serious attention to underwater mines waited until World War I.

MINES AT WORK

DATE	VESSEL	TONS	DAMAGE
1862			
Dec 12	U.S.S. Cairo, ironclad gunboat	512	Sunk
1863			
Jan 23	C.S.S. Spindrift, blockade runner		Sunk
Feb 28	U.S.S. Montauk, monitor	844	Serious
Mar 14	U.S.S. Richmond, screw sloop	1929	Minor
Mar 28	C.S.S. Etiwan, transport		Serious
Apr 18	C.S.S. Marion, transport		Sunk
May 7	U.S.S. Weehawken, monitor	840	Minor
Jul 22	U.S.S. Baron De Kalb, ironclad gunboat	513	Sunk
Aug 5	U.S.S. Commodore Barney, gunboat	513	Serious
Aug 16	U.S.S. Pawnee, gunboat (launch sunk)	872	Sunk
Sep	U.S.S. John Farron, transport	250	Serious
Oct 5	U.S.S. Ironsides, ironclad	3486	Serious
1864			
Feb 17	U.S.S. Housatonic, sloop of war	1240	Sunk
Feb 17	C.S.S. H. L. Hunley, submarine		Sunk
Mar 6	U.S.S. Memphis, screw gunboat	791	Minor
Apr 1	U.S.S. Maple Leaf, transport	508	Sunk
Apr 9	U.S.S. Minnesota, frigate	3307	Minor
Apr 15	U.S.S. Eastport, ironclad gunboat	800	Sunk
Apr 16	U.S.S. General Hunter, transport	460	Sunk
May 6	U.S.S. Commodore Jones, gunboat	542	Sunk
May 9	U.S.S. Harriet A. Weed, transport	290	Sunk
Jun 19	U.S.S. Alice Price, transport	320	Sunk
Aug 5	U.S.S. Tecumseh, monitor	1034	Sunk
Aug 9	U.S.S. Army Barge (ammunition)		Sunk
Aug 9	U.S.S. Lewis, supply ship		Sunk
Oct 28	C.S.S. Albermarle, ironclad ram		Sunk
Nov 27	U.S.S. Greyhound, transport	900	Sunk*
Dec 7	U.S.S. Narcissus, gunboat	101	Sunk
Dec 9	U.S.S. Otsego, gunboat	974	Sunk
Dec 10	U.S.S. Bazely, gunboat	50	Sunk
Dec 10	U.S.S. Launch No. 5		Sunk
1865			
Jan 15	U.S.S. Patapsco, monitor	844	Sunk
Feb 20	U.S.S. Shawmut's launch		Sunk
Feb 21	U.S.S. Osceola, gunboat	974	Sunk
Feb 22	C.S.S. Schultz, transport		Sunk
Mar 1	U.S.S. Harvest Moon, gunboat	546	Sunk
Mar 4	U.S.S. Thorn, transport	403	Sunk
Mar 6	U.S.S. Jonquil, gunboat	90	Serious
Mar 12	U.S.S. Althea, gunboat	72	Sunk
Mar 17	U.S.S. Bibb, coast survey steamer		Minor
Mar 19	U.S.S. Massachusetts, transport	1150	Sunk
Mar 28	U.S.S. Milwaukee, twin-turret monitor	970	Sunk
Mar 29	U.S.S. Osage, monitor	523	Sunk
Apr 1	U.S.S. Rodolph, gunboat	217	Sunk
Apr 13	U.S.S. Ida, tug	104	Sunk
Apr 14	U.S.S. Sciota, gunboat	507	Sunk
Apr 14	U.S.S. Cincinnati's launch		Sunk
Apr 14	U.S.S. Itasca, gunboat		Sunk
Apr 14	U.S.S. Rose, gunboat		Sunk
Apr	U.S.S. St. Mary, transport		Sunk
May 12	U.S.S. R. B. Hamilton, transport	400	Sunk

* Sunk by coal "torpedo"