

mine and depth - charge

THE TROUBLESHOOTER

- ▶ OAs, New and Old
- ▶ Better Way To Assemble MK 50
- ▶ CU-66; New Mod Coming



AN OFFICIAL BUWEP'S PUBLICATION

in this issue . . .

REGULAR FEATURES

Rudminde Report to the Fleet 1
 Aviation Section 2
 Hot Stuff 8
 Job Right 13

ARTICLES

It Could be a Trend? 3
 Auld Lang Syne (Group Photos) 4
 Mk 66-2 Control Unit 5
 Old and New Operational Assemblies 6
 An Easy Way out for Fluid Seals 11
 Taking Crush Off Batteries in Mk 50's Instrument Rack . . 12

COVER PHOTO: Everybody is too busy to watch the birdie during a FSMT post-recovery analysis. Believe it or not there could be as many as eight people in this picture taken at Navy 3867. Most of the men are hidden by mines and each other but here are those we have been able to identify. Recognizable in the foreground are M. H. Baird, MN1 (white hat) looking over the shoulder of R.E.Griffin, MN2. Back of them you can see the tops of the heads of M. E. Rollins, MN2 and K. E. Harder, MNC. Bending over the second mine in the row is C. E. Hunt, MNC while in the window at the rear can be seen J. E. Eisel, MNSN. The man, upper left, with his back to the camera is unidentified as is the third head in the group between the mines.

1 OCTOBER 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 TROUBLESHOOTER

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

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THE OFFICIAL JOURNAL OF THE RUDMINDE PROGRAM

RUDMINDE REPORT TO THE FLEET

Smaller but bigger?

Sounds crazy, but it's true! With this, the smallest T-Shooter issue yet, we're inaugurating the biggest putsch in NMEF's history for an overall improvement in the ways and means of getting a truly direct, continuous, and easy-to-manage output of official technical information to the Minemen, Torpedomen, Aviation Ordnancemen, Submariners, Plane Crews, et al who assemble, test, stow, and plant depth charges and mines.

Write-ins, good bye!

That doesn't mean that the T-Shooter issues yet to come are going to be smaller than those in the past. One more will be smaller, for sure. But after that we hope to get ye T-Shooter back to normal except for one thing: the Pub-S-Crawlin' column. If you've thumbed through this issue you may already have discovered that Pub-S-Crawlin' is no longer with us. Later we may bring it back to provide some general info on pubs, but we're calling an immediate and permanent halt to those Pub-S-Crawlin' write-in OP changes which so many have used so well for so long.

But not a drop to drink

Is this because of reader response via those gripe sheets from our last issue? No. Virtually all T-Shooter readers have continued to rate the write-ins as one of our best features. But the fact is that they have outgrown us and we have outgrown them.

They came, as many of you will remember, after a virtual 7-year drought of official changes to mine and depth-charge OPs. At first we tried to end that drought by priming the old OP-change pump. It didn't work. Just when the newly-inaugurated Rudminde Program began to bring in more OP correction requests per month than had been un-earthed in the previous five years, our one-man tech-writing staff repeatedly came out second best in his efforts to make the pump work.

It was too old, too rusted, too far gone in every way to ever function efficiently again, and if that obfuscates what we're trying to say for some, there are plenty of others who know just what we mean.

Feast with famine

So write-ins were our solution, and they worked. Trouble is, they worked too well. First, the Bureau - eventually sensing the condition of the pump - made our write-ins "official". That pleased plenty, and spurred us to publish even more, and the next year we kept on, and the next and the next, always hoping that in one more year we'd get more tech-writing staff and a new pump. And that's what brought us to the present state of affairs.

Like what? Like there are some mine shops we know where there are so many write-ins written in the OPs - write-ins published by us and write-ins originated by various itinerant minemen, both types mostly unidentified as to source or authority - that even a Russian cryptographer couldn't find out what's up-to-date and what isn't. Other times, sometimes right on the same base, and for sure

at NSD/Philadelphia where all fresh OP copies are stocked for issue, mobilization and outfitting, etc., those same OP pages are positively virginal. The bad part about that, of course, is the fact that old hands as well as newly-mobilized assembly activities, when they requisition new OPs, are faced with the need to fine-tooth-comb their way through 7-years-worth of T-Shooters before they can be sure those OPs are okay.

Fortunately, this state of affairs need no longer persist. Inside plumbing to replace the bureaucratic pump has been placed in complete operation at NMEF. And now, just as ye T-Shooter editor's last seven brown hairs are fading to gray, we're on the verge of acquiring the tech-writing manpower that the OP job demands.

Now watch our steam

The first action we've already mentioned: no more T-Shooter write-in changes. Next, and soon, you'll start getting an entirely new kind of official changes for your OPs on the older mines . . . giving you new pages for old, wiping out all earlier write-ins, adding new info as well, and requiring little or no pen-and-ink work. To further clear the decks will be a program to obsolete most of your back T-Shooter issues.

But, you say, this spells an end to our ability to process rapid interim changes. To this we say, positively not! It simply means a switch, for quickies, to those T-Shooter Bulletins that have lately turned up on the scene . . . better than write-ins because you can put them right in your OP, and take them right out again when they're dead.

Sounds like more confusion than ever? Not so. Just wait until you see the new bibliographies we've cooked up . . . and we think you'll agree that they're the best confusion eliminators the mine business has had yet.

Rear Admiral Odale D. Waters, Jr., who assumed command of the Mine Force, U. S. Pacific Fleet on February 27, commanded the U. S. Naval Weapons Station, Yorktown, Va., from December 1957 to November 1960. He brings a wide range of experience in mine warfare, dating back to 1940, to his new command. In that year, after studying Ordnance Engineering at the Naval Postgraduate School at Annapolis, he served as Technical Observer in mine recovery while attached as Assistant Naval Attache at the American Embassy in London. He established the first U. S. Navy Mine Disposal School upon his return to the United States in 1941. He was awarded the Bronze Star Medal for his antisubmarine planning work during World War II.



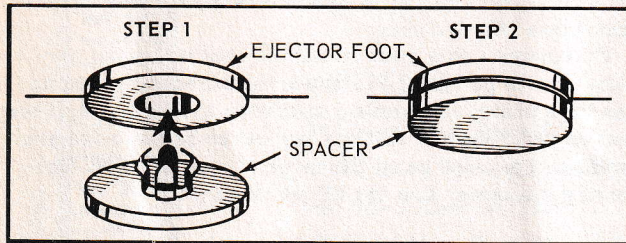
A 1932 graduate of the U. S. Naval Academy, he has commanded the USS LAFHEY, the attack transport USS GLYNN, Destroyer Squadron TWO, Destroyer Flotilla ONE, and the U. S. Naval Weapons Station. His shore billets have also included duty at the Naval Ordnance Laboratory, Washington, D. C., and duty on the staffs of Commander Operational Development Force and Supreme Allied Commander, Atlantic. He is a 1950 graduate of the Armed Forces Staff College, Norfolk, Va.

Admiral Waters, who reported to the Mine Force after serving as Inspector General and Assistant Chief of the Bureau of Naval Weapons for Administration, Washington, D. C., was promoted to his present rank as of 1 October 1960.



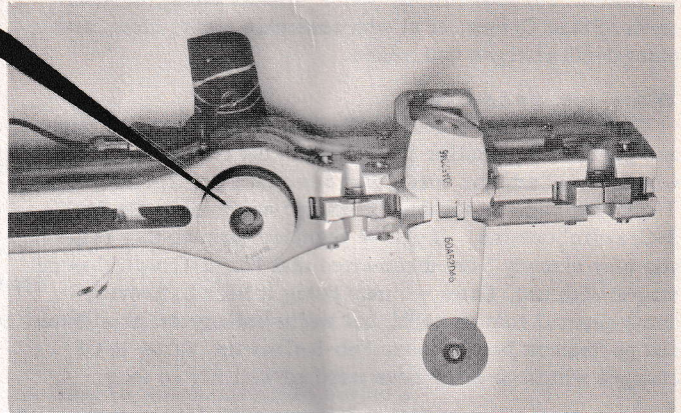
Aviation Section

Devoted to items of interest to Aviation Ordnancemen



HOW TO INSTALL EJECTOR-FOOT SPACER

Position spacer so spring clips enter opening on underside of bomb rack's ejector foot, then push home. Spacer snaps into place, extends operable length of the ejector foot by 3/8-inch.



Pop those 'chutes

When an aircraft on a mining mission has to drop its stores in an emergency, normal jettison procedures require that weapons be dropped "safe" (i.e., arming wires must be released by the plane's arming solenoids and dropped with the weapons, so that they will not arm underwater). True for mines as well as other weapons, with just one exception: the mines' parapak arming wires which you install on Parapak Control Units Mark 66 and Mark 112. These arming wires should be attached positively to the aircraft structure, not to solenoids.

The reason? It is just as desirable that the parachute deploy when mines are jettisoned safe as it is when they're planted to arm. Why?

- ▶ Reduced velocity of impact against a hard surface lessens the possibility of detonating explosive-loaded mines. (At these speeds even water is hard!)
- ▶ Ricochet distances and number of ricochets are reduced, whether on water or land.
- ▶ Damage to mine case and particularly internal components will be unlikely, increasing salvage potential. Minimized case rupture is also desirable for security reasons.

Extension for ejector

An ejector-foot spacer has been designed to prevent the Aero-7A bomb rack's ejector foot from extending beyond operable limits when planting Mark 55 mines equipped with Suspension Lugs Mark 3, or Mark 56 mines with Lugs Mark 17. The spacer is a 3-inch disc of hard plastic with a four-leaf spring clip. Easily installed without tools, as shown here, it serves as a semi-rigid spacer between the ejector foot and the mine's strongback. The

spacer has been introduced into the supply system but an FSN has not been assigned at this writing.

Serving the same purpose, a permanently installed aluminum spacer has been incorporated into the design of the MAU-9 bomb rack.

MNs/AOs: Who does what?

Where do the duties and responsibilities of the mineman stop and those of the aviation ordnanceman begin in an air-laid mine planting operation? This question grows in importance with the increasing emphasis on air laid mine plants.

The minemen are responsible for assembly, testing, and final preparation of the mines per operational orders, and for delivery of the mine stores to the flight line. This includes installation of flight gear and suspension lugs compatible with the designated airplane type. Of course the mine-assembly activity may arrange with the shore-station ordnance department for assistance in making the mine delivery.

At the flight line the aviation ordnancemen should have the proper loading equipment on hand (i.e., equipment compatible with the specific aircraft to be loaded). They will then be responsible for loading the mines in the planes bomb racks, rigging arming wires and making final settings of parapak control units, making electrical checkouts of each plane's release system, and making the pre-takeoff checkouts, including any last-minute settings.

A mineman stands by during loading in case of an emergency requiring his specialized knowledge, such as a dropped mine, accidental dislodgement of an arming wire or safety pin, or a blown parachute pack, and to answer questions of the loading crew concerning the configuration of the mines.

The ordnancemen are also responsible for briefing the pilot before take off as to planned release order, switch requirements, etc. In the case of large patrol or bomber-type aircraft the plane-crew ordnanceman will probably be required to do this in flight.

This, at least, is the ideal division of responsibilities and duties as reflected in all mine-loading check lists being published by NMEF as supplements to OP 3232. Unfortunately squadron training in the business of loading mines has been much neglected, with the result that it is not uncommon for a squadron to be involved in a mining

operation where the AOs have never before seen a mine, much less been required to rig their airplanes and load them. Accordingly some MN rates are more knowledgeable about loading mines in some aircraft than the ordnancemen, with the result that they find themselves assuming some of the duties of the AOs.

Soon, however, this lack of training will no longer be. Recent directives require all Combat Replacement Air Wings and Air Groups, as well as local squadron training programs, to include mine loading of their assigned aircraft.

IT COULD BE A TREND?

RECENTLY Mods 1 and 2 of Test Set Mark 128 were declared obsolescent by BUWEPS. This is the set which has long been the mineman's standard for testing mine search coils. The reason: these test sets, which are costly, in short supply, and not altogether compatible with present test requirements, can be now replaced by standard, commercial-type multimeters (AN/PSM-4A) and meggers (AN/PSM-1A), both of which are on the allowance list for test sets and tools promulgated by BUWEPSINST 08011.15.

To check a search coil's continuity set the AN/PSM-4A for R x 1 with its range selector set for 1000 ma, then connect test leads to the search coil's leads and check for resistance specified by table 13 in OP 1452 REV 2.

Then, **CAUTION:** Switch your multimeter from its R function to DC-current function before you disconnect the leads, or collapse of the coil's field may induce a voltage far in excess of the puny 1.5 volts supplied by the multimeter. In any case, don't touch the coil's leads immediately after disconnecting the meter!

To check insulation resistance set up your megger for 500 volts, then connect one of its leads to the search coil's core and the other to each of the coil's leads, in turn. The megger should indicate at least 5 megohms, each lead.

This change in search-coil test policy will eventually show up in OP 1452 and any other OPs that contain search-coil tests but that doesn't mean holders of Test Sets Mk 128 shouldn't use these sets as long as they remain in serviceable condition.

Just remember that Mod 1 of Test Set Mk 128 cannot test the SC-27s used in Mines Mks 52 and 55, and that dwindling stocks of both mods of the set will probably never be replaced.

FIRING MECHANISMS A-5 MOD 2 STILL GOOD

ALTHOUGH current ODs list only Mod 3 of Firing Mechanism A-5, Mod 2s that meet prescribed tests (OP 2567) can still be used in Mines Mark 25-1, 36-2, and 49-1 . . . provided sufficient fuse wires to meet an operational requirement are intact in the A-5-2's Actuation Counter SE-3 Mod 2.

Firing Mechanism A-5 Mod 3, you understand, is in reality a Mod 2 from which a 3-ohm shunt has been removed and whose SE-3-2 has been replaced by an SE-3-4, both per Ordalt 4441. The reason for this switch: There are no more SE-3-2s available for use on A-5 mechs — only SE-3-4s are to be had. So it's when a defective or expended SE must be replaced that the A-5-2 is ordalted to A-5-3.

As has always been true, Firing Mechanisms A-5 Mod 2 with sufficient intact fuses need not be ordalted. So will those ODs be changed to re-instate the A-5 Mod 2 for use in 25-1, 36-2 and 49-1 mines?

The answer is yes. For the time being it will probably be listed as the preferred item, with the A-5-3 listed as an alternate.

Hey Fellers!

Did you get T-Shooter 2-64? Did your copies have in them any of those yellow gripe sheets we asked you to fill out and send back to us? How about checking your copies?

If there are none there, fine. Chances are somebody in your shop filled 'em out and we've got 'em.

But what about the rest of the troops . . . you

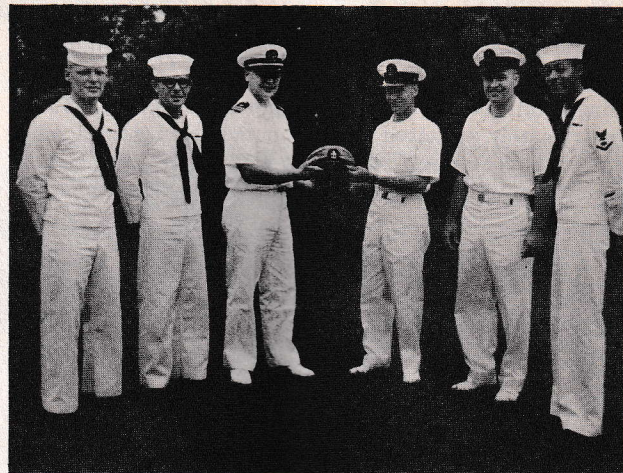
readers who meant well but forgot. We need your opinions just as much as we needed the ones that have already come in, and we need to know whether there are still people who need T-Shooters at the addresses to which we mail . . . and we still need to know.

So how's about it? After all, it's for your own good!

Auld Lang Syne

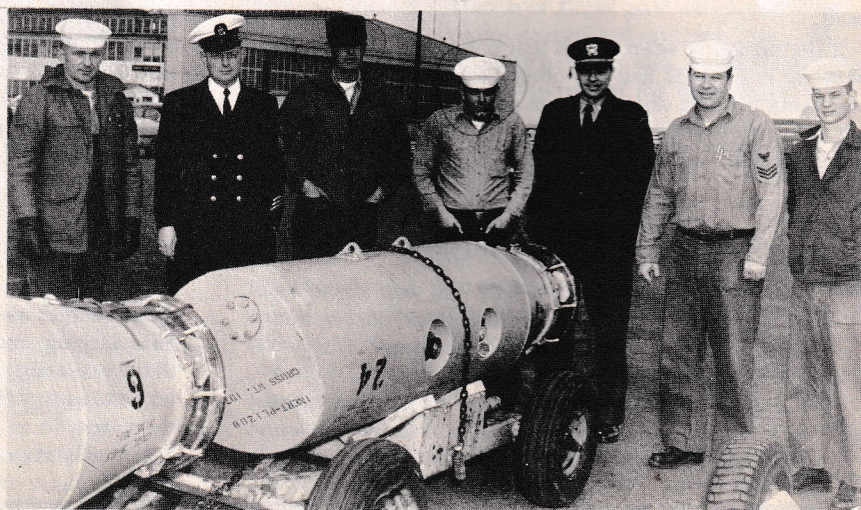
WHILE going through some files that were inherited from previous editors of The Troubleshooter, your present editor ran across some outdated group photos that got lost in the shuffle. It's a shame that all these good men should have posed for their pictures in vain.

So here they are to provide the subject for those just-before-payday scuttlebutt sessions. Many an "I wonder where" should be settled. Even better, how about every man on this page sending us his present location and rate for a follow-up? Deadline: 1 Dec '64.



△ This group photo of the Mine Inspection Division of the Quality Control Department, NWS, Yorktown was taken more than two years ago. It shows the OIC, then LCDR E. J. Kirshke, presenting W. L. Johnson with a hat, a gift of the division on the day of his promotion to MNCA. Pictured, left to right: J. C. Jeffcoat, MN2; R. L. Nunn, MN2; LCDR E. J. Kirshke, OIC; W. L. Johnson, MNCA; M. J. Mahoney, MNCA; and T. F. Carter, MN3. Today the only man left in the division at NWS is Chief Johnson who is serving under a new OIC, LT R. J. Trask.

△ A group photo of MDAU 0323, NAS Jacksonville. MDAUs have been deactivated but most of the men are still sending in Rudmindes! Here are the names: Front row, left to right: R. W. Volgmuth, MNSN; P. R. Owens, MNSN; R. W. Olson, MN3; A. T. Perrott, SN. Back row: R. W. Campbell, MN3; B. F. Rossman, MN2; S. A. Lewis, MNCS; R. Turetz, CWO; L. A. DeNaeyer, MN2; R. A. Deck, MN3.



▷ Here is another group - MDAU 0321, NAS Quonset Point, Rhode Island - gone but not forgotten we are sure. Unfortunately no initials are supplied except for those of the OIC. Left to right: Kurkierewicz, MN2; Airhart, MNC; Herstrom, MN1; Martin, MN2; LTJG J. T. Shy, OIC; Smith, MN1; Webb, MN3.

MK 66-2 CONTROL UNIT

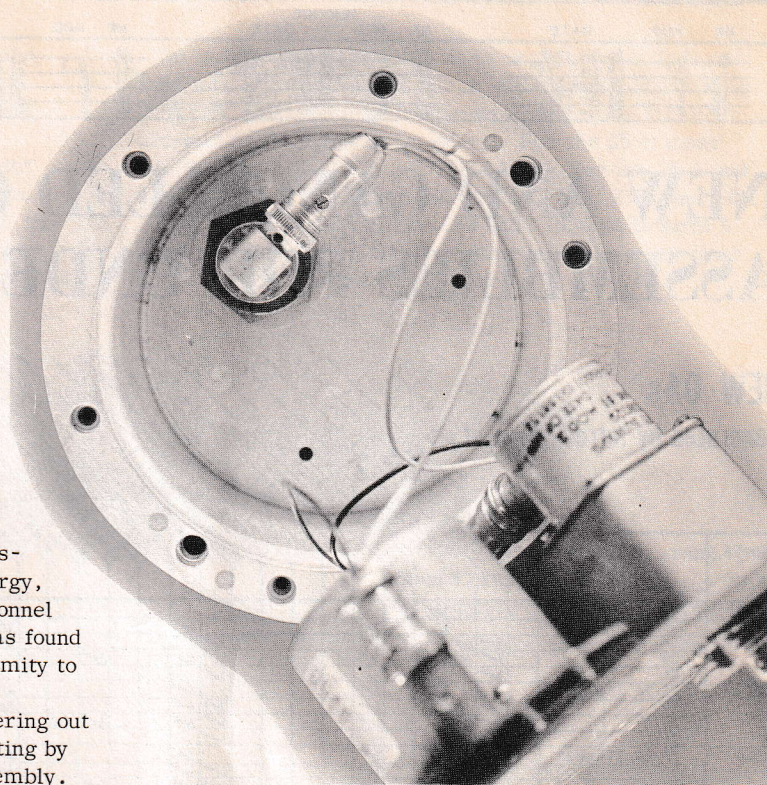
PARACHUTE Control Units Mark 66 are undergoing another transition with the result that Mod 2 will soon become the preferred item for all parapak installations, vs Mod 1. The units govern opening of air-laid mines' parachutes.

The Mod 0 control units were altered by Ordalt 4377 of 1 October 1963 to the more reliable Mod 1. The forthcoming Ordalt 10108, in altering the Mod 1s to Mod 2s, will eliminate susceptibility to spurious actuation by stray rf energy, which could otherwise prove hazardous to personnel and aircraft. This became necessary when it was found that Mod 1s are susceptible to rf energy in proximity to communications and radar transmitters.

Corrective action will be accomplished by filtering out the rf energy before it reaches the explosive fitting by introducing a ferrite material into the cable assembly.

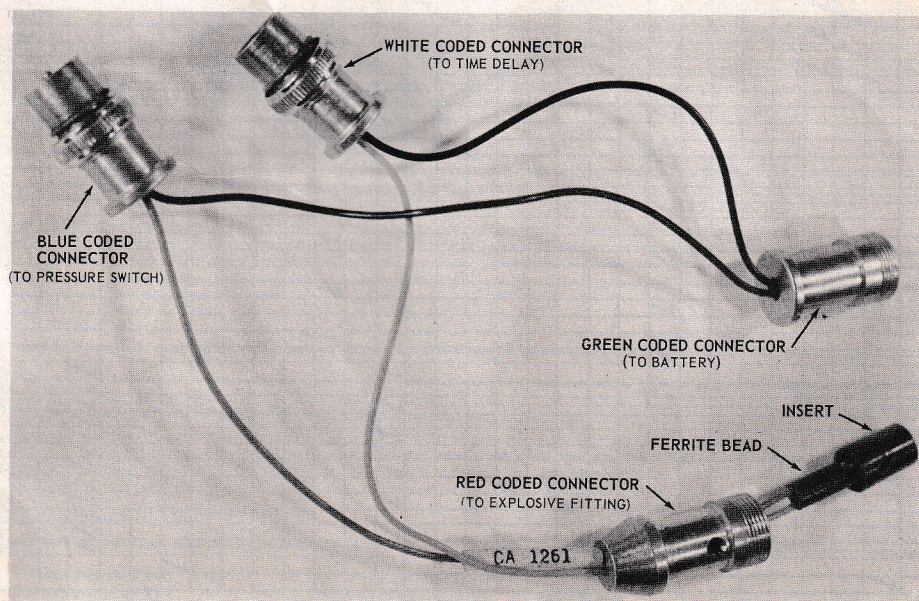
The ferrite bead is in the red-coded connector of the Mod 2s Cable Assembly CA-1261, which will replace the Mod 1's CA-943. This change in cables and the designation of the unit as Mod 2 are the only evident changes in appearance of the two mods. Their functions are identical. A few "prototype" Mod 2s are already in the system.

To test the 66-2 units the Test Set Mark 246 Mod 0 can be used following the instructions for Mod 1 units in OP 1452, with changes to specify use of a multimeter to check insulation resistance, instead of the 246 test set



(or a megger) both of whose impression of excessive DC voltage would break down the 66-2's ferrite bead. The necessary changes will be released when the Ordalt and stock Mod 2 units are made available.

A companion Ordalt, which has not yet been assigned a number, will alter Test Set Mk 246-0 to 246 Mod 1 to increase its compatibility with the new control units. Until all Mod 1 units have been Ordalted to Mod 2s, the 2s should be reserved for carrier-based mine plants.



IN T-Shooter 3-63 we listed several cancelled mine operational assemblies and thought maybe we had thereby done someone some good. Then things really began to happen.

Already, you've seen some of the effects in recent OP and OD changes and revisions, and others still in the mill will reveal even more. But to get them all fixed at once is more than NMEF's harried tech writers could take on, so we've digested all the current OA data that we could in the tables on these two pages.

So is this data complete? It is except that it does not take into account the OAs which will become active when BUWEPS' procurement of new-style drill gear for older air-laid drill-mines is complete. For the 25-0 these will be OAs 21D, 22D, 23D, and 24D. For the 25-1 and 2 and the 36-1 and 2 they will be 21B, 22B, 23B, and 24B.

For the 36-3 they will be 11B and 12B, and if there's anything else new on OAs ye editor hopes he won't hear about it until sometime next year.

CANCELLED OAs Resulting from Obsolescence of

- BOOSTER MK 6-1 (Plaster Loaded)
- DISPENSER, CABLE, MK 2 MOD 0 (5/16)
- DISPENSER, CABLE, MK 3 MOD 0 (3/8)
- DRILL CONVERSION KIT MK 1 MOD 0
- DRILL CONVERSION KIT MK 1 MOD 1
- INDICATOR SW MK 1.0 (User Loaded)
- MINE CASE MK 1.0 (User Loaded)
- MINE FAIRING MK 1 MOD 0
- MINE FAIRING MK 2 MOD 0
- MINE FAIRING MK 3 MOD 0
- MINE FAIRING MK 7 MOD 0
- MINE FAIRING MK 13 MOD 0
- PARAPAK MK 1 MOD 0
- PARAPAK MK 3 MOD 0
- PARAPAK MK 5 MOD 0 (Chute 2-0)
- PARAPAK MK 5 MOD 2 (Chute 3-2)
- PARAPAK MK 5 MOD 5 (Chute 3-4)
- PARAPAK MK 13 MOD 0 (Chute 2-2)
- PARAPAK MK 13 MOD 5 (Chute 12-1)
- RELEASE MECH MK 8 MOD 2

PUBLICATIONS
28092 REV 0
7302 VOL 1 REV 5
7303 VOL 1 REV 4
7304 VOL 1 REV 4
9684 REV 1
9352 REV 0
7306 REV 0
7331 VOL 1 REV 5
7332 REV 5
7333 REV 2
7568 REV 2
7569 REV 2
7570 REV 2
7337 REV 3
7571 REV 2
7572 REV 2
7673 REV 2
7674 REV 2
7675 REV 2
7676 REV 2
0505 REV 2
0506 REV 2
0507 REV 2
0508 REV 2
0509 REV 2
0510 REV 2
353 REV 0
354 REV 1

MINES MK/MOD	CANCELLED OAs	SERVICE MINES	AFFECTED PUBLICATIONS															
			OPs								ODs							
10-9	01, 02																948 REV 1	7320 REV 2
	03, 04																	
25-0	01, 02, 03																956 VOL 1 REV 1	7302 REV 5
	07, 08, 09																	
	10, 11, 12																	
	13																	
	15																	
	16																	
25-1	17, 18, 19, 20																	
	01, 02, 03																1797 VOL 1 REV 2	7303 VOL 1 REV 4
	07, 08, 09																	
	10, 11, 12																	
	13																	
	15																	
25-2	17, 18, 19, 20																	
	01, 02, 03																1765 VOL 1 REV 2	7304 VOL 1 REV 4
	07, 08, 09																	
	10, 11, 12																	
	13																	
	15																	
36-1	17, 18, 19, 20																	
	01, 02, 03																1684 VOL 1 REV 2	7306 VOL 1 REV 5
	07, 08, 09																	
	10, 11, 12																	
	13																	
	15																	
36-2	17, 18, 19, 20																	
	01, 02, 03																1798 VOL 1 REV 2	7306 VOL 2 REV 1 7331 VOL 1 REV 4
	07, 08, 09																	
	10, 11, 12																	
	13																	
	15																	
36-3	17, 18, 19, 20																	
	01, 02																1892 REV 1	7331 VOL 2 REV 1 7332 REV 4
	05, 06																	
	07, 08																	
50-0	02																1811 REV 0	7337 REV 3
	52-1-6																2608 VOL 1 REV 0	9671-6 REV 2
	55-1-6																2974 VOL 1 REV 0	10505-10 REV 2
	57-0																2718 VOL 1 REV 0	9354 REV 0

DRILL MINES						
6-0	01A through 16A					
25-0	01C, 02C, 03C, 13C	See note 1 below				
	01A, 02A, 03A, 13A					
	01B, 02B, 03B, 13B					
25-1	01A, 02A, 03A, 13A	See note 2 below				
25-2	01A, 02A, 03A, 13A	See note 2 below				
36-1	01A, 02A, 03A, 13A	See note 2 below				
36-2	01A, 02A, 03A, 13A	See note 2 below				
36-3	01A, 02A	See note 3 below				

NOTES: 1 - redesignated 21C, 22C, 23C, 24C for consistency with like service OAs.
 2 - redesignated 21A, 22A, 23A, 24A for consistency with like service OAs.
 3 - redesignated 11A and 12A for consistency with service OAs.

HOT STUFF

by B. Arnaclebutt,
MNC



A tap in time saves—

Dear Barney,

What should happen when a parachute pack turns up with a hole that's supposed to be tapped but has no threads. Should we tag it Code X, or tap it ourselves?

ATM, MN2

Dear ATM,

Tap it by all means, but Rudminde it too, so the statistical troops can keep tabs on this sort of thing. To do this your Rudminde must tell us the serial number.

Think it wouldn't happen again? Not so. F. E. Cole and F. D. Fuller of Momat 0321 ran across three such cases in final prep of Mines Mark 52 on which they salvaged the Mk 20 Parapaks by using a thread gage and taps you'll find on that allowance list forwarded by BUWEPSINST 08011.15.

B. Arnaclebutt

For want of a thread

Dear Barnacles,

In the inspection of components in Mines Mark 36 Mod 3 taken from storage at Navy 3923, two out of ten Extenders Mark 14 Mod 2 had stripped threads in the housing. The result is that the ring nuts cannot be installed. This gear has been reworked

twice since 1960 and apparently the spanner wrench has been slipping out of its groove and banging the threads. What's the cure?

P.S.F., MNSN

Dear P.S.F.,

Prevention! A properly seated spanner, properly handled, won't slip. And by spanner we don't mean a screwdriver and hammer. Anti-sieze compound when installing those ring nuts would help too. As for the extenders you've reported, though, I'm afraid about all you can do is replace.

— Okay?

B. Arnaclebutt

The wrong blue

Dear Barnacle,

What about the blue number you cite in Color Me Blue on page 7 of Troubleshooter 4-63. It conflicts with MIL-STD-709. Who's right?

M.E.D., MN3

Dear M.E.D.,

Per MIL-STD-709 and the corresponding color number in FED STD 595, your correct blue is number 35109. We were wrong.

B. Arnaclebutt

Clock winding

Dear Hot Stuff:

BUWEPSNOTE 8550 of 3 Jan 62 directs winding CD 12-0s 1-1/2 to 2 turns for shipping and storing. Wasn't this intended to apply to CD 12s in prepositioned mines? Anyhow we're planning to run ours down to comply with 8550 since, in reality, these clocks are in storage . . . in mine cases.

BOM, MN1

Dear BOM:

Don't. Operation orders override other instructions for assembled or partially assembled mines, and in any case the dope in that BUWEPSNOTE is intended to apply only to hand-wound clocks in storage on the shelf, or in shipment. The purpose is somewhat obscure: to take tension off switches with minimum torque on the clock's main spring.

But the purpose of operation orders is not obscure, and the clock settings they specify take precedence over all other considerations. Right?

B. Amadebutt

A stranger in the nest

Dear Barnacles:

In drawing Hydrostatic Switches Mark 4 Mod 0 for Mark 27 Mod 2 mines we got some that were modified in a way not reflected in any current drawings. For one thing, they had longer bodies. For another, they had bakelite plugs held in by a glyptol-sealed ring nut instead of a crimp. They also had the word "modified" stenciled on the body, but they passed all tests and worked fine in the mine. Is this a new switch?

NSY

Dear NSY,

Not really new but certainly different. Here at NMEF we had no clue to this method of manufacture for the Mk 4 Mod 0. But Sandy Hogge of NWS/Yorktown turned up a BUORD letter of 20 January 1955 that authorized it. So how many are there? Nobody knows. Apparently your "new" type is mixed with stocks of the standard crimped type with no stock-control distinction!

But we do know why they were modified. It came about when pressure leaks were experienced with the crimped originals. Six switches modified by the Naval Gun Factory were tested as samples and a Project Order

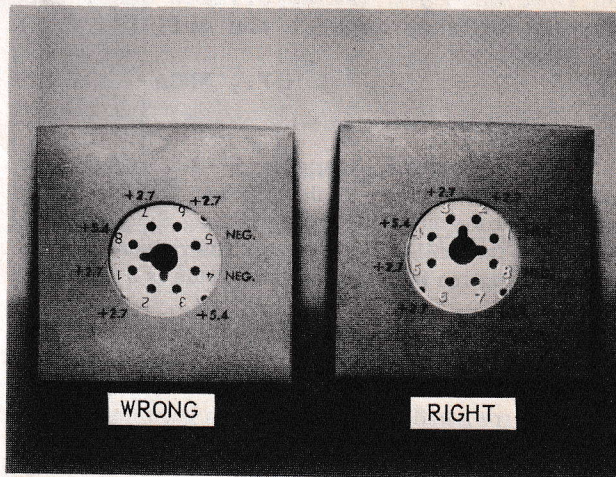
TROUBLESHOOTER 3-64

was authorized by BUORD. The changes included an internal thread machined into the body and a gland ring was used in lieu of crimping. An O-ring in a locating seat was used instead of a cork gasket.

Anyhow, you don't have to sweat it. The modified switches should be interchangeable with non-modified types. And as far as we've been able to find out, they are absolutely okay to use.

B. Amadebutt

Battery turnabout



The jacket of the BA-1322/U on the left has been put on upside down. The plug-in markings are correct in both batteries.

Dear Chief Butt:

During inspection of seven Mines Mark 52 one BA-1322/U battery was found with its jacket bearing polarity and voltage identification 180 degrees out of orientation (see photo). When assembled in the battery pack with "labels up" as directed by OP 2608, the two keyways stand at 6 and 9 o'clock when they should be at 12 and 3 o'clock.

The manufacturer's assembly line slipped a cog?

BTW, MN2

Dear BTW,

That battery on the left in your photo sure is oriented south. Like you say, though, the terminal designations on the battery's receptacle are correct in relation to its keyway if not to the "label". The answer, of course, is to turn such an oddball's label down where OPs 2608 or 2974 say to turn it up. That may make a lot of extra work, but also makes it work!

B. Amadebutt

Case of the missing gage

Dear B. Arnacle:

In OP 1853, page 81 of Vol 1 and page 42 of Vol 2, it says to gage the dash-pot orifice of the plummet-release mechanism of the Mine Mark 6 with a #63 drill. No tool set provided for assembly of Mk 6 mines includes a #63 drill. Activities needing the drill can get one by ordering 5133-262-2175, cost 17 cents. Recommend putting handle on it to make it easier to find and hold. Also recommend OP change so that when you get an orifice under size, why not enlarge it with the drill?

D.M.F., MNCA

Dear D.M.F.,

To answer your last question first - NO. OP you cite says check the orifice with the drill and if it does not enter reject the dashpot. It says nothing about reaming it out with the drill so don't do it. The reason: chips from drilling can block the orifice. This is a job for a broach.

Thanks for the dope on the drill but the book says that when you order 5133-262-2175 you get 12 drills for \$1.35 which is all right if you can use 12 drills. The alternative is to procure locally. The handle is a good idea. Makes it easy to identify as a gage.

B. Arnaclebutt

The turning of the screw

Dear B. Butt:

Test and calibration procedure for HS-4 Mod 0 in OP 2363 VOL 2 says nothing about adjustment if the calibration is "off limits". Does this mean the adjustment is not authorized, or could we maybe save Uncle some money?

M.E.C., MNCA

Dear M.E.C.,

True, neither OP 2363 VOL 2 nor OP 1935 VOL 2 (Mines Mark 27 Mods 2 and 4) say anything about adjusting the HS-4 in the field but we can think of no reason why you shouldn't.

First, then, you should do like it says on page 34 under "2. Calibration" in each of these OPs except you should test at least three times to be sure you don't have an erratic switch. If the switch fails, break the adjusting screw free of its glyptal and try to adjust until the switch does come within limits three or more times. If no-go, reject. If okay, re-apply glyptal. This is what you'll be seeing in forthcoming changes to OPs 1935 and 2363 VOLS 2.

Maybe like this you could even reclaim some HS-4s you've condemned as NG!

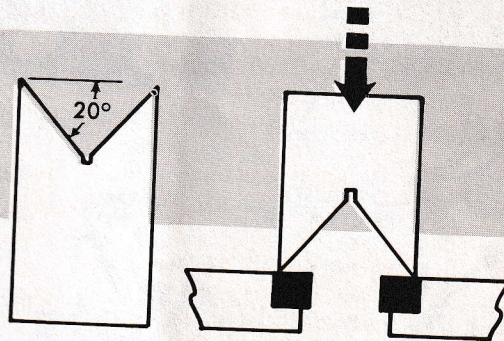
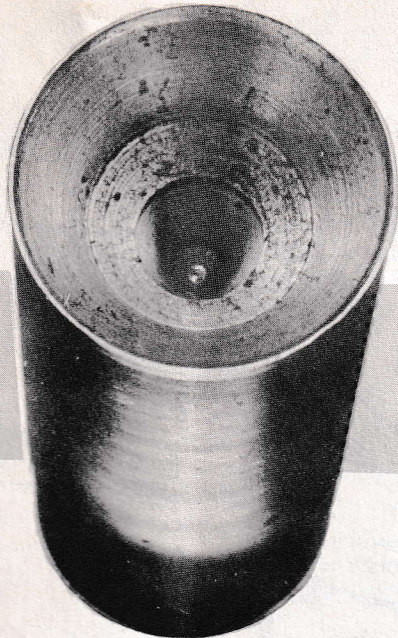
B. Arnaclebutt



The mine crew at Navy 3835, augmented by two seamen, poses for a recent group photograph. Front row, left to right: J. W. Hermesen, MNC; C. E. Mace, MNC; B. H. Levesque, LTJG; F. (N) Cavaricci, MNC. Second row: W. C. Carter, MN1; T. (N) Bok, MN1; B. C. Stoner, MN3; S. L. Helmoth, MNSN. Third row: R. (N) Bonfiglio, SN; W. A. Hugus, MN3; E. C. Forbes, SN; R. R. Carpenter, MN3.

an easy way out for

FLUID SEALS



ONE of those nasty little jobs in the overhaul of Mine Vehicles Mark 1 is the removal of the fluid seals, nine per vehicle in diameters from 3/4-inch to 1-5/8-inch. The job is easier than it once was since it is no longer necessary to remove all seals and install new ones regardless of condition. Now you are only required to replace those showing signs of damage or leakage.

These metal-encased seals are a drive fit into machined seats, the seal designed to bear against a moving shaft. Once installed, though, they cannot be driven out and most men resort to screwdriver and hammer to distort the metal casing so they can be pried out. Besides being hard on screwdrivers a misplaced blow only too often results in a marred seating surface and a ruined part.

Now W. E. Houlihan, MN1, sends along a tool made in the Torpedo Shop at NOF, Navy #3923, that makes the job easier on the sailor as well as the part. Here's how:

Turn a piece of steel stock down to the appropriate diameter (five sizes are needed) then cup at one end forming a 20 degree bevel at the edge as shown. The length of the rod is not critical. Houlihan made his six inches long, which seems about right.

The cup can be turned out on a lathe or drilled out with a drill ground to a 20 degree point. The diameter of the tool should be a couple of thousandths or a hair under the size of seated seals, which are 3/4-inch, 1-inch, 1-1/4-inch, 1-1/2-inch and 1-5/8-inch.

To use, place the tool over the seal and rap sharply several times with a hammer. Now you should be able to lift out the seal with pliers. If not, hit it a couple more.

The secret, of course, is that 20 degree bevel. It crushes the seal's case inward freeing it from its seat.

HIGH COST OF OVERHAUL

SHIPS returning depth-charge components to ammunition depots for overhaul have not been including all parts of the components, necessitating considerable missing-part replacements before the components can be checked out and returned to Code A stock for re-issue. These omissions can run into a needless but sizeable expenditure.

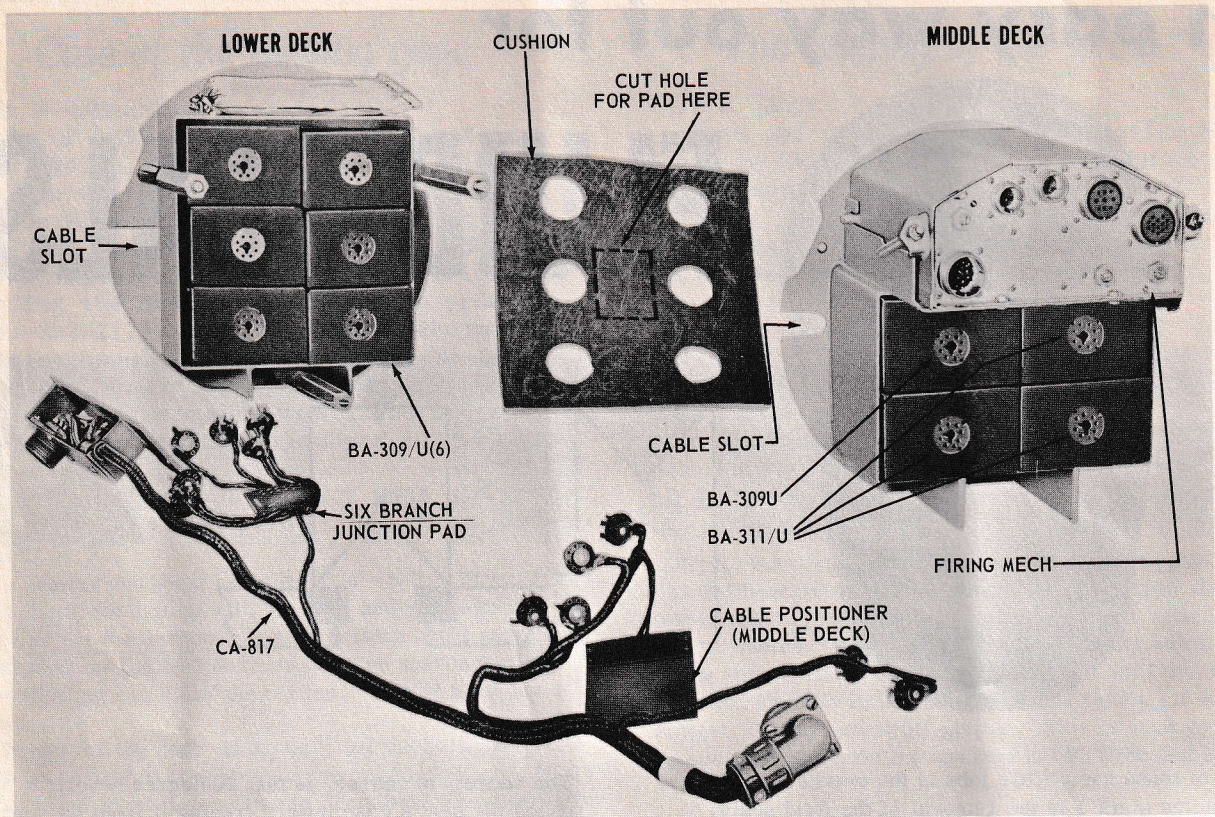
For example, the NAD at Navy 66 reports that in a recent overhaul of fleet-return pistols, over half were found to lack Safe-setting Locks 1360-388-6329, Wrench Stops 1360-388-6330, and Knobbed Covers 1360-389-1541. The cost of these missing parts: \$5.80 per pistol.

The number of pistols? Over 50% of fleet returns. Enough to make it well worth your while to make sure they're complete before you turn them in for exchange!

TROUBLESHOOTER CORRECTIONS

Issue 3-63: On page 5 under periodicals change stock number for Troubleshooter 1-63 from 0618-266-1360 to 0618-266-1630.

Issue 4-63: On page 13, under Mine Mk 49 Mod 2, Gen'l Requisites, change OD 7510 to OD 7570.



TAKING CRUSH OFF BATTERIES IN MK 50's INSTRUMENT RACK

IN assembling the Mk 50 mine's instrument rack tolerances are more critical than some minemen realize. . . with the result that the Batteries BA-309/U

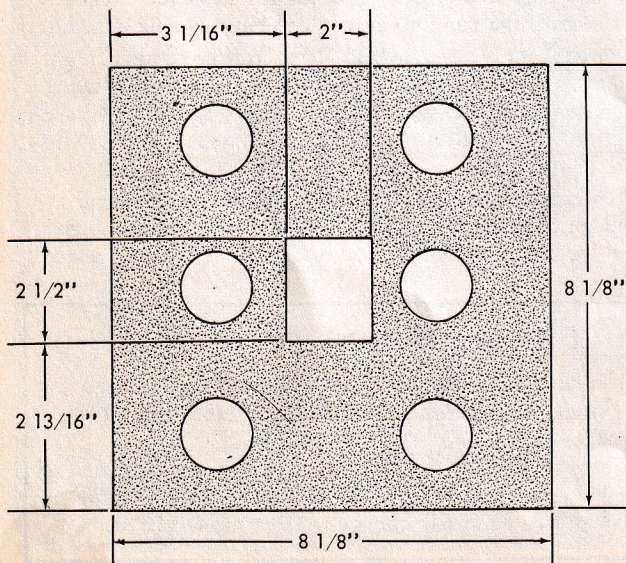
become damaged when marrying the rack's lower and middle decks.

The lower deck holds six BA-309/Us, connected to Cable CA-817 through a six-branch junction pad. A felted cushion over the batteries is designed to provide a resilient buffer between the two decks, tensioned by the 10 lb-ft torque on the fastenings. Six holes in this pad provide access to the batteries' receptacles.

The mine assemblyman is cautioned to keep those six cable leads clear of the various plugs so the leads cannot become pinched between the plugs and the middle deck. It also appears that the bulk of the six-branch junction pad and the thickness of the cushion can be great enough, combined, to crush the batteries in the way of the junction pad and thereby cause shorts inside the batteries. This introduces a possible hazard. B. N. Johnson at Navy No. 3002 says the pad and cushion caused the edge of the battery case (electrical negative) in one of their Mk 50s to cut through lead's insulation, short the battery, and generate enough heat to melt the wax coating on the battery's cells.

Johnson's solution: Cut a hole in the lower-deck felt cushion like we show here, to accommodate the added thickness of the junction pad.

It works!



Do You do this Job Right?

RUSTY THREADS AMONG THE OLD

Based on reports lately making their way into NMEF, it's time for all hands to start eagle-eyeing Mk 36-2 mine cases before clearing them as safe to hang on airplanes and plant. Remember, Mine Case Mk 36 Mod 2 is the approved case for all mods of Mk 36 mines.

The problem is easily stated: rust and corrosion of the suspension-lug screws. The cause: probably reaction between the low-carbon steel in the cases and the high-carbon-steel screws ... and in any case age and neglect. Mostly the lugs are World War II-types which were installed by the case manufacturers and have rested undisturbed ever since. The same is true of the set screws in these cases, used by the manufacturers to fill holes provided for alternate suspension-lug positions.

From what we know now it appears that some 36-2 cases will definitely have to be consigned to Code X. Most, though, can probably be made serviceable. To determine which are which, here's what should be done by all field activities that have 36-2 cases before releasing Mk 36 mines for drill, FSMT, or service use (depots have been authorized a different solution):

- ▶ Position case with lugs up.
- ▶ Scrape away paint and clean around screw heads with wire brush (use anti-spark tools on explosive-loaded cases!)
- ▶ Apply penetrating oil and let it soak in for at least 24 hours (a drop or two will do if you apply it where it can work down between screw shanks and hole threads).
- ▶ Using proper-size screwdriver, remove screws. (If you don't succeed on first try, soak some more and try again.)

- ▶ Clean and chase threads of all tapped holes, then inspect.

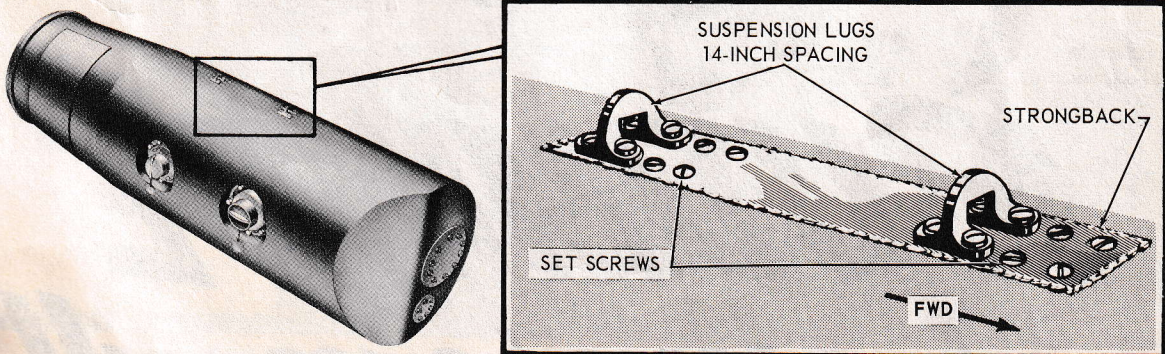
If threads in the holes from which you removed the lugs' fastenings appear markedly damaged or corroded, so that their holding strength is doubtful, place the case in Code X, notify NMEF via Rudminde, and request disposition and replacements through your usual channels.

Probably, though, you'll find that even where the screws' threads are shot, the threads in the cases will be in good shape thanks to the low-carbon steel. If so, here's what to do:

- ▶ Scrape the slotted suspension-lug screws and lockwashers you removed and get new ones. The numbers to order are 5305-800-5698 for the screws (socket-head, hex), and 5310-012-0214 for the washers.
- ▶ Position the lugs back at 14-inch spacing, install the new screws and lockwashers, and torque to 25-28 lb-ft. Then clean up and paint around the lugs as necessary.
- ▶ Fill all empty tapped holes - the ones from which you removed the set screws - with water pump grease 9150-235-5542.
- ▶ Attach a tag to one of the lugs bearing info as follows: Lugs' screws replaced on (date), followed by your name and activity.

That way when it comes time to deliver Mk 36 mines to aircraft for planting, you'll know that they won't take a departure from the bomb racks until the pilot pops his release button.

SEE ALSO T/S 4-65 PAGE 9 FOR RIGHT?

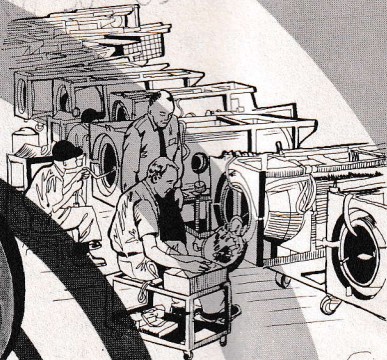


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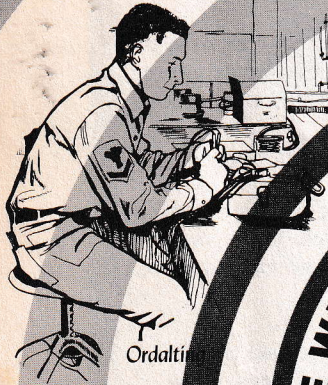
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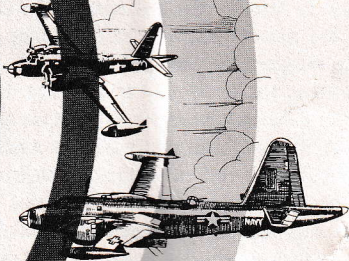
Chief of Naval Operations
evaluation of mine for service use



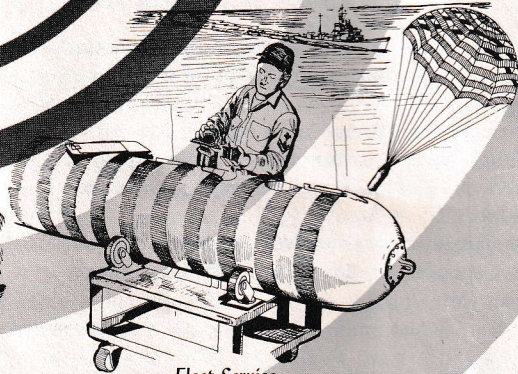
Assembly and Test



Ordalt



Mine Loading



Fleet Service
Mine Test Program and Training

Procurement for
Stockpile Replenishment



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