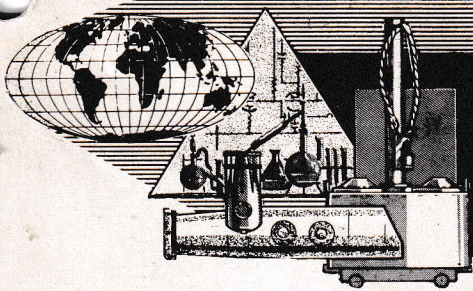


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3291

No. 1-64
I-0618-268-1640



mine and depth - charge

THE TROUBLESHOOTER

- ▶ Mine Mk 27
Test Report
- ▶ New Colors For
Inert-Loaded Mines
- ▶ Post-Recovery
Checkout, Mk 52/55



To declassify your copy of
Troubleshooter 1-64 . . .

- ▶ Pull out center supplement
and file it "confidential."
- ▶ With red, cross out the word
confidential, top and bottom,
on front and back T-Shooter
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Reg 112030

in this issue . . .

mine and depth - charge

THE TROUBLESHOOTER

Published by the Naval Mine Engineering Facility, Yorktown, Virginia.

Frederick F. Jewett, CDR., USN...Officer-in-Charge
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REGULAR FEATURES

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 A.S.W. Mineright: What's Wrong Here? 3
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COVER PHOTO: When the procedure for the post-recovery checkout of Mines Mk 52/55 was worked out (special supplement to this issue) the crew of MINE PROJECT FOUR volunteered to give it a work-out. Here E. R. Jones MN1 is working with the "do-it-yourself" test board while J. K. Nix MN2 runs through the check list. At right is J. M. Henderliter MN2.

1 JANUARY 1964

By direction of the Chief, Bureau of Naval Weapons, Troubleshooter is an official BUWEPS publication. Technical content pertinent to the assembly, testing, and delivery of US naval depth charges and mines is both authoritative and directive in nature, and reference may therefore be made to a particular issue as the authority for adoption of ideas promulgated therein. Content which does not fall in this category is reasonably verified before publication but is not to be considered official nor representative of official BUWEPS doctrine.

Troubleshooter is also the official journal of the Rudminde Program, a world-wide defect-reporting campaign designed to promote a high level of undersea warfare readiness in US naval depth charges and mines. The Program's basic instrument is NAVWEPS Form 8500/5 (1-63). Everyone who encounters problems with these weapons is encouraged to report them via this form direct to the Naval Mine Engineering Facility as prescribed by BUWEPSINST 8500.8.

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THE OFFICIAL JOURNAL OF THE RUDMINDE PROGRAM

WHAT KIND of year will it be?

By the time you read this, chances are you'll long since have forgotten the revelry and resolutions of New Year's. So we can just imagine the comments when readers see our back cover and the substitute headline on this page.

"Don't they have any calendars in Yorktown?"

"Is that T-Shooter editor still hung over from New Year's Eve?"

The answers, in order, are yes and no . . . even though there are days when we'd give our editorial shirt to have it the other way around. But this is not one of those days. So we don't have an issue that comes out during the holidays . . . is that any reason to squelch our cover artist when all he wanted to do was wish our readers a happy new year?

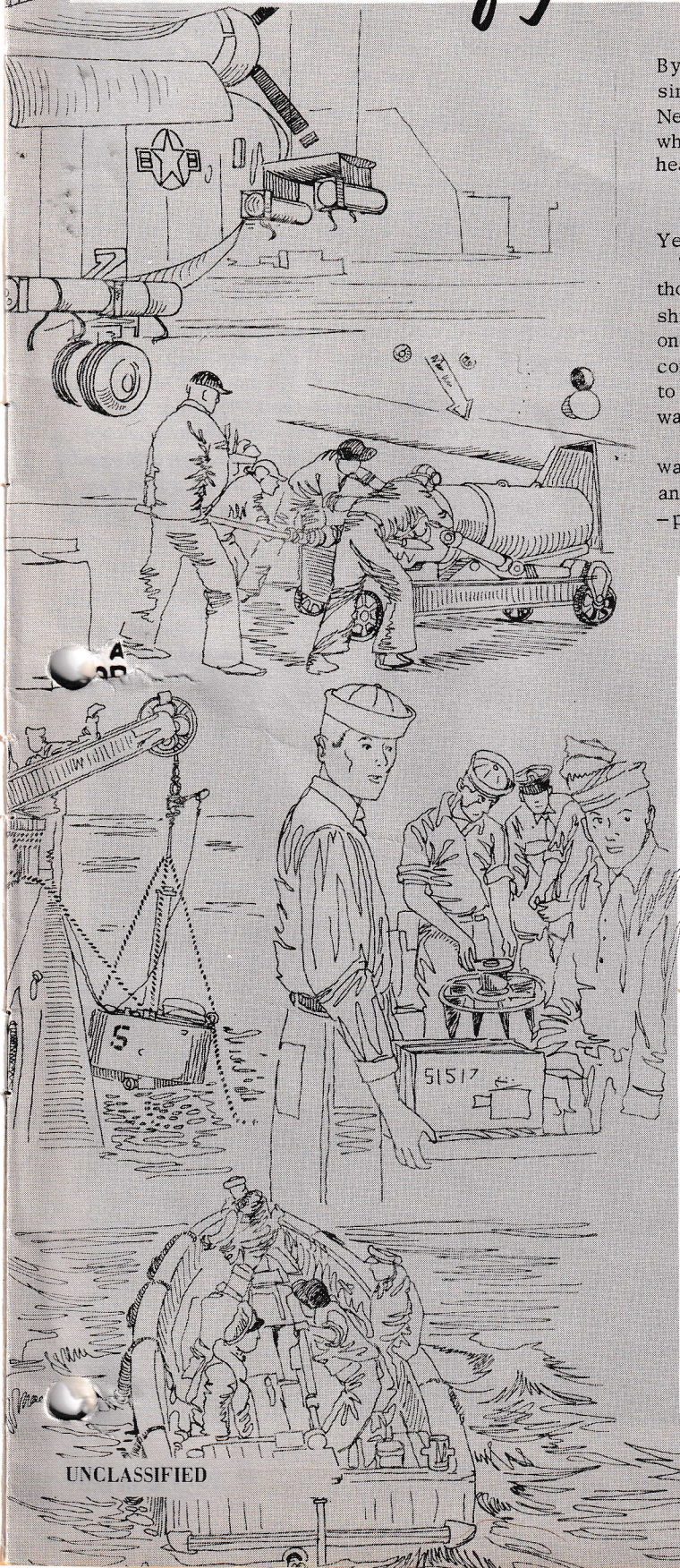
We think not! Instead, we decided to get on his bandwagon by posing the question at the head of this page and — with much help from the publishers of Newsweek — providing the best answer we've seen yet.

It will be a better year if you tell a funny story to that worried man next to you. Help a skinny kid to learn how to swim. Keep a box of biscuits in the kitchen and treat a stray dog when he comes to your door.

Encourage young talents. Learn to cook Veal Scaloppine. Catch a fish. Fall in love. Get a tan. Exercise. Laugh. Build. Grow.

Also — spit on your hands and get some work done.

A cynic once said, "Good resolutions are simply checks that men draw on banks where they have no account." But good deeds are solid gold that men put into banks that compound interest every day.



UNCLASSIFIED

DANGER IF YOU DON'T

ONE look at T-Shooter 3-63 and keen Wilbur Bean let us have it. And with good reason!

In the article entitled "No-Voltage Test Shows Voltage?" on page 17 of that issue, we explained a situation in which voltage could be expected, and accepted, in a pre-det test (an obvious abbreviation of pre-detonator-installation test). This, Brother Bean says, was technically correct but semantically and psychologically wrong.

And he's right. Our article is technically correct because pushing the PREMATURE button of the Mk 97-2 test set per paragraph 8, page 48, of OP 1808 Vol 1 (Mine Mk 49-1) does indeed connect the set's meter almost directly to the mine's detonator terminals . . . hence the reading of stray voltage which we explained away and said was okay.

But our article was semantically wrong because the step we talk about occurs in the mine operational test. As Bean says, the operational test is in one sense a pre-detonator-installation test inasmuch as it is performed before detonator installation. But to call it a pre-det test, which to minemen means a test performed at time of detonator installation to determine whether or not it's safe to proceed . . . and then to baldly state that the presence of voltage in the circuit is acceptable . . . was

Navy's newest Ensign on 5 September 1963 was Maurice D. Horn, shown here in midst of a 'boarding' ceremony with his wife, Barbara, and Capt Worth Scanland, CO, NWS/ Yorktown. Horn joined Navy in Baltimore in 1953, completed high school on his own, and obviously hasn't stopped learning since. A Mineman First before promotion, Horn is now MINDIV Officer with OPTEVFOR, Key West, where he relieved Lt. Ed Sprecher. Ed is now O-in-C of MOMAT 0322.



ZEROS OUT

Mine Mark 52 Mod 0 and Mark 55 Mod 0 have been removed from the list of service-approved mines. This action will be reflected in the next revision of OPNAV INSTRUCTION 008550.5E.

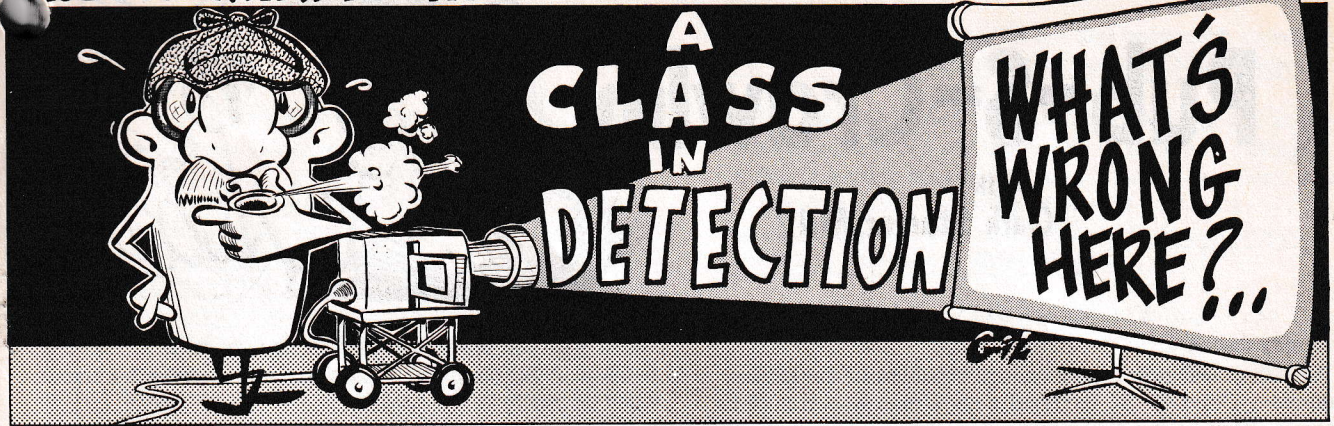
NMEF is taking action to cancel all documentation on these mines.

psychologically wrong. Voltage found in a pre-det test is never acceptable. It's dangerous. To quote Bean, it could misguide a mineman into an act that could cost him his fingers and eyes!

To do someone a real favor, then, we'd like to suggest that you round up every copy of T-Shooter 3-63 in your shop and change the first sentence in that article to read operational tests of where it now reads "pre-det tests for." Chances are no dyed-in-the-wool mineman would let himself get trapped by our semantic and psychological blunder, but there's always the chance that a green hand sometime in the future might read it right but interpret it wrong.

So change it now and you'll do him a favor. You and Wilbur G. Bean.

A.S.W. MINERIGHT conducts...

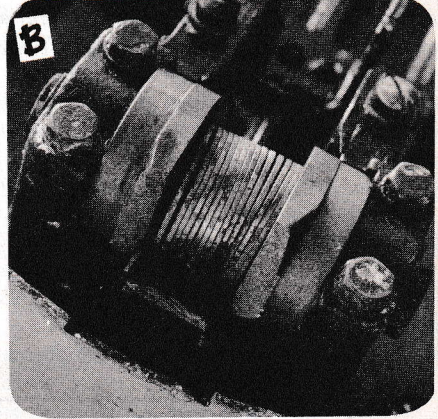


"HERE IS A SET OF PICTURES TAKEN AT THE SCENE OF THE CRIME. HAVE A TRY AT SPOTTING WHAT'S WRONG, THEN LOOK FOR THE EXPLANATION ON PAGE 6."

"HERE WE HAVE MATERIAL DAMAGE... WOULD YOU ACCEPT THIS COMPONENT AS 'CODE A'?"



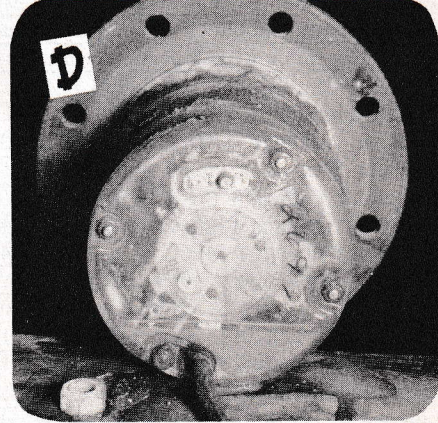
"SOMETHING HAPPENED TO THIS CASE ACCESSORY. AN EXAMPLE OF ROUGH HANDLING AND I MEAN ROUGH!"



"NOTHING WRONG WITH THE TB - JUST WITH THE MINEMAN WHO ISN'T IN THE PICTURE!"



"IT WAS ALL RIGHT WHEN ASSEMBLED .. BUT THERE CERTAINLY IS SOMETHING WRONG NOW!"



NOW TURN TO PAGE SIX!..

Pub-S-Crawlin'

with
Clark Starter, MN2



From this day on

As though we didn't have enough troubles in the mine business, Chief C. E. Bartyzal says a man who transfers into a new outfit is likely to encounter a problem that hasn't been discussed in these pages in some time. First time he cracks one of the new outfit's OPs, he may run smack into notes handwritten in the printed copy . . . with nothing to tell him whether they were generated by an official change, a T-Shooter write-in, or the whim of some MNSN long since moved on to civvy street.

Now we'd like to think that this isn't likely to be the case in most mine shops. But we wonder. And the more we wonder the more we think that, from this day on, all mine shops everywhere should adopt three hard and fast rules governing the changing of their mine-assembly OPs.

► Rule 1: Don't make personal write-ins in OPs. If you find something you think should be changed write it on a separate sheet and clip that to the OP page . . . and send in a Rudminde. If it is technically sound it will then get back to you, and to everyone else, as a T-Shooter write-in or as an official change.

► Rule 2: When you write in a T-Shooter write-in, iden-

tify it with the issue from which you got it (e.g., T-Shooter 2-62) so the next man will know where he stands when he reads it.

► Rule 3: Insert all official OP changes promptly. If the change calls for pen-and-ink identification of a page as Change 1 or Change 6 to conform to the list of effective pages, do it. Note that a new list of effective pages, identifying all original pages and changed pages, is now printed on the reverse of a new title page that comes with all new official OP changes.

We think you'll find other points of confusion resolved if you'll read the instructions now appearing on the new transmittals that forward mine and depth-charge OP changes. No longer, for instance, is it either necessary or desirable to post the transmittal in the front of the book. But enough of that.

OP changes, which we hope will soon be taking the place of all kinds of write-ins, are continuing to make their way through the system at an ever-increasing rate. Meanwhile, let's not overlook those three rules.

-Peace.

► **NOLR 1216 (New Components):** On page viii change title of Chapter 7 to read Control Box Mk 39 Mod 0.

To table 4 add: NOTE: Resistor plugs 3 through 10 should not be tested with Test Set Mk 204 Mod 0. Instead, use a multimeter and check against the values in Table 3 allowing a tolerance of ±15 percent with range switch at RX100.

In table 6. . . :

For Position 1 change 0.80 ± 0.02 to read 0.30 ± 0.02

For Position 2 change 3.50 ± 0.04 to read 4.80 ± 0.04

For Position 6 change 4.30 ± 0.04 to read 8.00 ± 0.04

For Position 7 change 1.30 ± 0.02 to read 0.30 ± 0.02

For Position 8 change 1.40 ± 0.02 to read 5.40 ± 0.04

For Position 10 change 0.40 ± 0.02 to read 0.20 ± 0.02

On page 147, in step 8, change 4.0 ± 1.3 to read 4.0 ± 1.7 , and change 118.0 ± 15.0 to read 114.0 ± 13.5 .

On page 148, in step 13, change 4.0 ± 1.3 to read 4.0 ± 1.7 , and change 118.0 ± 15.0 to read 114.0 ± 13.5 .

On page 150, in table under step 33 for position 8, change 20 ± 5 to read 3.5 to 25 .

► **OD 9351 (Mine Mk 27-4):** On sheet 48, change description of item 252.0 h to read: Thermal Relay Mk 24 Mod 0 (1);

in the general arrangements column, change drawing number to read: DWG 1690800; in the list of drawings column, change LD number to read: LD 479978; in the code number column, write in: 4T1350-707-0613.

► **OD 9352 (Mine Mk 27-5):** On sheet 43, change description of item 236.0 to read: Thermal Relay Mk 24 Mod 0; in the general arrangements column, change drawing number to read: DWG 1690800; in the list of drawings column, change LD number to read: LD 479978; in the code number column, write in: 4T1350-707-0613.

► **OD 9683 (Mine Mk 27-2):** On sheet 50, make same change for item 252.0 h as indicated for OD 9351.

► **OD 9684 (Mine Mk 27-3):** On sheet 45, make same change for item 236.0 as indicated for OD 9352.

► **OD 10604 (Mines Mk 6 thru 50):** On sheet 42, change description of Relay: TS-1 Mod 2 Relay, and the drawing number, to read: Relay, Thermal Mk 24 Mod 0, and DWG 1690800. Also write in: P for this relay in the columns for mine, mark, and mod under 27-2 and 27-4

OP 669 Rev 2 (Depth Charge Mk 14-0): On page 11 under Detonator, change Mod 1 to read Mod 3.

▶ OP 681 Rev 1 (Firing Mech M-11): On page 20, in paragraph 24, after second sentence, add: Before installing a balancing battery give the mechanism an insulation resistance test as specified in paragraph 29.1. Directly under Test Procedures (same page), write in a new paragraph: 29.1 Insulation Resistance Test. Jumper the three battery terminals of the firing mechanism. Then, using a megohmmeter with a range capable of measuring 5 megohms at 500 volts DC, measure insulation resistance between the three jumpered terminals and the firing mechanism's housing. If you measure at least 5 megohms, install balancing battery as directed in paragraph 24. (If less than 5 megohms, reject the mechanism.) Also re-number present paragraph 29 to 29.2.

On page 28, under Balancing Batteries (paragraph 5), change the last sentence to read: Before a circuit break is tested it must be given an insulation resistance test as specified in paragraph 13.1, chapter 4, and its balancing battery should be checked as specified in paragraph 24, chapter 3.

On page 34, under Testing, write in a new paragraph: 13.1 Circuit Break Insulation Test. Before installing a balancing battery, jumper the circuit break's three battery terminals. Then, using a megohmmeter with a range adequate to measure 5 megohms at 500 volts DC, measure insulation resistance between the three jumpered terminals and the circuit break's housing. If you measure at least 5 megohms, check a balancing battery (Chapter 3) and install. (If resistance is less than 5 megohms, reject the circuit break.) Also re-number paragraph 13 to 13.2.

▶ OP 948 Rev 1 (Mines Mk 10-3-7 and 9): On page 54, paragraph 32 l, change first sentence to read: Anchor the SD-4's Cable CA-211 to the mounting plate and Cable CA-102 to one of the TB-7's cover screws (fig. 46). On page 47, paragraph 15c, change 10 psi to read 11 psi.

▶ OP 1452 Vol 3 Rev 3 (Mine Accessories): On Instruction Sheet CU-66-1-A, page 2-3, paragraph 5, at end of first sentence, add: record this reading. In the second sentence change 2.8 to 3.8 inches to read: 2.55 to 3.8 inches.

▶ OP 1684 Vol 1 Rev 2 (Mine Mk 36-1): On page 4, under Case, cross out last sentence in paragraph 4.

On page 27, change first sentence of paragraph 27j to read: Secure the cover to the housing with hex nuts #8-32NC-2 (KZ5310-558-2994) and lock washer #8(KZ3510-209-5309).

▶ OP 1736 Rev 2 (Mine Mk 39-0): On page 40, and in Item 47 in back of book, cross out paragraph 4.

▶ OP 1765 Vol 1 Rev 2 (Mine Mk 25-2): On page 9, in the left column, cross out the entire paragraph reading: A single British Suspension Lug. .holes conflict. And

change the last sentence in the last paragraph to read: All unused tapped holes are closed with filler plugs.

▶ OP 1797 Vol 1 Rev 2 (Mine Mk 25-1): On page 11, in the left column, cross out the entire paragraph reading: A single British suspension lug. .holes conflict. And in the paragraph beginning "Case Mk 25 Mod 1. . .", change the last sentence to read: All unused tapped holes are closed with filler plugs.

▶ OP 1798 Vol 1 Rev 2 (Mine Mk 36-2): On page 9, in the right column, cross out the entire paragraph reading: A single British suspension lug. .assembly directive.

▶ OP 1807 Vol 1 Rev 1 (Mine Mk 49-0): On page 40, change first sentence of paragraph l under BA-205/U Battery Installation to read: Place the batteries in clamp assembly with the terminals toward the open end of the clamp (negative terminals up) to avoid contact with the clamp.

▶ OP 1809 Vol 1 Rev 1 (Mine Mk 49-2): On page 45 under Magnetic Look Tests add: NOTE: The REV SW should be returned promptly to the vertical position after it has been thrown up or down. This will eliminate receiving a second look due to the collapsing field in the exciter coil (CA-512). And in paragraph 3, change the first sentence to read: Throw the REV SW up momentarily, then throw it fully downward momentarily, then return it to the vertical (unoperated) position. Under Pressure Look Tests, change paragraph 3 to read: Throw the REV SW up momentarily, then return it to the vertical (unoperated) position. Under Firing Tests, change paragraph 1 to read: Close the REV SW by throwing it upward momentarily, then throw it fully downward momentarily, then return it to the vertical (unoperated) position. And change paragraph 5 to read: Close the REV SW by throwing it upward momentarily, then return it to the vertical (unoperated) position.

▶ OP 1816 Vol 7 Rev 2 (Drill Mine Mks 52 & 55): On page 36, first sentence of paragraph 9 should read: Connect the two leads of CA-99 to the green and red leads of CA-958 and the two leads of CA-100 to the white and black leads of CA-958, any polarity (fig. 31).

▶ OP 1853 Vol 1 Rev 1 (April '62 edition)(Mine Mk 6): In table 2, under component, for Mooring Cable 7/16", change 620' to read 720'.

In Figure 8, on front of Anchor Mk 6 Mod 14, change Chain 20 ft to read Chain 10 ft.

Volume 2 Rev 1 (April '62 edition)(Drill Mine Mk 6): In table 1, under component for Mooring Cable 7/16", change 620' to read 720'.

▶ OP 1860 Vol 1 Rev 2 (July '63 edition)(Test Sets): On page 18-25 under Det-Indicating Tube Circuit Check, paragraph 1, change 125 to read 120. Under Firing Discharge Test Circuit Check, paragraph 3, change 125 to read 120.

► **OP 1892 Vol 1 Rev 1 (Mine Mk 36-0):** On page 4, under Case, cross out the fourth paragraph.

► **OP 1935 Vol 2 (Oct '62 edition)(Mine Mk 27-2):** On pages 75 and 77, cross out the Search-Coil Leakage Resistance Test instructions and paragraphs 1, 2, and 3. In table 2 under III for Perform tests, cross out: b. Search-coil leakage resistance.

On page 88, change paragraph 9 to read: Install ten segment-type ballast weights (DWG 1495786) in accordance with OD 10577. If lead spreads during torquing (16-20 lb-ft) file off as necessary to clear the nose cover.

On page 89, cross out printed note and write in: NOTE: Substitute cap screws 3/8-16UNC-2A x 3/4" (KZ1-5305-638-9082), for 3/8-16UNC-2A x 1-3/4" (KZ1-5305-637-4051), if ballast weights are not used.

Volume 3 (Oct '62 edition)(Mine Mk 27-3): On page 61, at end of paragraphs 2 and 4 change five to six pound-feet to read: 40-45 inch-pounds.

On page 81, cross out the Search-Coil Leakage Resistance Test instructions and paragraphs 1, 2, and 3. In table 4, under III for Perform Tests, cross out: d. Search coil leakage resistance.

► **OP 2363 Vol 1 (Mine Mk 27-4 & 5):** On page 145 under Water Discharge Valve, change paragraph 1 to read: Cement a new gasket in the mounting flange, using liquid adhesive 8040-273-8670.

Volume 3 (Oct '62 edition)(Mine Mk 27-5): On page 56 under Control Box Mk 15 Mod 0 Installation, paragraphs 2 and 4, change five to six pound-feet to read: 40-45 inch-pounds.

► **OP 2370 (Mine Mk 53-0):** On page 1 under Weights and Dimensions, line 2, change Mk 52 to read: Mk 53. On page 28, under Firing Mechanism Handling and Stowing, line 1, change Mk 23 to read: Mk 24.

On page 16, paragraph 8, change the third sentence to read: If the color coding is not legible, measure the cable with a 50 ft. steel tape and cut to the required length. Cross out paragraphs 8a thru e.

► **OP 2608 Vol 1 (Mine Mk 52-1 thru 6):** On page 9-2 under Arming Devices, change second paragraph to read: The

extender section contains an explosive train consisting of an explosive fitting, tetryl leads, (in piston, primary cup, and secondary cup), and a sub-booster. The piston's tetryl lead is compressed in a longitudinal hole drilled through the piston rod which aligns with the explosive fitting (initiator) and primary cup when the piston is fully extended.

On page 9-8, right column, first paragraph, in the first sentence, change 6 days and 1 year to read: 7 days and 360 days.

In tables 1-3, 2-1, 3-1, 4-1, 5-1, 6-1, 7-1, and 8-1 for item Explosive HBX-1, change 625 to read: 595.

In table 12-1, under component, change Control Box Mk 66 Mod 0 to read: Control Unit Mk 66 Mod 1.

In tables 13-1, 14-1, 15-1, and 16-1 under component, change Control Unit Mk 66 Mod 0 to read: Control Unit Mk 66 Mod 1.

► **TROUBLESHOOTER 1-63:** On page 15, for OP 1799, change 2d Rev to read 1st Rev.

► **TROUBLESHOOTER 3-63:** On page 4, in list of NAVWEPS OPs, cross out OP 5, 2d Rev (Ammunition Ashore). Change OP 5, 2d Rev, Vol 1 (Handling, Shipping) to read: OP 5, 2d Rev, Vol 1 (Ammunition Ashore - Stowing, Handling & Shipping). Cross out 2d Rev for volumes 2 and 3 of OP 5, and add: Ch 2 to OP 5 Vol 3 . . . 0609-000-5302. Change FSNs for OP 1860 volumes to read: Vol 1 . . . 0609-186-0111, Vol 2 . . . 0609-186-0200, and Vol 3 . . . 0609-186-0300.

On page 9, for OP 1808 Vol 2, change page xi to read page x, and change page 60 to read page 33. For OP 1809 Vol 2, change page xi to read page ix, and change page 60 to read page 33. Add the numeral 1 after TROUBLESHOOTER INDEX NO.

On page 11, in cartoon in upper right panel, change OP 956! . . . PAGE 60 . . . PARAGRAPH 46c *** to read: Change 1 to OP 956 PAGE 50 . . . PARAGRAPHS 46c & d ***.

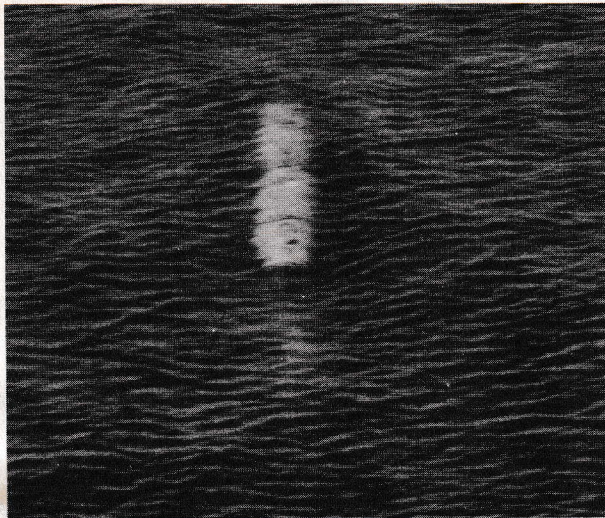
► **TROUBLESHOOTER 4-63:** On page 11, write across the bottom of page: This information is not applicable to mines loaded on wing stations of turbo-prop or turbo-jet airplanes. (For explanation see aviation section in T-Shooter 1-64.)



from page 3

- A** This Sterilizer Device SD4-1 got a knock - result chipped bakelite case. Perhaps it would perform acceptably but perhaps not. But it's not Code A. Caution - Don't drop 'em.
- B** This Mine Case Mk 10-3 was assembled for an FSMT before it was discovered that the mooring arm was snapped off. This passed inspection?
- C** Insulation is designed to insulate. Quite obvious, eh? Then why put the insulation under the washer designed to give a good electrical connection for this Extender Mk 14?
- D** This Clock Delay CD12 Mod 0 started out to do a job but was foiled by a dose of sea water. See it? It all happened when a Mine Mk 27 flooded.

MINE VEHICLES MK I



run **HOT,**
STRAIGHT,
and **NORMAL**

MINE Vehicle Mark 1 Mods 1 and 2 have recently been placed under cognizance of the Naval Mine Engineering Facility and, as the result of reported poor in-service performance, NMEF conducted an evaluation of vehicle reliability.

After playing tag with the weather, whipped up by the fringe of tropical disturbance Beulah, a test group of ten vehicles, Mk 1 Mod 2, was put through their paces in the water of the Chesapeake Bay off Cape Charles. They ran "Hot, Straight and Normal."

The tapes of the calibrated recorder devices installed in the vehicles showed they ran within 3 feet of preset depth and ran a true course for the preset (extreme) range.

Observed performance from recovery and guard vessels showed all ten Mk 1 Mod 2 vehicles ran within 200 yards of expected range, point of firing to point of recovery, and deviated from course a maximum of 3.5 degrees. These deviations from recorded performance were caused by a one-knot current that ran at right angle to the course of the vehicles.

COMSUBLANT (SUBRON SIX) and COMINLANT participated in the test. Naval Weapons Station at Yorktown did the assembly.

The mines were loaded aboard the USS CARP (SS 338) from which the ten Mod 2s were fired. Recovery and guard vessels were USS DIRECT (MSO 430), USS DOMINANT (MSO 431) and USS NAHANT (AN 83).

After firing the Mk 1 Mod 2 vehicles, the ten test vehicles Mod 1 were loaded aboard the CARP while the NAHANT offloaded the ten Mod 2s recovered from the bay. The next day adverse weather forced abandonment of the test and the CARP offloaded. The Mod 1s were returned to storage.

The vehicles Mk 1 Mod 1 were broken out again and trucked to Newport, R.I. where they were proof ranged at the Naval Underwater Ordnance Station's Gould Island test range. During this test two failures occurred, attributed to component failure and personnel error.

One Mk 1 Mod 1 vehicle stopped far short of its expected range. Post recovery analysis uncovered the malfunction of a motor starting relay. It appeared that the "clapper" of the relay shorted and burned through a connector lead allowing the switch to open.

The other vehicle sank immediately after being expelled from the torpedo tube. This was the result of an improperly seated gasket on the aft handhole cover of the battery compartment which allowed complete flooding of the vehicle's afterbody.

Two other Mod 1 vehicles did not surface after running normally because water in the exercise head failed to blow, maintaining negative buoyancy. In both instances rupture of copper tubing leading from CO₂ bottles was the fault.

The recorded performance of the eight Mk 1 Mod 1 vehicles that ran the full range at Newport showed a course deviation between 25 and 400 yards. They ran within two feet of preset depth.

Observed results showed deviation from extreme preset range of from 600 to 50 yards (minus) due to a one-knot head current. An observed right deviation from course is also attributed to this current.

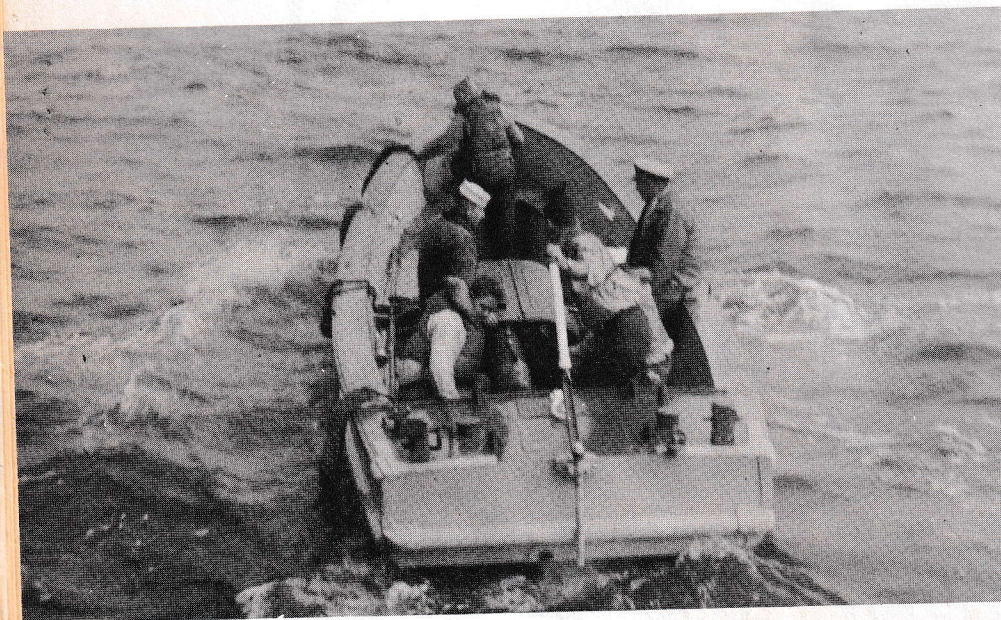
The twenty test vehicles were overhauled and assembled by the Ordnance Department, Naval Weapons Station, Yorktown, Va., on a production line basis. Pilot assemblies of each Mod was done before production overhaul with major components removed, tested, and calibrated in accordance with instructions carried in OP 1935 Vol 1

Change 6, OP 2363 Vol 1 Change 5, and OD 10577. Test vehicles were procured from NWS stockpile of units that had been overhauled and preserved in 1959-1960.

The experience of unreliable performance of the Mk 1 vehicles in field operation because of design weaknesses has been contradicted by the NMEF tests. While it is

found that certain changes to Ordnance Publications are needed, the prime cause of erratic performance is lack of attention to detail in assembling and testing the weapons.

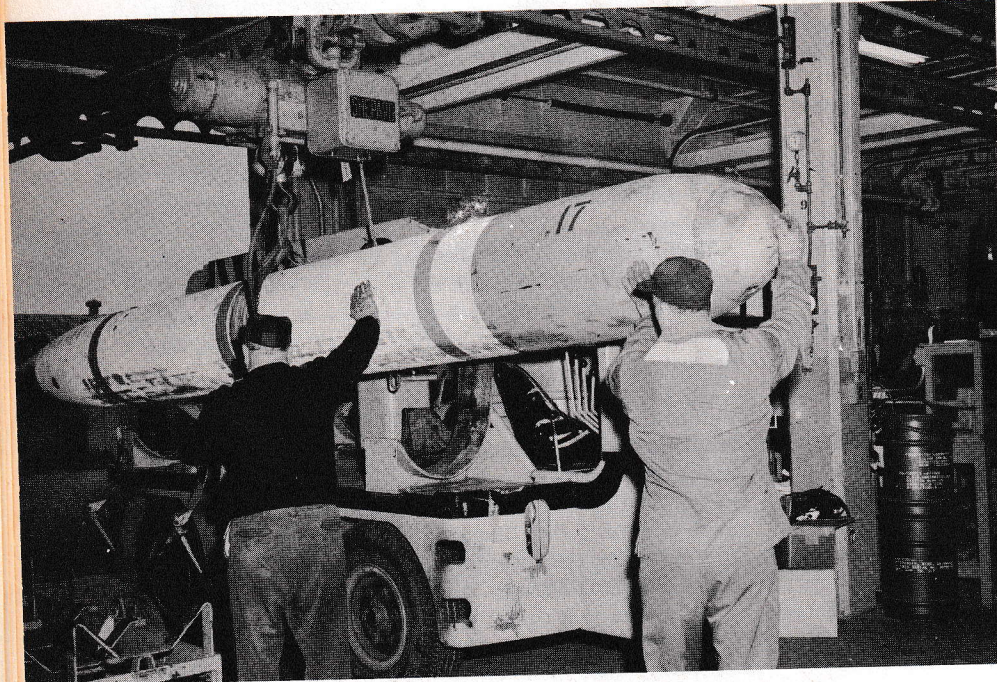
The publication changes and revisions are listed in Appendix A of the NMEF report and will be incorporated in subject publications.



The USS NAHANT's motor launch pulls away to recover a Mark 27 exercise mine vehicle from the waters of the Chesapeake Bay off Cape Charles.



All ten of the Mark 1 Mod 2 test vehicles are being handled on the deck of the NAHANT for return to the depot.



A trained crew member using special equipment at Gould Island assisted in the Mark 1 Mod 1 vehicle tests. A truck, with a mine on each flank (left), carries the mines to dockside (center) where they are transported to the test area.



In short, it is concluded that vehicles Mk 1 Mods 1 and 2 are completely satisfactory performers when:

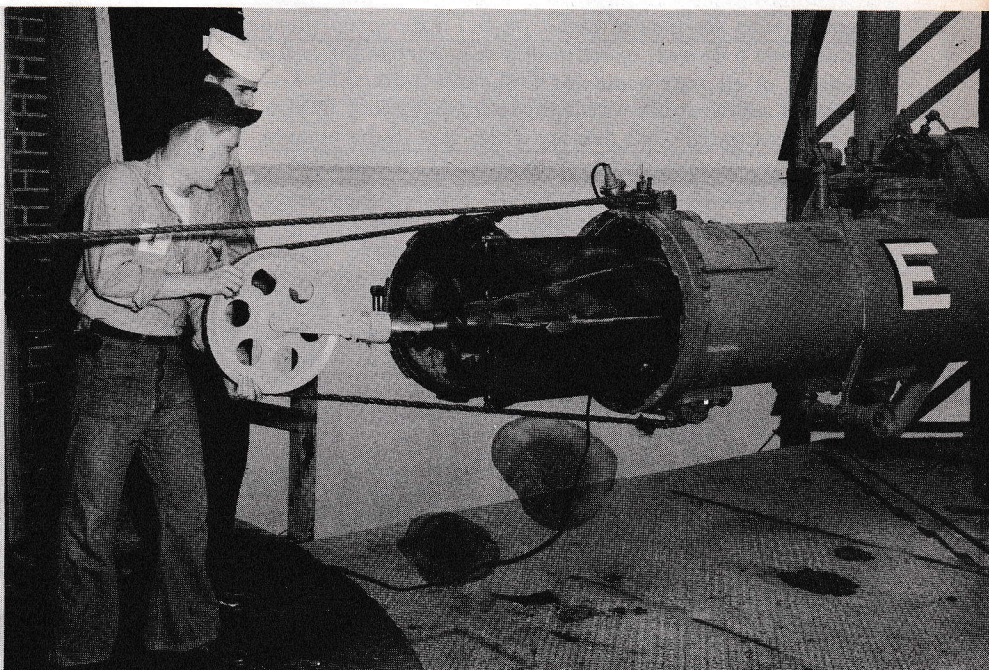
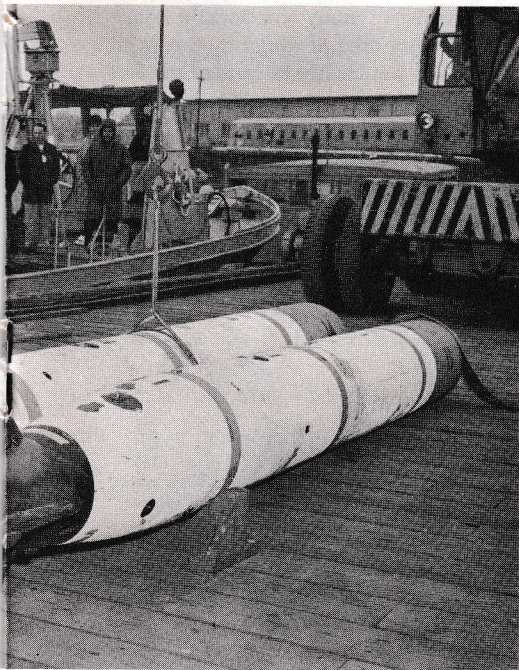
▶ Vehicles and Mines Mk 27 are assembled and tested in accordance with appropriate publications.

- ▶ Reballasting is accomplished per OD 10577 Change 1.
- ▶ Tests and calibration are performed in strict accord with OPs 1935 and 2363.
- ▶ Mine laying submarines are provided with battery heater circuits.

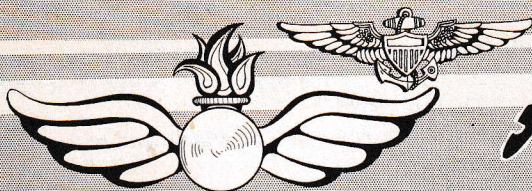


towed ship side by small boats and stowed at Yorktown after first day's test.

A high speed torpedo retriever is used to gather in the exercise mines at NUOS Gould Island test range. The test site was moved to Newport R.I. because of poor weather on the Chesapeake.



to Gould Island for loading in submersible torpedo tubes (right). After loading the tube is lowered by elevator into the waters of the range and fired. Acoustic hydrophones follow the course of the fish down range.



Aviation Section

This page marks the advent of a new Troubleshooter, prompted by the fact that NMEF is now preparing new mine-loading check lists for airplanes, and running into problems and solutions in the course of its fit tests and flight tests that AOs should know about.

So Bomb-Bay Stackers, this is your section! If you like it, let us know. If you don't, let us know, too. If you've got questions or ideas, give formality the heave-ho and sound off!

To keeper or not to keeper

ASW Mineright's prescription in T-Shooter 4-63 for the use of keeper wires on the arming wires for drill mines and FSMT mines seems to have hit home. Latest word is that it will soon be repeated in a BUWEPS INSTRUCTION.

Meantime, we've come across a problem worth thinking about: namely, the damage that can be inflicted on fast-flying airplanes, after the mines have been dropped, by the flailing arming wires still made fast to the plane.

For bomb-bay stores, the problem doesn't exist. Neither is there any cause for concern at the wing stations of the P2E, P2H, P5B, the various A1 types (former AD-5, 6, & 7), or other conventional prop-type airplanes.

The trouble comes when those keepers are used for wing-loaded mines on newer high-performance airplane types. Hence the rule: Use keeper wires for all anchor and arming-device arming wires on drill and FSMT mines, except on wing stations of turbo-jet and turbo-prop planes. We think you'd do well to write this rule across the bottom of page 11 of all your copies of T-Shooter 4-63.

There's another rule worth repeating here too: Make all Parapak Control-Unit arming wires fast to the plane's airframe or, at wing stations, to a sway brace. Some people are still under the impression that control-unit arming wires should be installed in a solenoid!

Control unit settings... where, when, and why

Ever since publication of NMEF's first mine-loading check list, covering loading of the USAF B-57, ye T-Shooter editor has found himself in the middle of an unrelenting crossfire concerned with the Parachute Control Units Mk 66 Mod 1 now used in virtually all active air-laid mine parachute packs.

Designed to eject the parachute when the released mine drops to a pre-determined altitude, the units contain a barometric-pressure-operated switch that must be set before takeoff, for the atmospheric pressure expected at the location of the mine drop. (For more on this unit see T-Shooter 2-63.)

"The instructions are in the mine assembly manuals so they should be set by the mine assembly crew before the mines are delivered to the squadron," say some. "They're supposed to be set just before takeoff, so it's a job for the AOs who load the mines," say others. "AOs don't load mines, MNs do it," say some others. Then there are also those who say it doesn't make any difference just so they're set before loading in the bomb racks because it's too dangerous to do it afterward.

Well, we felt pretty firm on this subject when we published the B-57 loading check list, but not so firm that we've been deaf to our readers' many worthwhile comments. For the B-57, we directed settings by the AOs, after loading, and not more than 8 hours before takeoff. Now we're ready to announce the first mine-loading check list for a Navy plane: Supplement A to OP 3232, for the P2E, sked for distribution about the first week in March. In it . . . and in all mine-loading check lists to come . . . here's the policy for handling those control units regard-



Crew 10 PATRON ELEVEN, LCDR BEATTY, pilot (left center, front row), which participated in planting mines and performed photo chase during CNAL FSMT 4-63 conducted at NAS Jacksonville, Fla.

ness of what it says in OP 1452 or any mine-assembly OP:

- ▶ Before delivery of mines to the squadron, the mine-assembly crew – performing Section II of the check lists (Mine-Prep Check List) – will set all Parapak control units at maximum setting and keep them that way. (This gives maximum safety in handling and overland transport.)
- ▶ The airplane loaders (AOs) – performing Section III of the check lists (Loading Check List) – will set each mine's control-unit pressure switch at 30, one mine at a time, when they raise the mines into the bomb racks. (This will insure that, if circumstances prevent any further settings, all 'chutes will open at the same altitude and the planned mine-field pattern will be preserved.)
- ▶ The AOs – performing Section IV of the check list (Pre-Takeoff Check List) – will re-set the control units for the atmospheric pressure expected at the location of the mine drop, IF such a last-minute setting should be specified for the mission. If not, all control units will remain set at 30 for flight.

This still leaves one mineman's question up in the air: "Isn't it an unsafe practice to walk under loaded mines and set control units after the mines are installed in the bomb racks?"

In theory, it certainly is. In practice, though, it's pretty much unavoidable . . . and not likely to get anyone in trouble when all hands exercise due care. What kind of care?

- ▶ See that no one pulls any bomb-rack safety pins until control-unit settings and other necessary last-minute checks are complete.

INERT MINES YES! EXPLOSIVE MINES NO!

IT took several years for it to catch up with us but here it is: Back in T-Shooter 2-59, on page 12 (Let's talk about those . . . Mine and Depth-Charge Case Openings) we said, "don't touch those filling hole covers – and that goes for drill mines as well as service mines."

Now that's as true of service mines today as it was the day we wrote it. Don't budge those filling-hole fastenings. It's dangerous.

But from the number of pointed remarks about waterlogged drill mines that have accumulated in our files it looks like we'll have to surrender on the question of drill and FSMT mines.

So go ahead and remove those filling hole covers from inert-loaded cases that need to have some ocean drained or waterlogged plaster removed to restore them to standard weight for subsequent use. When you do, though, remember why we dislike approving a practice on exercise mines that can be dangerous with a service mine. It leads to bad habits, like the bad habit of monkeying with filling hole covers when some of them can have high explosive under them.

That could be your living end!

UNCLASSIFIED

PLANTING MK 52 MINES? CAUTION, PLEASE!

Latest bug to show up in gear for Mines Mk 52 has to do with Parachute Packs Mk 20 Mod 0, and could produce some mighty hairy results.

To fix, BUWEPS has issued corrective instructions to all issuing activities, the result of which will be markings on these packs and on their packaging which all MNs and AOs should watch for when preparing these mines for flight.

▶ MARKING – Code "ALFA," with date screened: means acceptable for service on mines flown on wing stations or in bomb bay.

▶ MARKING – Code "FOXTROT: INTERNAL USE ONLY," with date screened: means acceptable for service use on mines flown in bomb bay but not acceptable for use on wing stations.

So what if you have or receive 20-0 parapaks with no such markings? Promptly mark them CODE CHARLIE – DO NOT ISSUE OR USE, then return them to your depot for screening, and get replacements.

Better check right now to make sure you don't have any 20-0 parapaks that lack this coding.

- ▶ In the few instances where bomb-racks do not have safety pins, station a reliable man where he can make sure nobody can get within reach of a bomb-rack release while someone's working under the mines.

THE NAME IS NOT THE SAME

WHAT is the difference between the Sensitive Relay Mk 25 Mod 0 and the SR-7 Mod 3? Only the name. In all other respects they are identical and interchangeable.

As new revisions to applicable documentation are made this will become clear.

The reason is interesting: a contract for a second source of relays was granted a second manufacturer to back up production under an earlier contract by the original manufacturer. The second manufacturer's early output was tagged SR-7 Mod 3 to differentiate it from the SR-7 Mod 2 by manufacturer no. 1 . . . but then "sensitive relay" turned out to be a trade name of manufacturer no. 1 so the second manufacturer's later output of SR-7s Mod 3 were redesignated Sensitive Relay Mk 25 Mod 0. That eliminated the possibility of a legal contest, but not before some of the second manufacturer's early output had been identified as SR-7s Mod 3.

And they've stayed that way, with the result that you now have identical devices by the same maker with two designations but approved for interchangeable use. The reason: It costs money to change.

ANCHORS MARK 6: NEW FOR OLD

THERE are changes being made in the stock of anchors for Mine Mark 6 and you best pay attention because it gets a little involved.

During World War II the Mine Mark 16 and its anchor, also Mk 16, was developed. Later, however, it was decided that the Mark 16 was no longer needed and it was obsolete in November 1960.

Nevertheless the Mk 16 anchor is an improvement over

the Mk 6 anchor and now at a time when a new supply of Mk 6 anchors is needed in the stockpile there is an adequate number of Mk 16 Mod 1 anchors in good condition available. With modifications they will serve as Mark 6 Anchors Mods 5, 8, 15, and 16 and be identified as such.

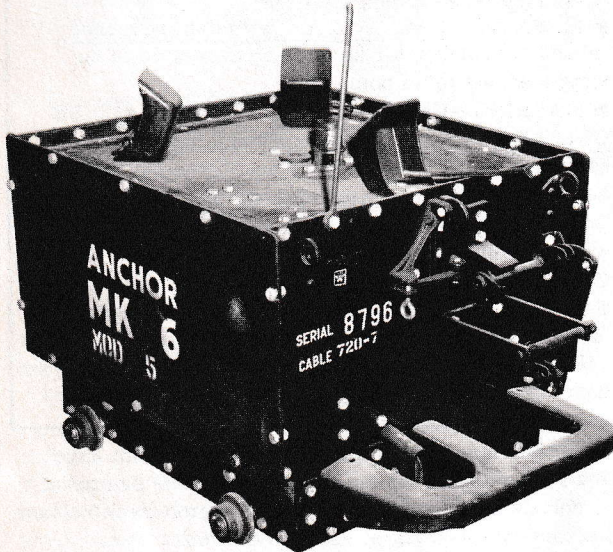
To avoid wholesale changes in publications the modified Mk 16 anchors will be redesignated Mk 6 anchors. The original Mk 6 anchors will be scrapped. Unmodified anchors Mk 16 will be retained as a source of spare parts for the new anchors Mk 6.

The modifications will be made by depots so fleet activities don't have to be concerned about that. But since there will be two Anchors Mk 6, old and new, assemblymen should know how to identify them. Both new and old are shown here. And this is the story:

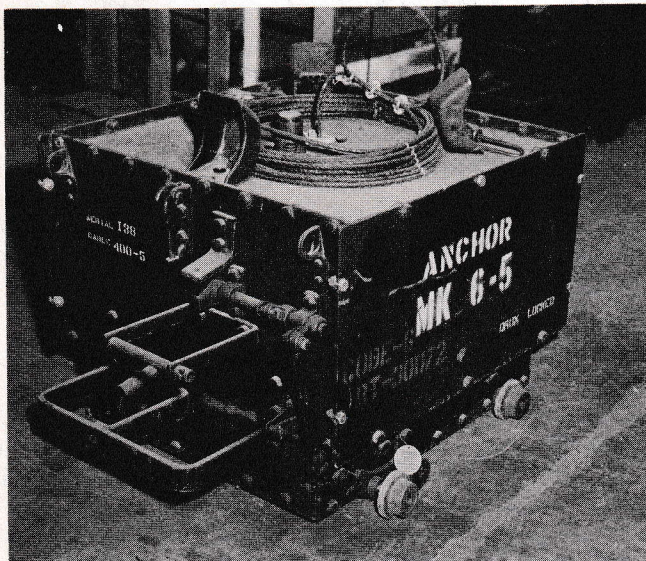
- ▶ The older stocks of Anchors Mk 6 Mods 5, 8, 10, and 14 are declared obsolete and will be scrapped.
- ▶ Anchors Mk 16 Mod 0 are declared obsolete.
- ▶ Anchors Mk 16 Mod 1 will be modified in sufficient quantity to meet stockpile needs and will be redesignated Anchors Mk 6 Mods 5, 8, 15, and 16.

Activities having old anchors Mk 6 Mods 5, 8, 10, and 14 on hand will:

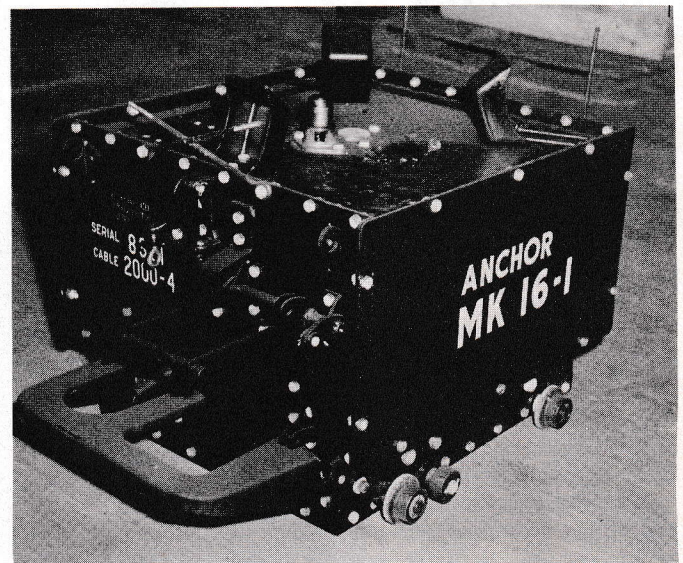
- ▶ Request disposition for the old anchors upon receipt of new Anchors Mk 6 (anchor Mk 16 modified).
- ▶ Salvage all drums of wire rope and chains in the standard lengths for stock. This does not include the 2800-foot lengths of 7/32" diameter wire rope which are no longer used.
- ▶ Salvage all orifice type dashpots.
- ▶ Salvage all chain Fairleads (DWG 231415-1).



NEW ANCHOR MARK 6 MOD 5



OLD ANCHOR MARK 6 MOD 5



STRIPPED ANCHOR MARK 16 MOD 1

The new Anchor Mark 6 differs from the old Anchor Mark 6 in two areas of quick identification. The case release hooks are different and the front bumper of the old Anchor Mark 6 is steel strap while the new one has a pressed steel front bumper. The old and new Anchors Mk 6 Mod 5 are shown here but these identification differences serve for all mods. The Anchor Mark 16 Mod 1 is shown here stripped to form the basis of the new Mk 6 anchors. Easily recognizable changes include removal of the backing-up anchor and associated hardware, and removal of the back bumper.

HOW TO PUT THE FIX ON FIT OF BA-249/U

WE had a rash of reports that Batteries BA 249/U were being crushed during assembly of Mines Mark 36 Mods 1 and 3. What was hoped to be a solution was the Job Right that appeared on page 17 in T-Shooter 1-63.

Everybody said it was just what was needed and liked the idea but a new crop of RUDMINDEs soon let us know that we had missed the boat on the dimension.

W. G. Phillippi, MN1, at Navy 3867, grabbed his typewriter to let us know that those 3/8"-16 x 1-1/4" bolts were too short to do the job. He also found that the maximum number of cardboard fillers didn't hold the battery firmly.

Then F. Cavaricci, MNCA at Navy 3835, came through with the advice that he found the 11/16" sleeve spacers were too long when he tried the fix during assembly of Mine Mk 36 Mod 3. The electrical control circuit case of the A8 firing mechanism hit the battery hold-down strap and prevented the flange of the A8 mounting plate from seating in the tail cover opening.

All too true so:

For bolts swap the 1-1/4" bolts supplied with the mine case for 1-3/4" bolts (MS 35297-65).

Shorten the sleeve spacers from the 11/16" called for in the T-Shooter 1-63 Job Right to 1/2". This is short enough to let the A8 firing mech seat properly in the Mine Mk 36 Mod 3. It is also long enough to prevent crushing the BA-249/U in both Mods 1 and 3.

Now the cardboard spacers will hold the battery firmly because the clearance between battery and hold-down is reduced due to the shorter sleeves.

Another suggestion, via Rudminde, to cut off and remove the carrying strap of the BA-249/U is not recommended.

This changes the dimensions of the Job Right drawing on page 17 of T-Shooter 1-63 as shown here.

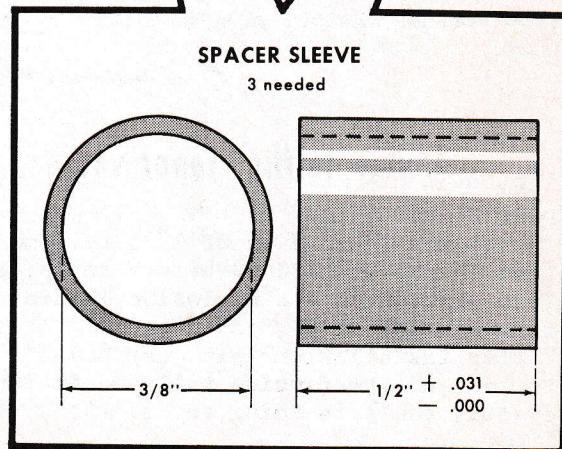
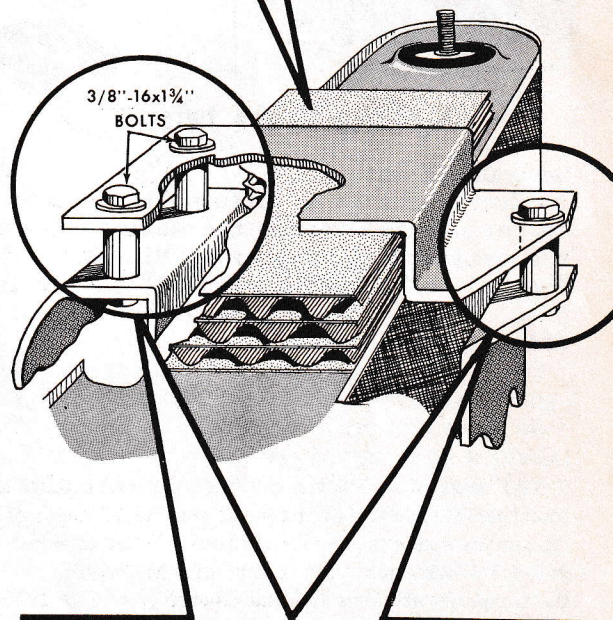
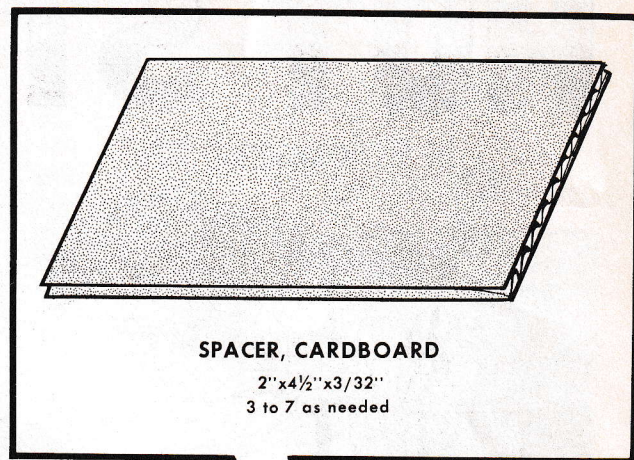
BALLAST WEIGHT SPREAD

When you torque down the extension cover of the Mine Mark 27 Mod 2 the lead ballast weights tend to spread and interfere with the installation of the nose section.

The reason: The new ballast weights (ten of them) that replace the two semi-circular weights previously used are too soft to stand the 16 - 20 ft-lb torque required to get a water tight seal.

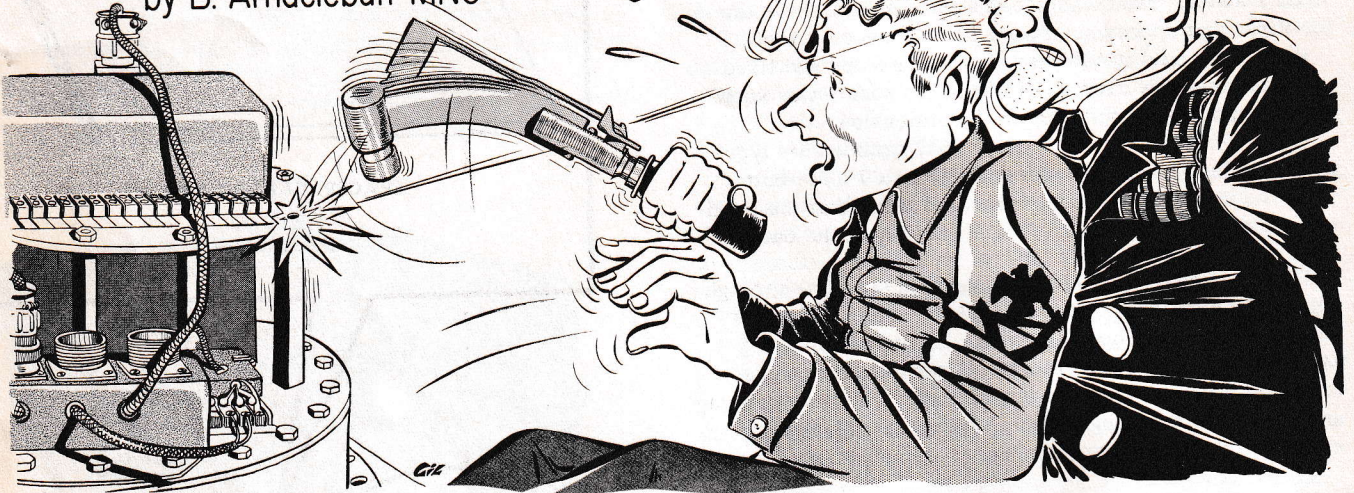
The answer: A harder type lead alloy is being specified to prevent this extrusion but meanwhile trim off the protruding lead to let the nose section fit.

Also, if no ballast weights are needed, the cap screws are too long. Without weights use 3/8" x 16 UNC-2A x 3/4" (KZ1-5305-638-9082) cap screws. Clark Starter tells you how to amend OP 1935 Vol 2 in Pub-S-Crawlin'.



HOT STUFF

by B. Arnaclebutt MNC



Easy on the twist

Dear Chief Butt:

Every once in a while we get a busted spacer when we torque the mating nuts on the cylindrical adapter in Mine Mk 27 Mods 3 and 5 to the 5-6 ft-lbs called for in OPs. It only happens occasionally but it doesn't seem right.

G.R.L., MN2

Dear G.R.L.,

You're right, it isn't right. We ran some tests and found the torque too high for the tensile strength of the aluminum spacers. Specifications will be changed to call for a stronger type aluminum. Meanwhile reduce the torque to 40-45 in-lbs and change your OPs 1935 and 2363, Volumes 3 like it says in Pub-S-Crawlin', this issue.

B. Arnaclebutt

Listen to that inner voice

Dear B. Butt,

Volumes 2 and 3 of OP 1935 tell me to test Search Coil SC 20 before and after installation in the explosive loaded section of Mine Mk 27 Mods 2 and 3. This "after installation" bit just doesn't appeal to me - an inner voice tells me it isn't exactly the safe thing to do.

B.O.P., MNC

Dear B.O.P.,

You listen to that inner voice of yours and disregard any instructions calling for resistance or insulation tests of search coils in the explosive section of a mine or even in an explosive area. Spark producing instruments and explosives just don't go together!

Our story, then, is that search-coil tests before assembly are sufficient, with coils in assembled or partially assembled mines being removed every two years for OP 1452 tests. This disagrees with your Vols. 2 and 3 of OP 1935 but you can fix that by picking up the appropriate write-in from Pub-S-Crawlin' this issue.

B. Arnaclebutt

If it works it's good

Dear Barnacles:

The test instructions for acceptable retraction of the piston for Depth Charge Pistol Mk 12 Mod 0 leave something to be desired. RUDMINDE answers indicate that the detonator gun shall retract from 110° to 155° from the vertical. Can you clarify?

P.Z.E., MN2

Dear P.Z.E.:

You have something - This degrees from the vertical is a difficult measure and leads to certain misunderstandings of test instructions for Depth Charge Mk 14 Mod 0. Let's put it this way: If the detonator gun retracts enough for the contacts of the arming switch to open and the safety fork to engage the piston and lock the piston in a disarmed position, it has performed its function and is serviceable.

B. Arnaclebutt

The untouchables?

Dear Barnacles,

Can find no instruction on stowing sensitrol relays 6 inches apart, yet everybody in our crew is sure there is such a requirement. Can you pull an OP or instruction number out from under your hat?

H.R.T., MN3

Dear H.B.T.,

If you knew the circumstances connected with this conundrum, you'd marvel that I can even find an occasional hair in the locale of which you speak!

As for Instructions, though, the answer is no. There is not and never has been a spacing requirement in connection with field stowage of SRs.

B. Amalbutt

Trouble with fairing

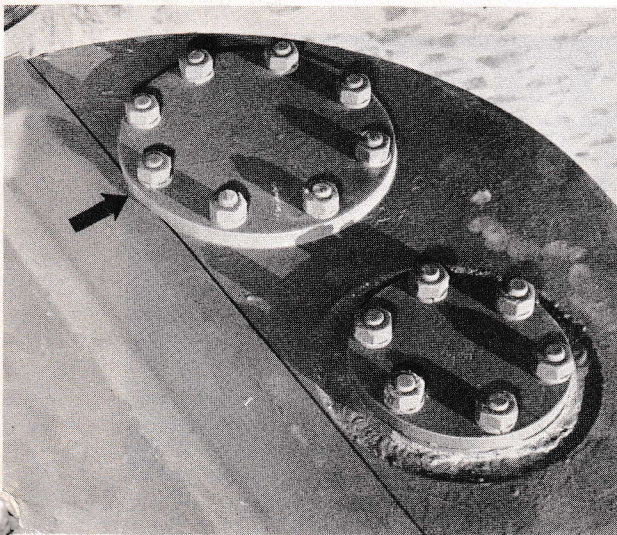
Dear Chief:

The edge of the fairing Mk 10 Mod 0 cuts into the filling hole gasket when the fairing is tightened down in the assembly of Mine Mk 25 (OA22). Found the misfit during preparation for FSMT but, upon inspection, found the same trouble in service mines.

C.L., MN1

Dear C.L.,

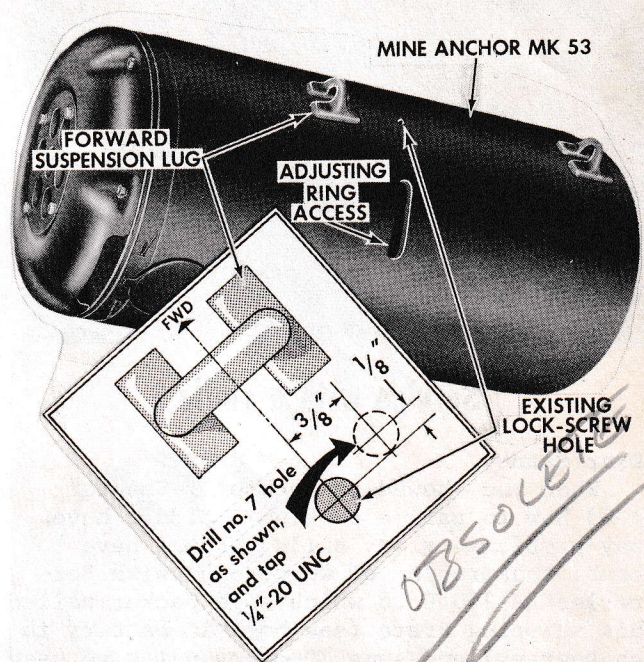
You're not the only one to note this trouble spot and R. F. Stancik, MN2 of Navy No. 555, sent us a photo to prove it. For the time being our answer, when you find one, is to cut away the part of the fairing that interferes.



UNCLASSIFIED

Also report via Rudminde so we can determine whether something more drastic is needed.

B. Amalbutt



No match - new hole


Dear B., *SEE TROUBLE SHOOTER 1-68 PG 546*

After putting the anchor on Mine Mk 53 and tightening the anchor's adjusting ring, OP 2370 (page 22, col 2, step ac) says we should lock that ring by installing a lock screw, "making sure the screw bottoms in one of the holes in the adjusting ring, not on the ring's rim."

Well, sometimes you can. But other times you can't, because the lock-screw hole in the anchor refuses to line up with any hole in the adjusting ring. What then?

S.O.R.

Dear S.O.R.,

Your headache goes back to the fact that one manufacturer of those anchors failed to maintain specified tolerances, and in those days nobody tripped him up on it the way NMEF does now. To get around this snag Morris Halter, MN3 with MOMAT 0305, suggested two extra holes. We say drill and tap one hole in your Anchors Mk 53 like we show here and you'll have eliminated the alignment problems for just about any case/anchor/ring combination you're likely to meet up with. 

B. Amalbutt

It gets a little complicated

Dear Butts:

The new chapter 9, forwarded as part of Change 3 to OP 1452 2d Rev, has no info on Battery BA-340/U, but plenty on the BA-1323/U. I thought the 1323 was obsolete . . . replaced by 340. What did you think?

D.M., MN3

Dear D.M.,

What I thought made no difference. What did make a difference was that whoever obsoleted the Firing Mechanism Mk 22 Mod 0, which used the BA-1323/U, forgot that Test Set Mark 265 also used that battery. The result: BA-1323/U was obsoleted as part of the 22-0 leaving the test set with no source of current.

For the improved Firing Mechanism Mk 22 Mod 1, which replaces the Mod 0, there's a new battery (BA-340/U) on which there'll be info a-plenty in the forthcoming 4th Revision to OP 1452. Here you'll also find info on another new battery (BA-1328) for Test Set Mk 265. This makes everything rosy . . . provided you keep two facts straight:

► To use the new BA-1328/U with Test Set Mk 265, you need an Adapter DWG 2117389. If you get a new set you'll get the adapter with it. If you have old sets you'll have to request an adapter for each one, direct from BUWEPS (FTMO-45). Reference this article.

► To get the new BA-1328/U (stock number N6135-274-4035) may be difficult until present stocks are enlarged. In any case, you'll need 12 per set. If all else fails, you can substitute 12 of any of the following commercial equivalents . . . provided you've got that adapter:

Manufacturer

Eveready
Burgess
RCA
Mallory

Catalog No.

E-12
HG-12R
VS-144
RM-12R

J.S.L., CWO

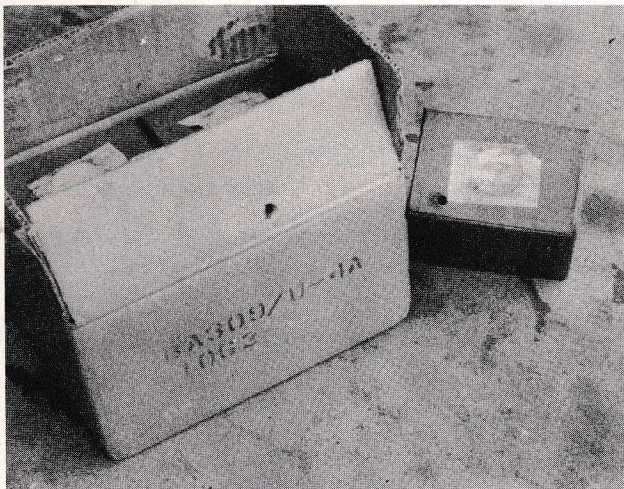
Dear J.S.L.,

Nobody. Let's hope the hammer handler whose aim is that bad gets transferred before a shipment goes out with one of his fingers.

On second thought, let's not.

B. Amadebutt

B. Amadebutt

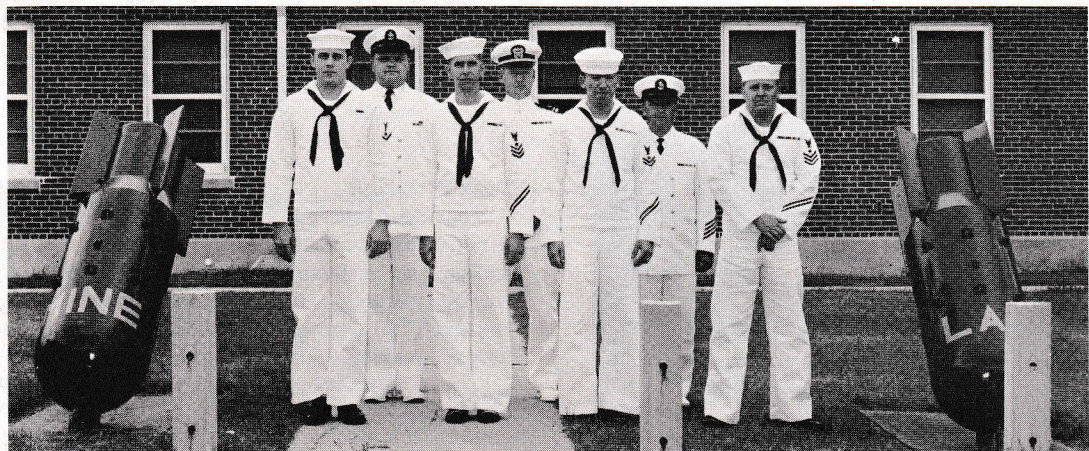


Service with a smile

Dear Barney,

When you showed on back of T-Shooter 3-63 how to nail a problem I didn't have any problems or any nails. Now I have both: the problem of what to do with Batteries BA-340/U to which some packer nailed his shipping crate (see hole in battery in photograph) and some 40-penny nails he used for this dastardly act (sample enclosed).

This is a most unusual "reader service," but who needs it!



A recent picture of the crew at Mine Branch, N.A.D. EARLE, Red Bank, New Jersey. Front row, left to right: H.B. Steen, MN3; R.W. Padgett, MN1; B. Martinez, MN2; J.A. Rodgers, MN1. Back row, left to right: C.E. Petit, MNCS; LTJG B.A. Kreuzsch; D.P. Curtiss, MNCA. Not present: J.J. Dwyer, MNCA.

Do You do this Job Right?

YIPES, STRIPES!

FIRST T-Shooter reader to toss in the towel upon receipt of some orange-and-white striped mines was world traveler and connoisseur of things explosive, T. H. Roberts. This doesn't jibe with the color coding dope in T-Shooter 3-62, with anything in OP 2238, or with anything else, says he. What gives?

What Robbie had just seen, friends, was the paint job that supersedes all others for inert-loaded mines: white background with orange bands. Here's how it works.

For Mines Mk 27 Mods 2 and 3 the 72-inch inert-loaded explosive (mine) section will be white with orange circumferential bands 4 inches wide and 4 inches apart, starting 4 inches from that section's forward end. The vehicle sections, (including the battery section) remain painted OD. For Mines Mk 27 Mods 4 and 5, painting is identical except that the white background and orange banding will be applied to the entire 125-inch inert-loaded battery compartment, which includes the mine section.

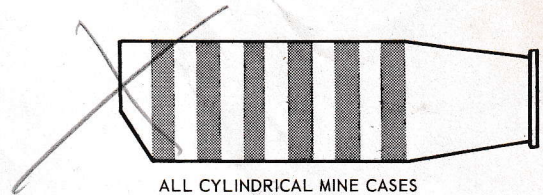
For all other inert-loaded cylindrical mine cases overall color will be white with 4-inch-wide circumferential orange bands spaced 4 inches apart, starting 4 inches from the nose and continuing to the point where the conical or reduced-diameter mechanism compartment joins the case.

Inert-loaded Mk 6 cases (spherical) will be white with two 4-inch orange bands on the upper hemisphere. The bottom edge of the lower band will coincide with the welded joint of the two hemispheres and the upper band will be placed 4 inches above the lower band. Anchors will remain black.

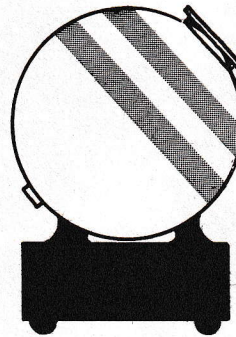
Inert-loaded Mark 18 and Mark 51 cases (tub-shaped) will be white with 4-inch-wide orange bands spaced 4 inches apart painted horizontally around the sides of the tub, with the top band starting four inches below the case's upper edge.

The white paint specified is color 37675 and the orange is color 32246, both per FED STD 595. Specs for either paints can be MIL-E-10687, MIL-E-74B, or TT-E-515. Stenciling on these cases will be black, FED SPEC TT-98, Type 1.

Information on standardized stenciling of striped FSMT mines will be forthcoming via the FSMT Brochure. Meanwhile you may be wondering about the reason for this new look. According to EOD divers, the solid orange adopted a couple of years ago for drill and FSMT mines is next to impossible to see underwater.



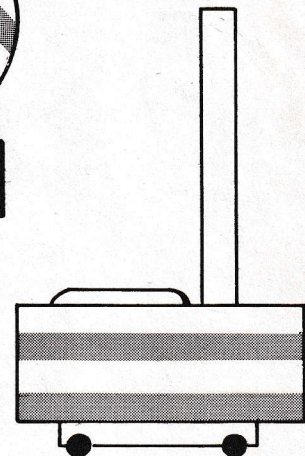
ALL CYLINDRICAL MINE CASES EXCEPT MARK 27



MARK 6 CASE

Color Code

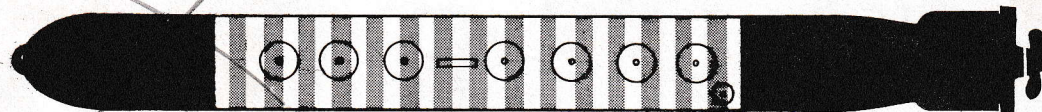
- WHITE
- ORANGE
- BLACK or OD



MARK 18 and MARK 51 CASES



MARK 27 MODS 2 and 3



MARK 27 MODS 4 and 5

Check TS 1-65

