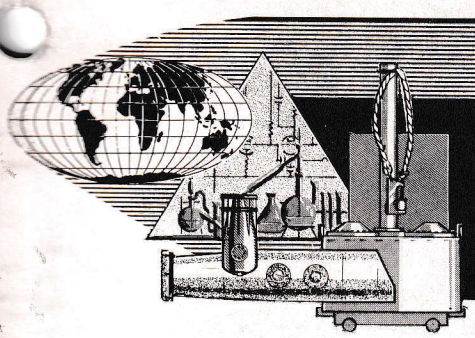
Corrected f/ Trouble Shooter 2-62 10-1-63 Rc
Corrected f/ Trouble Shooter 4-61 10-1-63 Rc

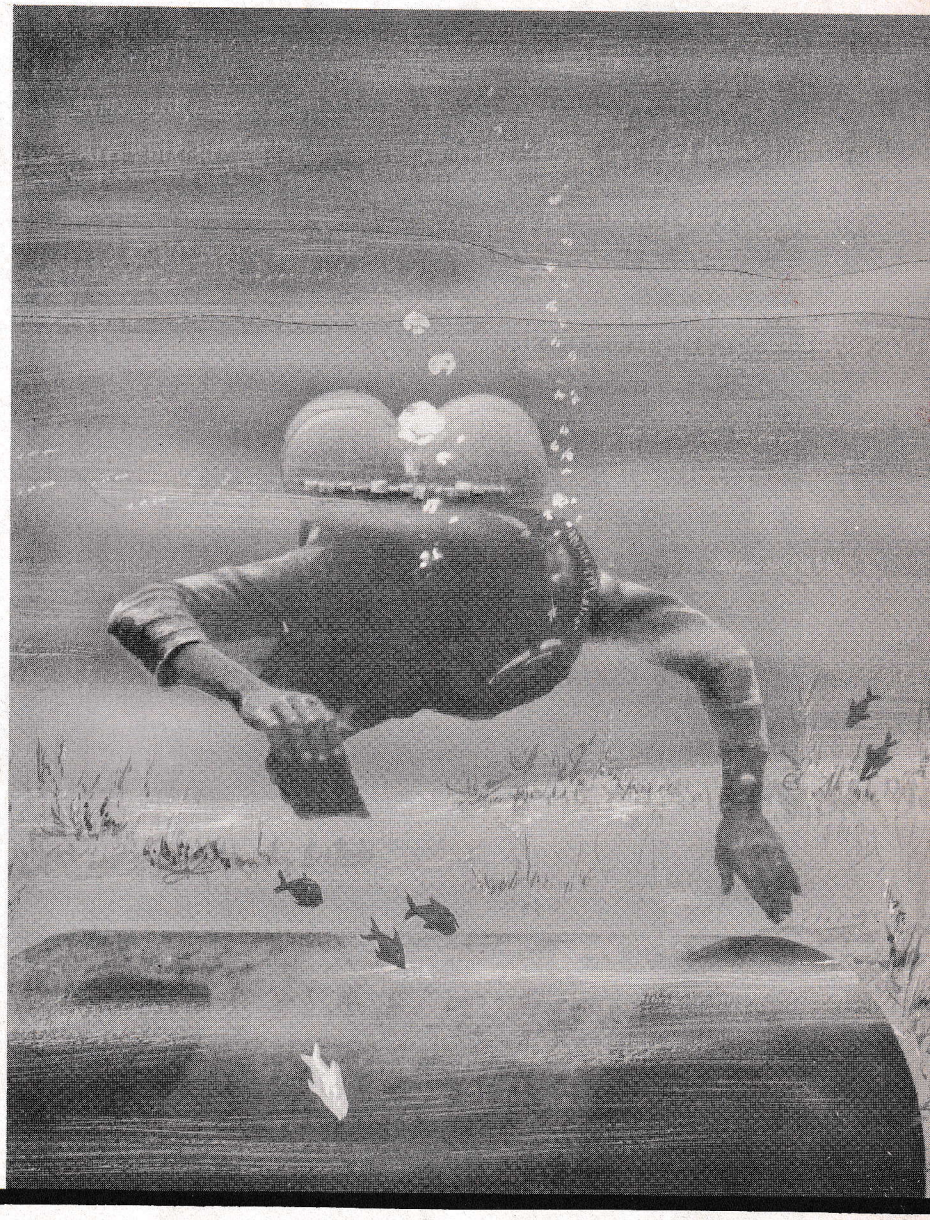
No. 3-61



mine and depth-charge

THE TROUBLESHOOTER

- *Tail-Plate Rack For 52s, 55s*
- *Drill-Mine Hazard*
- *Dangerous Depth Charges*



THE OFFICIAL JOURNAL OF THE *RUDMINDE* PROGRAM

in this issue . . .

THE TROUBLESHOOTER

mine and depth-charge

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

George T. Ragan, CDR, USN . . . Officer-in-Charge
Haines A. Miller . . . Technical Director
John V. Koman . . . Publications Chief
Frank N. Potter . . . Editor

REGULAR FEATURES

Soundings 1
Rudminde Report to the Fleet 3
Hot Stuff 5
Millie Amps' Briefs 10
Pub-S-Crawlin' 14
Do You Do This Job Right 17

ARTICLES

Sea-floor Photos May Solve Mine-planting Problems 8
Contributions from the Fleet 12
Starting Dates at Mine-Warfare School 12
I Remember Mine School 16

COVER PHOTO: When John Bartleson MN1 wanted to photograph some sea-floor mine recoveries lack of professional equipment did not disturb him. For more of his work see page 8.

Rudminde is a world-wide troubleshooting campaign designed to achieve and maintain a high level of undersea warfare readiness through the discovery and correction of material defects, through refinement of weapon design, and through encouragement of the unique knowledge and skills demanded of highly specialized segments of the U.S. Navy and Coast Guard. The basic instrument of the program is Navord Form 2776—"Report of Unsatisfactory or Defective Mines, Depth-Charges, or Associated Equipment." Anyone who encounters problems with these weapons is encouraged to report them to the Naval Mine Engineering Facility using this Form, as prescribed in NAVORD INST 8500.7.

Troubleshooter is published quarterly by the Naval Mine Engineering Facility's Publications Division and printed by DPPO-5ND using funds approved by the Director, Bureau of the Budget, on 10 November 1958. Contributions, questions, address changes, and requests for distribution should be addressed to: Editor, The Troubleshooter, Naval Mine Engineering Facility (Ts2), U.S. Naval Weapons Station, Yorktown, Virginia.

THE OFFICIAL JOURNAL OF THE *RUDMINDE* PROGRAM

SOUNDINGS

The Changing Scene In Undersea Warfare

PROGRESS REPORT

SWAN SONG: Electric Detonator Mk 46 Mod 0—long associated with Mines Mk 6-0, 4, 7, 8, 10, and 14; 10-3 and 9; 18-0; 25-0, 1, and 2; 27-2, 3, 4, and 5; 36-1, 2, and 3; 39-0; and 49-0, 1, and 2—has reached official retirement. Electric Detonator Mk 46 Mod 1 has been designated as the new incumbent.

HERE, HERE! Design documentation for the Mk 56-0 service mine will be transferred to NMEF on 1 July. Transfer of the Mk 56-0 drill mine and associated equipment is expected to take place in September.

BROKEN NOSES: Failures of Mk 12 Mod 0 practice projector charges, including nose-casting fractures, were investigated recently by NAD/St. Julien's during preliminary firings. Further tests have been planned and results are expected to aid an NMEF evaluation of proposed modifications.

LIST TO WINDWARD: With Controlled Mine System Mk 2-0 being turned out by DuKane (T-Shooter 2-59 page 1) NAVWEPS List No. 23762 covering the system for both service and drill use has been reviewed and approved by BUWEPS and is now in the mill at OSO for printing. Watch for it.

PLOWS AND ANCHORS

SUNKEN SEAFOOD: There's food down there but fish drown before they can reach it. Lack of oxygen in layers of stagnant water has thus far sealed off deposits of nutritive silt and mud on many acres of the ocean floor.

The UN's Food and Agriculture Organization, holding a forum in Tokyo on Sept. 18 to 30, will discuss various means for "plowing" the sea bottom. One proposed method is to dump atomic waste in sealed containers. Supposedly, the heat generated by this waste would create an upward convection sufficient to suck up the silt. Another plan would use pumps to draw up cold water in a priming action.

The oceans presently provide some 30 million tons of protein food each year. Expected increases in demand make it advisable to study ways of increasing the harvest.

HAVE GRIP, WON'T TRAVEL: Air-transportable harbor-defense teams needing light compact equipment have had to use sonobuoys that are large, heavy, and require massive concrete clumps for mooring. The solution may be an adaptation of lightweight, aircraft-type sonobuoys and the use of "Seastaples."

A patented development of the PneumoDynamics Corporation, the seastaple is driven into the sea floor by a propellent charge. Once imbedded, tension on the mooring line pulls it into a deadman position in which the 6-pound Mk II provides at least 350-pounds holding power and the 20-pound Mk V provides 3500 pounds.

Tests are underway to determine penetration and holding power in shingle and rock bottoms, and larger models are under development.

NAVY KNOW-HOW

BEAT THE HEAT? Navy is studying the possibility of using ultrasonic "cool cutting" as an aid in disarming bomb-type weapons. For several years ultrasonic vibrations have been used effectively for cleaning purposes, and "silent" dog whistles have many obvious advantages. Looks like we should change the old saw to "What you don't hear can help you."

CELESTIAL SCRAP: Locating a loose piece of something 15 feet long and 1/16-inch thick might not seem like much of a feat. But in outer space?

When men of the Navy's recently commissioned Space-Surveillance System brought in a blip, they traced it back to the Explorer III launching ... later identified the object as an "overhead wire," probably part of Explorer's de-spin device!

BENDING BOTTLES: A new, light, non-breakable bottle may help save the Navy $70,000 a year. Called cubitainers, they will supplant bulky glass carboys formerly used for distilled water and acids.

The bottle has been dropped from four feet, thrown thru the air, and put to numerous heat tests at the Norfolk Naval Supply Center. The result: no cracks ... not even a cap popped open! In other successful tests cubitainers were high-lined along with dry stores to ships underway at sea.

AIRAID: Nearly one million cubic feet of air per minute is cleaned by specially designed devices in Navy's nuclear submarines. Built in a variety of shapes to fit tight quarters, these precipitators remove 95 per cent of the dust smoke, cooking odors, lint, and other airborne impurities.

TAPS AND STOPS

BUTTERFIELD 8 (TO THE BAR): In the repertory of military bugles no call is more haunting than "Taps". Officially adopted by the Army in the 1870s the warrior's good-night and farewell dates from the Civil War and the musical acumen of Daniel Butterfield.

A New York businessman who entered the Army as a colonel and later rose to be major general, Butterfield

found the final bugle call of the day, "Extinguish Lights," too formal to his taste. So he composed a new call and had his bugler conclude with it.

It became known as "Taps," it seems, because it was often tapped out on a drum. In any case it had become popular in both the Confederate and Union Armies by the time hostilities ended.

HAIRY, HAPPY, AND HOME: Many of the sun-tanned crew sported beards and handlebar moustaches, some were wearing gay-banded tropical hats, as their four small ships swung into Little Creek after three and a half months in the Caribbean.

The four minesweepers Dash, Detector, Dominant, and Direct had operated out of Roosevelt Roads and participated in a major amphibious maneuver involving a Marine landing on the Puerto Rican island of Vieques. Liberty stops at Trinidad, Barbados, St. Thomas, and Gitmo gave the men an opportunity to investigate the local flora and fauna.

The visit to Barbados, the first by a U. S. Naval ship in more than a year, was a welcome break for the natives as well.

ASW NEWS

HUNTER-KILLER: The twin-turbine Sikorsky HSS-2, completing the most advanced 'copter-weapons system in the world, is scheduled to go into service this year as a submarine hunter-killer.

ANTI-SUB FRIGATE: The guided-missile frigate LUCE joined the fleet after a public commissioning ceremony at Charlestown on Armed Forces Day.

The Luce's armament includes advanced Terrier missiles, anti-submarine torpedoes, and two ASROC launchers. Eighth of her class to be armed with the advanced Terrier, the 512-foot, 5000-ton frigate was built at the Boston Naval Shipyard. She was named in honor of Rear Adm. Stephen B. Luce who established the Naval War College in 1844.

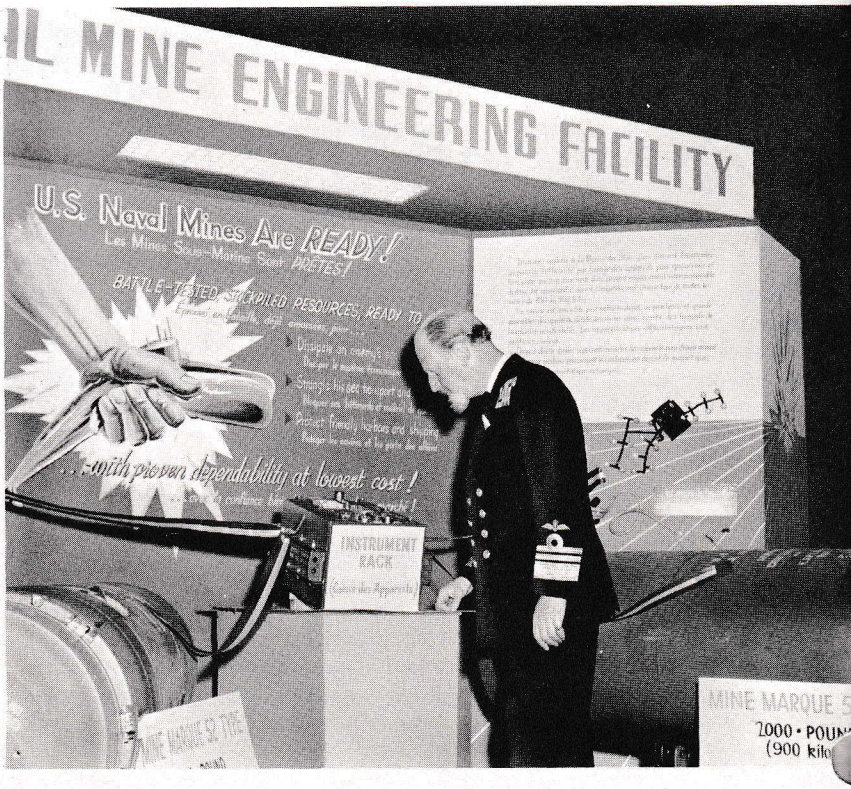
SUB-DETECTION SOUND: Navy intends to find whether a "very high-powered sound source" combined with sensitive receivers can detect and track submarines over vast distances of ocean. The former Navy tanker MISSION CAPISTRANO has been modified to carry the equipment in connection with Project Artemis.

Sponsored by the Office of Naval Research. Artemis will use a transducer five stories high weighing hundreds of tons. The Capistrano is outfitted to raise and lower the sound source in the water and provide power for its operation.

The electrical power used in the sound source would furnish lights for a town of 50,000 persons, the Navy said.

Operating primarily in the area north of the Bahamas to Cape Hatteras and Bermuda, the ship will be manned by the Military Sea Transportation Service for the Office of Naval Research.

A tower called Argus Island has been installed 30 miles southwest of Bermuda as a relay point for hydrophones placed on the ocean floor.



GOOD SHOW: British Admiral Charles L. G. Evans, Deputy Supreme Commander Atlantic and Great Britain's top representative to the NATO naval command at Norfolk, Va., studies NMEF's display aboard the USS ENTERPRISE.

The NMEF display was part of an exhibit of U.S. weapons of all types viewed earlier this year by visiting NATO Military Committee in Chiefs-of-Staff Session and Military Committee in Permanent Session.

According to Captain E. L. Edwards of COMTRALANT, the mine presentation, which stressed the dependability, low cost, and readiness of U.S. mines, "showed exceptionally good taste on the part of the designer" and was "one of the best exhibits of the display."

RUDMINDE REPORT TO THE FLEET

What's Been Reported? What's Being Done?

Are you getting yours?

Still waiting for a report from the Rudminde Branch's Bill Whitecotton, who's still out making the rounds in WESTPAC as we're getting ready for press, our ears continue to ring from gripes relayed by recent NMEF observers of FSMT tests. Time after time they've come back stating that men in the mine shops are not getting their copies of T-Shooter, yet each time we backtrack in our records we find that plenty of copies have been mailed to the activities in question. This means people at two levels can help.

Administrators: Are you passing the word?

Now we, like you, live with Navy Regulations. And that goes for the one that prohibits mailing a book like ye T-Shooter to individuals by name. The result is that T-Shooter, like a lot of other things, is usually addressed in such a way that it is received at the top—in some kind of administrative office—and its distribution within command is strictly up to the people who inhabit such places. What they should do is see that it gets passed along.

Should? You bet! For the fact is that yonder Bureau of Naval Weapons is investing a lot of money and effort in the Rudminde Program and in the T-Shooter that feeds Rudminde information back to the men who work with their hands. They're the ones we're here to benefit most. They're the ones who ask most of the questions we answer. They're the ones who'll see to it that your command comes out smelling like the proverbial rose on the day the mine and depth-charge readiness inspection team arrives . . . if you'll give 'em this chance.

The answer, obviously, is for those of you with no need to know to cease and desist from consigning your activity's allotments of T-Shooters to file 13, the bottom of the stack on your desk, or an obscure corner in the back of your bottom left desk drawer. By all means take what you need.

—But pass the rest along, please.

Men: Has the cat got your tongues?

Believe us, with all the sweat that goes into this book we grieve heartily everytime we hear of a gunner or MN who claims he doesn't get to read it. That's our first reaction.

But our second reaction is somewhat more to the point, "Why in blazes," we ask, "don't they quit griping long enough to drop us a card and clue us?" There's no need for indirect communication, men. Since the very first T-Shooter issue we've been trying to convince you that you can communicate with your T-Shooter editor direct, just like it says where we give the mailing address on the contents page of each bleeding issue.

So you ask what good will it do? The answer, chums, is plenty. Like we just said, we can't legally mail to individual names. But we can address issues direct to your shop if you tell us what the address is and how many men concerned with mines or depth charges you've got.

So how's about it? Why sit on your hands for six months doing nothing when you've got a problem that five minutes and a post-card can fix?

More Rudminde response

Some of you who've been Rudminding loyally have had nice things to say about the green reply cards our Rudminde Branch started using several months back. But others, just as loyal, have never so much as seen one.

The reason—and we're now well aware of the error of our ways—is that the cards have only been used where a Rudminde seemed to warrant some fairly prompt action. From now on, though, things will be different. Every Rudminde will be acknowledged by card whether immediate action is warranted or not. Try us and see.

Depth-charge dope needed

Speaking of Rudmindes, there have been several in recent weeks on Depth Charges Mk 8 Mods 3, 4, and 5 that checked out fine but failed to fire when launched. Now there's bound to be an answer for this sort of thing and finding such answers is NMEF's job. Trouble is, we don't yet know enough about enough failures to be able to start looking for answers without risking an undue amount of Uncle Sam's hard-earned dough.

What we need is more Rudmindes on the subject. So if you have any ideas—if you plant Depth Charges Mk 8 that don't rattle your taffrail like they should—remember, the number to use is NAVORD Form 2776.

And so to bed

So much for T-Shooters, Rudmindes, depth charges, and stuff like that there. Millie is breathing down our editorial neck to get this copy into type and the printer is filling his coffee urns and stoking his pipe.

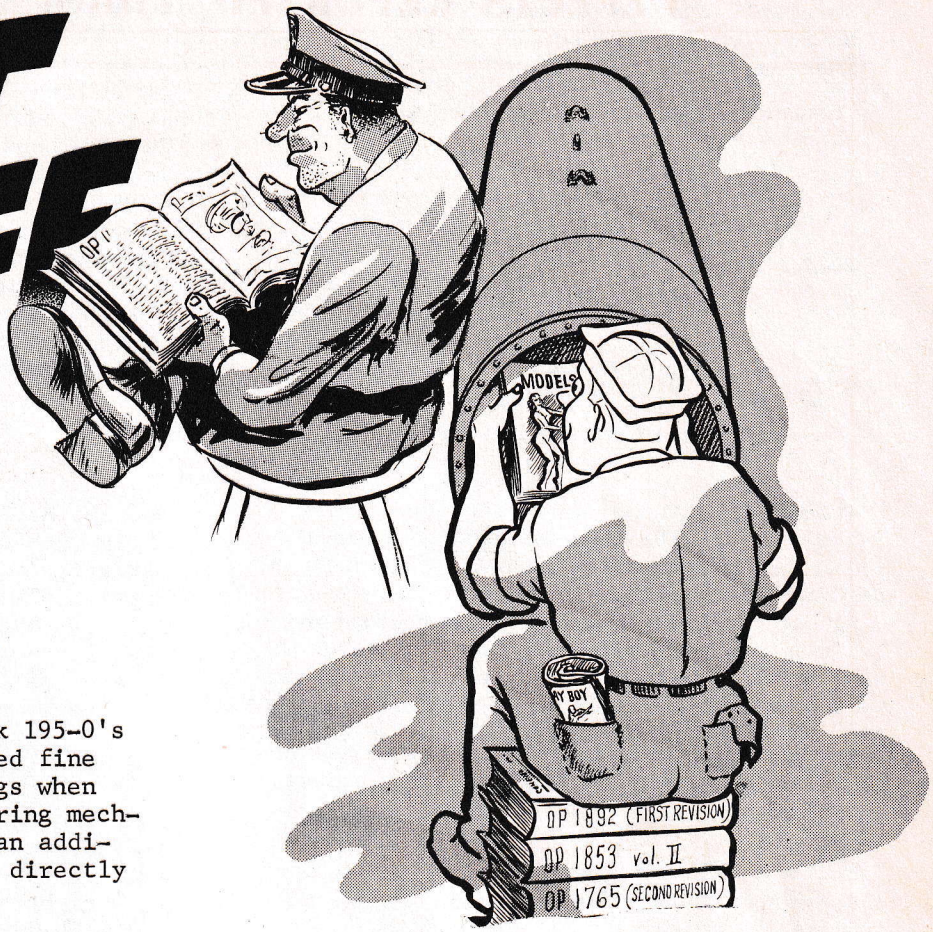
Here, then, is your latest table of defects. By the time you read it your editor will have spliced the main brace over one more issue. But good.

DEFECTS REPORTED THROUGH RUDMINDE

ITEM	USED WITH	REPORTED DEFECT	REMARKS
Actuation Counter SE-3-3	Mines Mk 25-0, 39-0, 49-0, 50-0	1. Could not back off terminal screws enough to accept CA-567's lugs even after lugs were crimped per T-Shooter 1-60. 2. Fuse wires pulled out of solder connection on ground bracket, wires unbroken	1. Probably an SE-3-3 with 5/16" screws. The drawing has been changed to specify 3/8" screws in new procurement. 2. This is a first! If others find same defect be sure to use Rudmindes.
Anchors Mk 6, 16	Mine Mk 6 all mods	Cotter pins for wheels break easily when used second time, supply does not have replacements that fit.	Order pin, cotter, steel, zinc-plated 3/16" x 1½", G4315-234-1664, listed in LD169838 for the anchor.
Battery BA-340/U	Mines Mk 52-0, 3, 4, 6 and 55-0, 3, 4, 6	Final charging current could not be brought down to RTP requirements after 168 hours of charging.	Specs in RTP (DWG 1402956 Rev E) and operating instructions for Test Set Mk 305-0 do not apply to BA-340/Us manufactured during and since 1958. Ampere readings of .018 and .035 attained with maximum charging time of 168 hours are okay. Future production will call for .012 at 168 hours.
Clock Delay Mk 18-0	Mine Mk 52 all mods	Grounding board's binding post will not accept CA-46's jack.	CA-46's "jack" is really its plug. It fits into Test Set 254's jack. CA-46's lug end should be connected to the grounding board assembly. OP 1452 3d Rev Vol 4 Instruction Sheet CD-18-0-B page 3-3 is wrong and will be corrected.
Control Unit Mk 66-0	Mines Mk 25, 36, 52, 55 all mods	Improperly packed; rubber cushions come loose from sides of container.	We'll be watching for more reports on this problem.
Diaphragms	All mines	Lately many instances of leaking diaphragms. Should we be replacing them periodically?	Replace clock-starter and extender diaphragms only when they fail prescribed tests. In all other mine and depth-charge applications replace entire item when diaphragm fails during tests.
O-Rings	All mines	Different color codes on similar O-Rings but no explanation. Does this indicate silicone treatment or lack of it?	Color code merely indicates who manufactured O-Ring, has no significance regarding silicone treatment. All are now dusted with talc to keep from sticking together, apply silicone when assembling.
Search Coil Mk 20-1	Mines Mk 25-0, 2; 27-2, 3, 4, 5; 49-0, 2	Sleeving on CA-920 split due to cold weather.	NMEF is revising DWG 1420656 and LD 296311 to specify sleeving for CA-920 which will withstand 0°F.
Slings	Mines Mks 18-0 and 6 all mods	No slings available. None mentioned in OP 693 or OD 7325	Sling Z1350-608-5447 handles up to four Mk 6 mine cases, can also be used for Mk 18 mines. If you don't have a copy of OP 2173, Handling Equipment for Ammunition and Explosives, get one. Study chapter 4.
Test Set Mk 9-1	Firing Mech M-9-1	Cannot pass inspection properly because wrong terminal designations engraved on adapter heads.	NMEF has recently completed a study of this set, is correcting this error.
Test Set Mk 217-1	Mines Mk 52-1, 4, 5, 6 and 55-1, 4, 5, 6	Audio-Frequency Oscilator Mk 8-0 damaged in shipment due to movement of its chassis.	Shipments have been stopped until preventive action can be taken.

HOT STUFF

by
B. Arnaclebutt MNC



Read it and weep

Dear B. Butt:

The scale on Test Set Mk 195-0's output meter isn't graduated fine enough for accurate readings when calibrating the Mk 19-0 firing mechanism. How about getting an additional meter added to read directly in millivolts?

T.E.M. MN2

Dear T.E.M.

The word is that the 0.25 millivolt increments on your present meter are close enough to approximate the readings in field use. Inasmuch as the 195-0 set is not used for acceptance testing, this seems to be about the best we can do.

B. Arnaclebutt

Private connections

Dear Chief Butt,

While backtracking in my notes on the Mk 25 I came across this statement concerning the SE-3: "Always ship or stow with 'L' lead connected to position #5."

Since then I've tried hard to find a logical reason since my notes came from handout sheets from the Mine Warfare School (1957) so they should be correct. Could this be a misprint?

L.L.L. MN2

Dear Three Ls,

OP 956 3d Rev tells you to connect CA-276's lead L to the SE-3's terminal 1 for preassembly tests. It follows that you should leave lead L so connected until it's time to make the operational settings. Then you may be told to move it to 5, or 6, or any other terminal.

As to the origin of your note, it was probably based on an early version of OP 956 in which the schemats showed the lead connected to terminal 5. The latest revision shows it on 6, but this doesn't really mean anything except maybe that times change.

B. Arnaclebutt

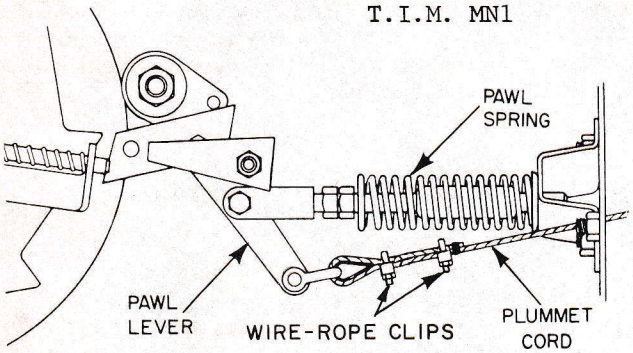
Thimble Simon

Dear Chief:

OP 1853 1st Rev Vol 1 says in step 4 on page 131 that when securing the thimble in the plummet cord, we should "Make certain the open ends of the wire-rope clips are down." I always work with the open ends of the clips up because I catch the "U"s in a vise and tighten the nuts real handy.

Shouldn't that "Make certain" business be in step 5 where we secure the shackle to the pawl lever?

T.I.M. MN1



Dear T.I.M.,

It sure should. The reason for installing the shackle so that the clips' ends are down is to keep their ends from accidentally snagging the pawl spring.

Not only have I seen these clips installed upside down, I've even seen them installed with their "U"s around the standing part of the cable. The U of a wire-rope clip—as you and I well know—should always be around the bending part, not the standing part of a cable. They're designed to hold best that way. Anyhow, figure 30 of your OP 1853 1st Rev shows the wire clips installed right except that the left-hand clip should be closer to the thimble—like we show you here.

Right now might also be a good time to tell you to be sure you set that hold-off nut like OP 1853 tells you to except when the assembly directive specifies drums locked. We've had plenty of mooring failures lately due to ignoring this part of the job.

B. Arnaclebutt

Ground beef

Dear Chief Butt:

In checking out some Mk 25-1 mines we ran into det-circuit-test troubles in over a third of them. This was because the SE-3-2's terminal A was grounded to the cases of the A-5-2 firing mechanisms, which were from NOrd 9894.

If this is the way the 25s, 36s, and 49s will be coming through, how about det-circuit tests before shipment.

T.A.K. MNC

Dear Chief,

You've made a sale. We'll be recommending that those det-circuit checks be made during initial assembly even though the activity will not be installing the detonators.

As for your unwanted grounds, the QE Labs are trying to find out how widespread they are in the A-5-2 stocks from your NOrd—whether maybe they warrant some action. Don't forget, though, that grounding is necessary in certain operational assemblies of Mines Mk 25-1, 36-2, and 49-1; the OPs actually specify a ground strap between the A-5 and the SE-3's terminal A in these.

The OPs also tell you exactly how to get rid of the ground in the assemblies where it's not needed . . . the ones that rely on the CD-12's Switch B to complete the circuit. But even in these, where a ground between the A-5's case and the SE-3's terminal A may shunt that B switch and louse up your det-circuit test and your temper, it won't introduce a hazard.

It won't cause the mine to dud either, so bear with us 'till we see what we can see.

B. Arnaclebutt

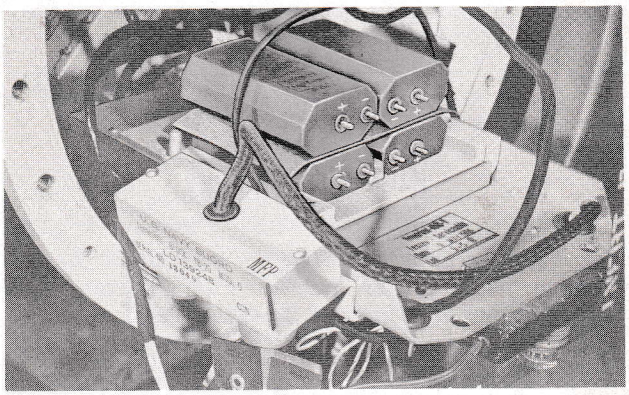
Words fails us

Dear B. Arnaclebutt:

In OP 956 3d Rev, on page 31, subparagraph m says "Place two BA-205/U batteries side by side in the depressions in the mounting block with negative terminals adjacent and facing toward the TB-20."

Here at the Mine Warfare School we've interpreted this to mean that the negative terminals should be adjacent to the TB-20 only to discover that the battery card on CA-579 won't fit correctly. Since there's no illustration in the OP to show wrong from right we have to clarify the business for each new class. Maybe we could get one of those proverbial pictures that're worth a thousand words?

A.C.I. MN2



Dear A.C.I.,

Your suggestion that an illustration be put in the OP to clear up the adjacent confusion is good. Until this gets done here's a photo of legal togetherness BA-205/U-style in a Mk 25-0 mine.

B. Arnaclebutt

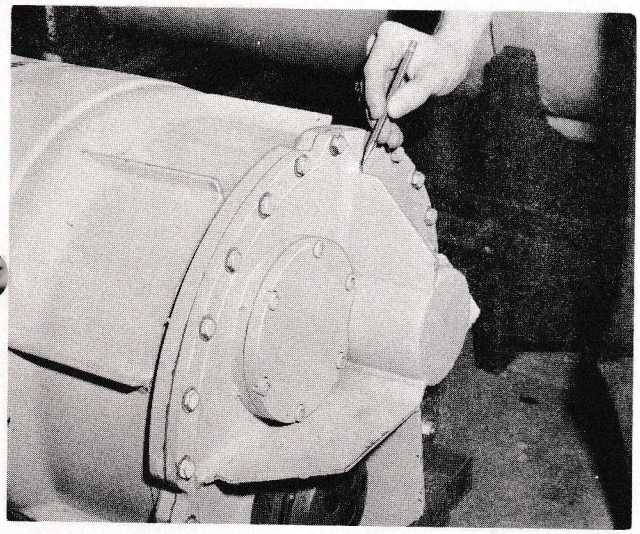
Short beef of ribs

Dear B. Arnaclebutt:

When we couldn't fit Mk 20-0 para-packs onto the tail sections of Mk 52-1 and 2 mines, we figured it was because the pack dish was too large, the fittings which join the shroud lines to the release gear weren't big enough, or maybe the ribs on the tail plate were too high. Anyhow, what we did was file about 1/16" off each rib right where the pencil is pointing in the enclosed photo.

As far as we're concerned, this did it. What do you think?

R.A.D. MN2



Dear Bob,

Your treatment looks good. Recently the drawing has been changed to reduce the ribs right where you filed and, for good measure, some metal has also been taken off the diagonal edge of each rib as well. But don't be half safe.

Wherever you do any filing, finish the job right by painting the filed areas.

B. arnaclebutt

See-worthy substitute

Dear B. Arnaclebutt:

For my money, nothing beats red Da-Glo paint on Mk 15 floats. But when I tried to get a new can Supply gave me some jazz about its use being restricted to aircraft. So what do we do now—requisition a B-70 for the mine shop?

M.D.H., MN2

Dear M.D.,

If money's so tight you can't get a can of plane red paint I doubt very much you'll be able to talk anybody into issuing you the plane. Better you should try Paint, International Orange, G8010-527-3200, which is universally approved for use on lifeboats, rafts, buoys, markers, and ships. It comes by the gallon. It's great.

B. Arnaclebutt

Screwballing the jack

Dear Barnacles:

In OP 1809 1st Rev, on page 40, the voltage polarity test of the TB-18 Mod 0 puzzles me. Am I supposed to test one or both CD-14-6s? Also, when performing this test we've turned up several unexplainable cases of reverse polarity. I've checked this out with the help of your many T-Shooter hints on avoiding RP but I still can't locate the bug. Any more clues?

G.P.E. MN2

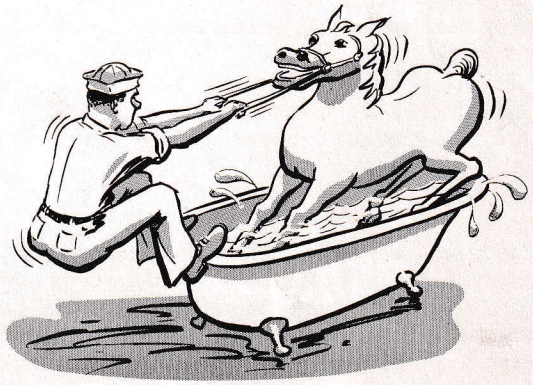
Dear G.P.E.,

The sequence of steps in the voltage-polarity test may have thrown you off. After steps 1 and 2 (for whichever assemblies you're following) you should go to step 3 in the left-hand column. Later, step 5 tells you to plug the CA-714 male into each of the clock receptacles on the TB-18, observing the voltage reading each time. Again in the current-drain test, which begins in the left-hand column, each CD-14 gets tested. So both CD-14s get tested in both tests. Okay?

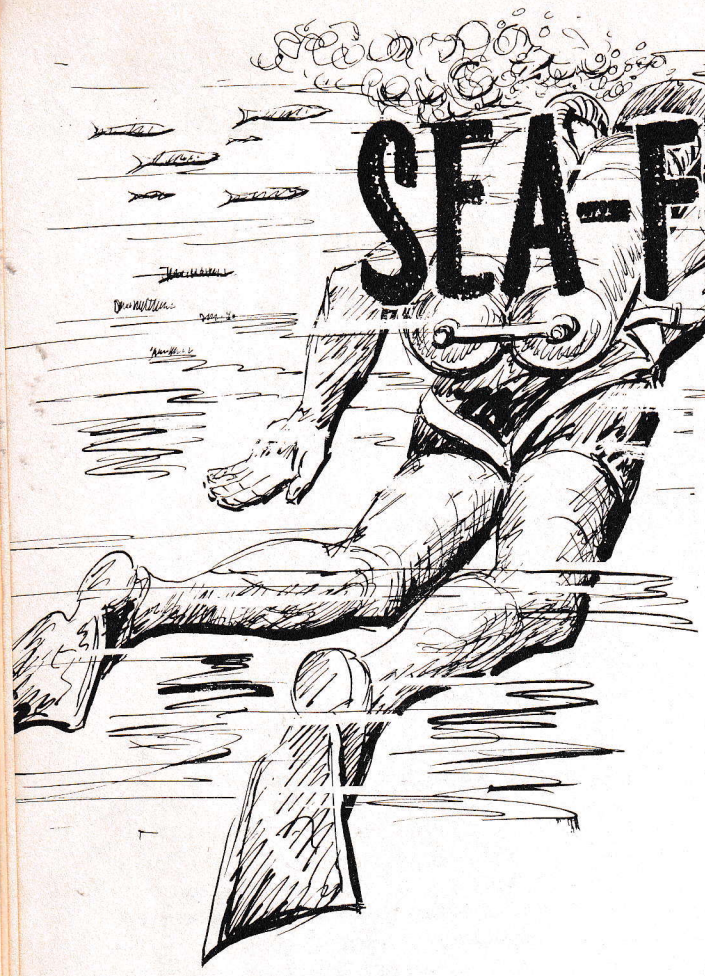
As for your reverse polarity, I duplicated your setup and checked carefully for any error you might have made. Here's a possibility: If you don't push the CA-714's phone plug all the way into the test set's jack you'll get that old RP bugaboo every time. So push that plug all the way in, keep strain off the cable, and be careful not to dislodge the plug. Then—when you complete the voltage-polarity and current-drain tests and disconnect the test set—do like you would if you found a horse in the bathtub—

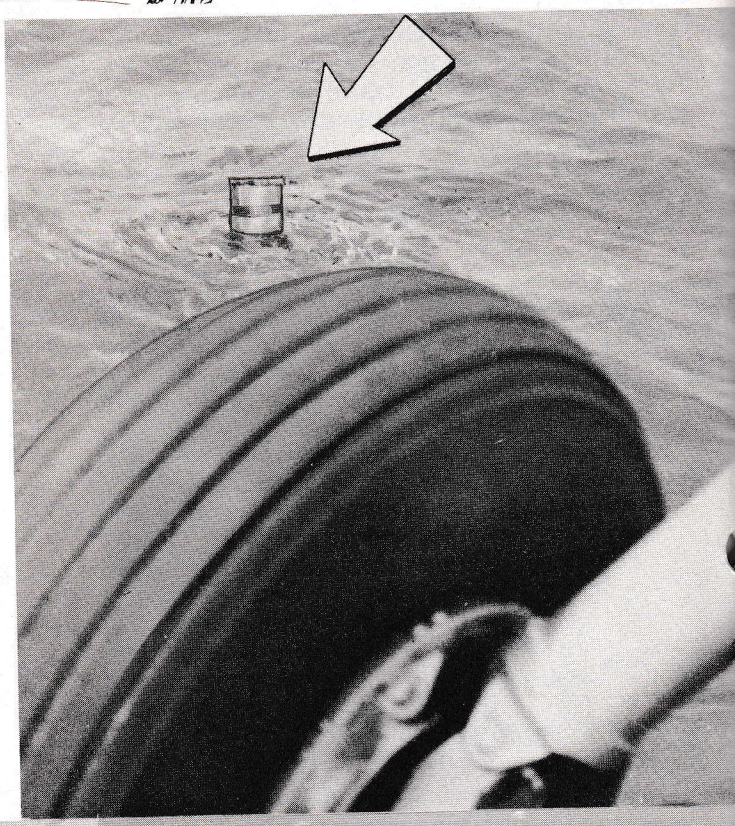
Pull the plug out!

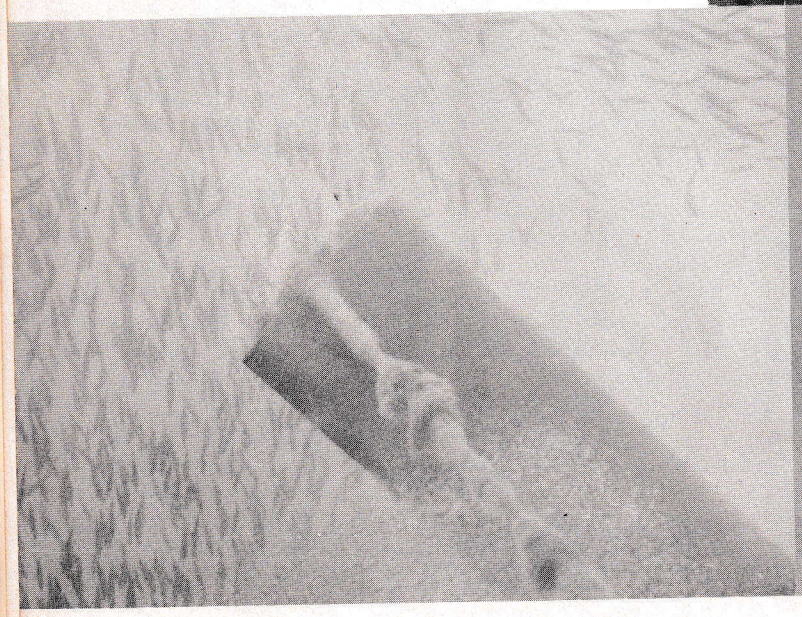
B. Arnaclebutt



SEA-FLOOR PHOTOS







may solve mine-planting problems

OCCASIONALLY pictures of the serious side of scuba diving make their appearance, such as scenes showing oceanographic teams at work, crews busy with underwater ship repairs, and rescue operations. Quite rare, however, are subsurface photographs such as these taken by John Bartleson, MN1, of EOD Unit Two, Charleston.

When two floating objects reported as "missile nose cones" proved to be Floating FSMT Mk 10 mine cases adrift (aerial photo at left) EOD divers Bartleson and Howard Cartwright BM1, also of Unit Two, Charleston, investigated.

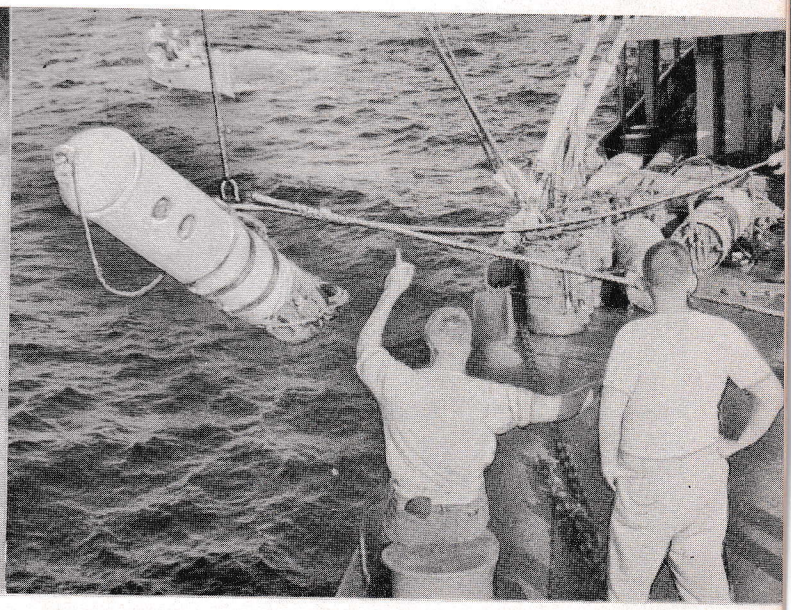
In a mine field some 30 miles from the floaters they found two Mark 10 anchors whose mooring cables had chafed through. In checking the remaining Mk 10s in the field they discovered two more with fouled (but still intact) mooring cables, and righted them. Another Mk 10 was found to be in trouble, having failed to separate from its anchor. The divers rigged this mine for recovery and the photo at the lower right shows it coming aboard. The photo lower left shows a properly moored Mk 10 about 30 days after planting.

Cartwright and Bartleson, unaided by pingers, also located and helped recover a group of Mk 39 mines that had been planted during this same test. One is shown in the left center photo; Cartwright is shown rigging it for recovery in the photo center right.

For taking the subsurface photos Bartleson enclosed a Petri f-2.8 camera in a watertight case which he fashioned from an aluminum electrical junction box. He used TRI-X film at 1/100 seconds, lens openings from f-8 to f-22, and No. 5 Press Flash bulbs for the photos of the Mk 39 mine. No underwater light meter was available so Bartleson computed his settings from top-side flash tables related to 200 ASA B/W film for a distance of 8 to 12 feet.

The shots were taken between 0900 and 1030 with the sun at the photographers back and in about 90 feet of water with light-colored sand bottom. Silt was heavy, limiting visibility to about 18 feet. Bartleson says that the photos would probably be better if he had used a lens opening of f-5 and a flash attachment while still maintaining a shutter speed of 1/100.

Another underseas shooting—with the benefit of Bartleson's experience—will undoubtedly result in even better photos. Be that as it may, our hats are off to Bartleson and Cartwright for the surprising success they had on the first go 'round. The task which these men undertook and completed on their own initiative may lead the way to eliminating many mine-laying problems that can best be solved with the help of on-the-spot underseas photography.



Millie Amps' BRIEFS

Hi again...

A lot of water has gone under the bridge since that 1-59 issue when I first put my briefs on the line. Looking back, it sure makes me feel proud to see that you men are behind me... reminds me to remind you how much I appreciate your cards and notes...how each one marks a T-Shooter reader as a man most likely to succeed.
—You bet!

Ah-Seventeen!

Here's another notation to make in the drill-gear prices on page 18 to T-Shooter 2-60: Item 29, Housing Assembly, Cutter Z1350-038-7226 can't be had for $1.10, as stated; the cost is a cool $17.00. J. V. Williams not only spotted this error but also caught the couple of others we reported in "Not so cheap" T-Shooter 1-61—and his was the first report we got on these errors. Sorry we're so late with this, Chief.

Avoid that run-down condition

F. Gilpin of MDAU 0322 points out that BA-249/Us in Drill Mines Mk 25-2 and 36-1 and 2 often are "walked" to death by the mechanism because these mines are not disarmed upon recovery. This, he feels, is a waste of otherwise re-usable batteries.

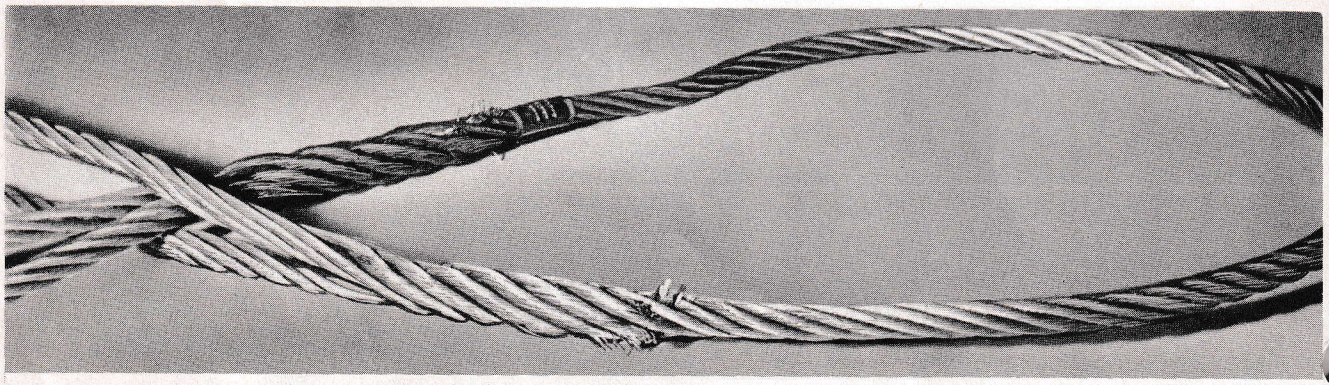
Another reported objection is that exhausted batteries frequently exude electrolyte that corrodes other mine components.

We've heard discussions pro and con about the re-use of drill-mine batteries and whether or not dead batteries leak. But we agree with Chief Gilpin.

The antidote: wind those short-time delay clocks immediately upon drill-mine recovery. The wizards here say that this should be SOP.

The naked truth

Like our friend J. S. Lorenzen says, those splices in the mine slings shipped to him look more like wire brushes. Maybe these lock-tuck splices aren't pretty to look at,



but they're what OP 2173 Handling Equipment for Ammunition and Explosives says should be used for these slings. It also specifies that the spliced ends of the sling must be left bare to permit inspection.

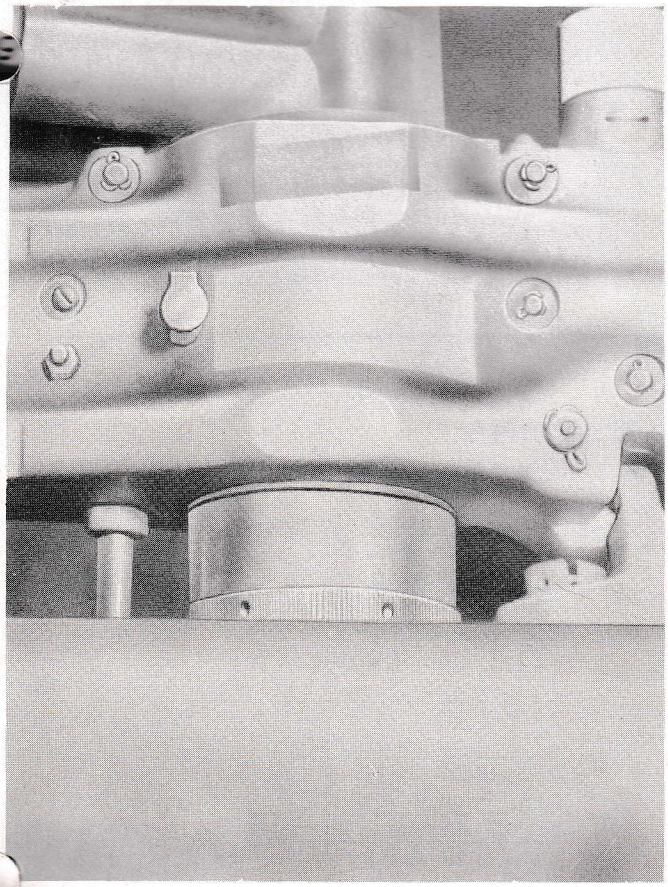
I hope J.S.L. has been able to make one of those handy universal mine carriers like M. D. Horn described in T-Shooter 2-61. It will work much better than a sling for lots of operations.

Longer is better

Whenever you remove tail plates from Mk 25-1 mine cases don't put them back with the same bolts if they happen to be only 3/4" long. Use 7/8" bolts G5305-637-4037 instead. The drawings for this case have already been changed to specify the 7/8" bolt so it might be smart to make a note of it on the Bill of Materials for Mine Mk 25 Mod 2 in your 2-60 T-Shooter, or in your General Req for this mine.

Test-set upset

An improper connection may seem okay at first, then make you pass up perfectly good firing mechanisms later on. That's what B. Busby and E. Conklin of NAD/Hawthorne tell us.



Seems their Test Set Mk 110 Mod 1 passed the operational check and voltage adjustment (per MIL-T-18580) but consistently rejected Mk 15-0 firing mechanisms. After a run of "bad" mechs, the boys got suspicious and tallied the test set's connections against DWG 399014. What they found was that, during manufacture, pin A of the J6 plug (arming-relay circuit) had been connected to R42 instead of to R86, and C15A (reset-relay circuit) had been connected to R86 instead of to R42.

Mighty fine teamwork, mates!

Heaven knows I try

After reading an article in Navy Times about a Field Service Team (now there's a job that intrigues!) Ensign L. M. Stryker, Mines Officer at Navy 3867, wrote a much-illustrated straight-talking letter to OSO that made me feel all warm deep down inside. It was that good.

What got his dander up—like it did many another T-Shooter reader—was some newly announced and surprisingly high prices on certain pieces of mine gear including the expendable knick-knacks used with Float Mk 15.

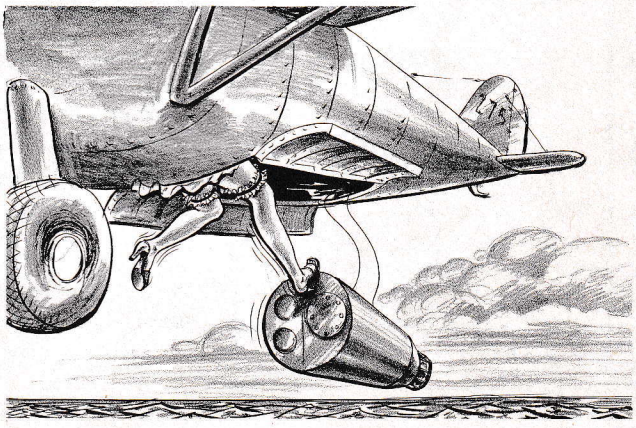
So I say goodo for friend Stryker, and also for OSO who have since had some of the prices reduced. In these days of creeping inflation it's the patriotic duty of every last one of us to do all we can to keep costs down!

Sure-footed switch

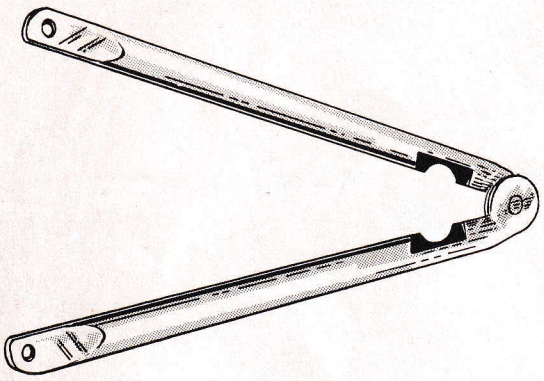
While installing Mk 39 mines in A3D aircraft for a Fleet Service Mine Test R. Turetz, MDAU 0323, noticed that the feet of the Aero 7A Ejector Racks were overextended because they were resting on the 14-inch suspension lugs' recessed pads. The black line on the foot—design extension limit—was visible when the feet were in contact with the mines.

Turetz suggests that a 1/4-inch metal pad be secured to the case between the 14-inch suspension lugs to prevent. A simpler solution—and one that works like a charm—is to put the 39's suspension lugs back in the 30-inch position where they're normally found and where they should stay when the 7A ejector is used.

Millie Cups



CONTRIBUTIONS FROM THE FLEET.



E.L. McMILLEN of QEL Keyport sent us a helpful Rudminde concerning the problem of removing tight acorn nuts from the potentiometers of A-8-0 firing mechanisms. The easy-to-make clamping tool he designed for holding the pot shaft while the nut is removed is also useful for installing the nut without having to remove the electrical component and cover from the mechanism.

The tool is made from 7/16" x 5/32" steel stock. Any semi-hard material such as fibrous phenolic resin can be used for the inserts. When the tool is closed, the hole through the inserts should be 5/32".

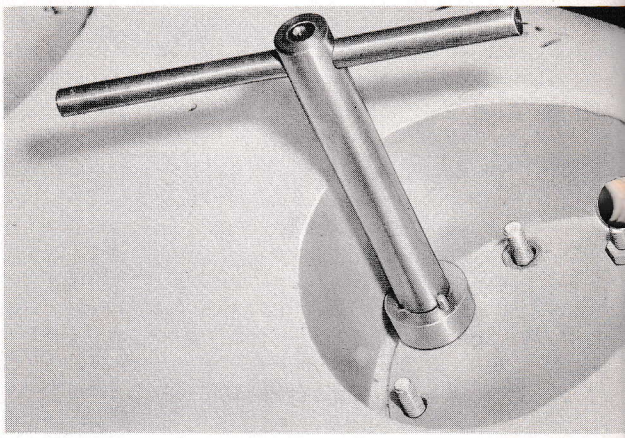
Thanks, E.L.M., for your practical suggestion for coming to grips with a really bothersome problem.

A note of caution: Glyptal or other sealing cement should be used only on the adjusting screws of pots that have non-locking bushings. Do not use cement on pots having self-locking bushings...even though someone else may have done so previously.

A. A. HAPPEL MNC of MCAF Navy 955, sent us some scoop on an excellent tool for chasing the threads on extender and clock-well studs.

Actually there's an easier way: just get a 3/8"-16 die rethreading, G5136-237-8270; pop it into a 25/32" socket from your basic tool set, snap on the speed wrench, and there you are! And if this makes it seem like we're detracting from the Chief's idea, we're not. Almost anyone can think once he gets started, but self-starters like Happ are rare.

So good going, Chief. Taking the start you gave us, we'r recommending that BUWEPS include re-threading dies in the basic tool set for mines. Thanks a lot.



STARTING DATES

OFFICER COURSES

Aviation Mine Warfare Familiarization (3 weeks): 14 Aug, 13 Nov, 1961; 19 Feb, 14 May, 1962

Aviation Mines Maintenance (9 weeks): 12 Mar 1962

Submarine Mine Warfare Familiarization (2 weeks): 24 Jul 1961; 8 Jan, 23 Apr, 1962

Submarine Mines Maintenance (7 weeks): 2 Apr 1962

Introduction to Mine Warfare (Senior Officer) (1 week): As requested

Surface Mine Warfare Familiarization (3 weeks): (Includes 14 day Reserve Training - Counter Measures) 3 Jul, 7 Aug, 4 Sep, 2 Oct, 30 Oct, 27 Nov, 1961; 8 Jan, 5 Feb, 5 Mar, 2 Apr, 7 May, 4 Jun, 1962

Prospective Engineering Officers (5 weeks): 24 Jul, 25 Sep, 30 Nov, 1961; 19 Feb, 23 Apr, 1962

Mine Warfare Staff Officers (24 weeks): 26 Jun 1961 8 Jan 1962

Mines Maintenance (20 weeks): 21 Aug, 20 Nov 1961 12 Feb, 14 May, 1962

Minesweeping Officers (8 weeks): 24 Jul, 25 Sep, 20 Nov, 1961; 19 Feb, 23 Apr, 1962

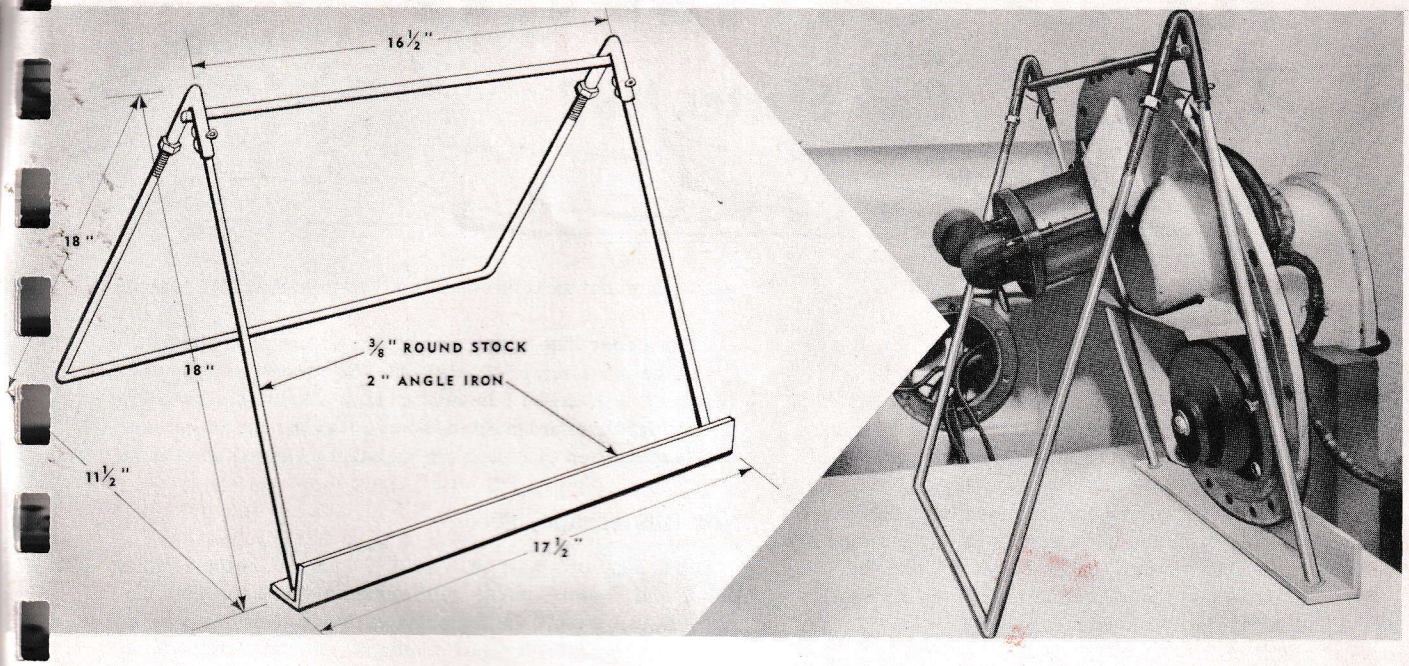
Degaussing - Ranging and Deperming (8 weeks): 4 Sep 1961; 5 Feb 1962

Degaussing - Shipboard Installation & Repair (3 weeks) 30 Oct 1961; 2 Apr 1962

Magnetic Compass Compensation (Officer & Enlisted (3 weeks): 10 Jul 1961

Senior Friendly Allied Officers (9 weeks): 11 Sep 196

Unit Commanders Familiarization (6 weeks): 3 Jul, 2 Oct, 1961; 8 Jan, 2 Apr, 1962



NEW WEAPONS are sure to mean new problems to be solved, and Mines Mk 52 and 55 are apparently not exceptions. Last issue we gave you Mine Project 4's smart art for handling those hefty instrument racks. Now we have a crackerjack rack for parking those bulky tail-plate assemblies, courtesy of Harry F. Bright, MN2 down at KWESTEVDET.

Not only does Harry's portable easy-to-build rack keep the tail-cover components from getting banged up, it also prevents strain on the instrument cable and makes testing a somewhat easier task. For instance, using this rack you can install the test pot over the pressure detector in Mod 6s for your operational tests without having to hang the tail-cover assembly on the tail of the mine.

The illustrations show how the rack is made and used. The nuts on the back rods make the rack adjustable and the large cotter pins in the front rods give the right height for the cross rod that's welded to the A-frame headers. The headers appear to have been made by heating and bending short lengths of pipe.

Another very fine feature: Bright's crackerjack rack can be disassembled for convenient stowage simply by slipping the legs out of the headers. Just right!

MINE WARFARE SCHOOL

ENLISTED COURSES

Mineman Class A (15 weeks): 31 Jul, 25 Sep; 8 Jan, 2 Apr, 14 May, 1962

Mineman Class B (20 weeks): 21 Aug, 20 Nov, 1961; 12 Feb, 14 May, 1962

Aviation Mines Assembly Class C (9 weeks): 12 Mar 1961

Electrician Mates Ranging & Deperming Class C (7 weeks): 23 Apr 1962

Minesweeper Automatic Degaussing Class C (5 weeks): 3 Jul, 28 Aug, 1961; 8 Jan, 19 Mar, 18 Jun 1962

Minesweeping BM Class C (6 weeks): 10 Jul, 9 Oct, 1961; 12 Mar, 7 May, 1962

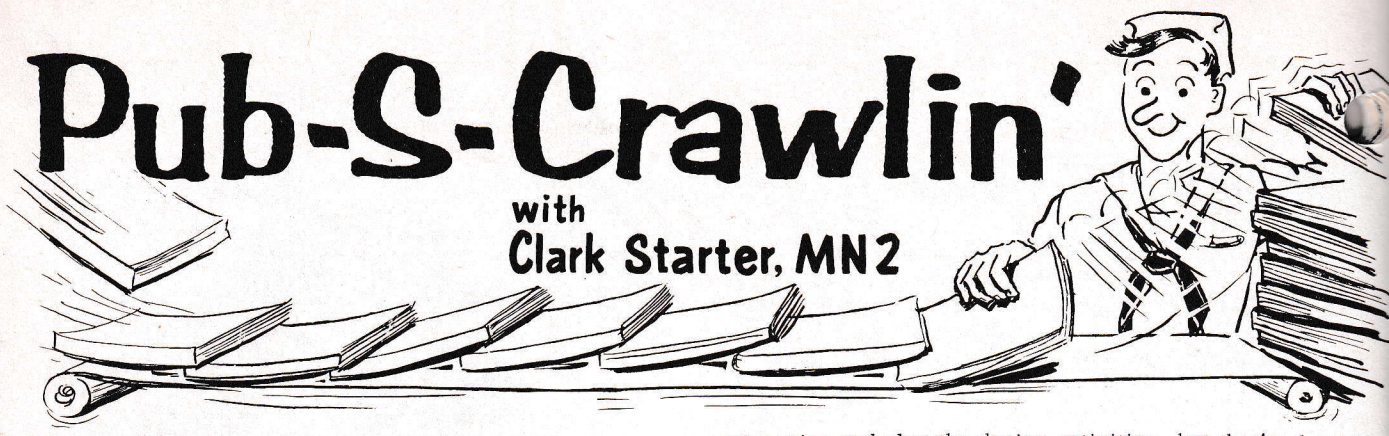
Minesweeping EM Class C (11 weeks): 2 Oct 1961; 8 Jan, 9 Apr, 1962

Submarine Mines Assembly Class C (7 weeks): 2 Apr 1962

Mine Assembly Refresher (Officer & Enlisted) (2 weeks): (Includes Reserve Mineman (Class B) and reserve Mines Maintenance Officer) 17 Jul (Unit VI-Mine MK 52 and Mods), 14 Aug (Unit VII-New Mines), 11 Sep (Unit I - Contact Mines, Mag. Theory, Dip Needle Mines and Depth Charges), 9 Oct (Unit II-Non Elect. and Controlled Mines), 13 Nov 1961 (Unit V-Pressure Mag Mines); 8 Jan (Unit VII-New Mines), 5 Feb (Unit III-Elect Induction & MK 27 Mines), 5 Mar (Unit IV-Accoustic MK 50, MK 53 Mines), 16 Apr (Unit VII-New Mines), 25 Jun 1961 (Unit VIII-Drill Mine Systems)

Pub-S-Crawlin'

with Clark Starter, MN2



OP Production Problems Resolved

Last issue I told you that manuscripts for new OPs on the Mk 49 drill mines were being forwarded to BUWEPS for printing and were expected to be in print by the end of the year. Since then a conference on how to get new pubs out faster was held, with representatives from NMEF, NOL, and BUWEPS.

The result—and it's all to the good—is that the entire system of printing prep has been streamlined, starting at once with those Mk 49 drill-mine books. Since they're the first, chances are that distribution will not be earlier than we had said. But from here on in it looks as though processing will be from 9 to 18 months faster than it has been in the past.

Advance Copy Distribution Limited

Another excellent decision, reflecting back to my last column, was that Advance Copies to OPs will henceforth be prepared, but only for use by OPTEVFOR in evaluating new mines or depth charges before their acceptance for fleet use. Chances are the Mine Warfare School will also get copies and also the design activities, but that's about all.

This means that when you get a new manual in the future it will be an official BUWEPS OP. So what about the preliminary editions—the books that look official on the cover but the letter of promulgation says they're not? The conference decided that such books will be issued no more.

New Bibliography Soon

Draft copy of a new BUWEPSINST 08500.1—the official Mine and Depth-Charge Bibliography—has just been approved, so should be in print in a month to six weeks.

Among the bibliography changes: in spite of the fact that both are available only in unofficial preliminary editions, that not all activities have them, and that no more copies are available anywhere, OPs 2608 (Mine Mk 52 all mods) and 1118 (loading mines in aircraft) are approved for official use pending distribution of new editions as official BUWEPS OPs.

So make sure you get a copy (through your Naval Supply Center) of this one authoritive guide to the proper books to use in assembling your depth-charges and mines.

▶ **OD 10000 (Mines Mk 25-2 and 36-3):** Figures 22 (top left) and 30 (top center) should show the SR-9 switch closed.

▶ **OD 7333 2d Rev (Mine Mk 39-0):** On sheet 33, after Item 240.0 in the Description column a No. 8-32NC-2x$\frac{1}{4}$" screw is listed. This screw is too short. A No. 8-32NC-2x5/8" screw will do the job. In the General Arrangement column the number for the short screw is ~~12-7-1081-142~~. To get the screw you need use G5305-043-6696. MS 35224-4C

▶ **OD 12067-D 1st Rev (~~All drill mines~~ Depth Charge):** On page 10, item 6 should be listed as Set, Test, Depth-Charge, Mk 2-1, F/Pistol and Booster-Extender Mk 6-0, 1, 2, and F/Depth Charge Mks 6, 7, 9 and Mods, DWG 180385.

▶ **OP 948 1st Rev (Mine Mk 10-3, 7, 9):** On page 28, in paragraph 2 under Hydrostat, 23 ± $\frac{3}{4}$' should read 32 ± 5/8'.

▶ **OP 956 3d Rev (Mine Mk 25-0):** Page 55, step 1 of paragraph 52, should be changed to read DET 2 where it now reads DET 1, and DET 1 where it now reads DET 2.

▶ **OP 1736 2d Rev (Mine Mk 39-0):** On page 20, in paragraph 3 under SE-3 Mod 3 Mechanism, 43-S-15696 refers to a screw that is too short. G5305-043-6696 will get you the screw you need.

▶ **OP 1765 2d Rev (Mine Mk 25-2):** Figures 13 and 14 (top center) should show the SR-9 switch closed.

OP 1798 2d Rev (Mine Mk 36-2): Figure 12 should designate a No. 10-32NF-2x3/8" (not No. 10-24NF-2x3/8") screw.

▶ **OP 1807 (1st Rev):** On page 35, under Firing Mechanism Installation, the end of paragraph 3 should refer to the top of the firing mechanism. Figure 16 should show the unfelted ends of the three wooden spacers facing outward. The same errors are in Item 16 (back cover).

▶ **OP 1844 1st Rev (A-6 and A-8 Firing Mechs):** Figures 12 (bottom center), 15 (top center), and 23F (center) should show the SR-9 switch closed.

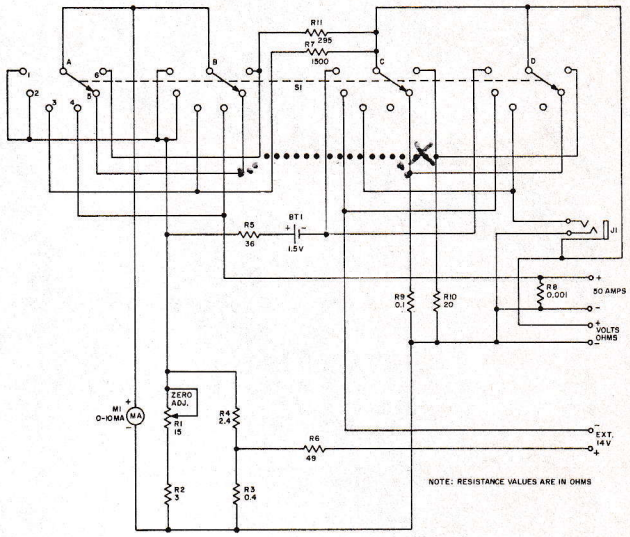
▶ **OP 1892 1st Rev (Mine Mk 36-3):** Figure 4 (top center) on page 7, and in Items 10 and 19 in the back of the book, should show the SR-9 switch closed.

▶ **OP 2363 Adv.Copy to Vol 2 (Mine Mk 27-4):** If you've put Change 2 in this book you will have omitted the following write-in corrections from Change 1: On page 19, figure 6, the color code of CA-308's WH+lead should be YEL +, and its YEL+ (battery jumping) lead should be WH +. Also a lead from CA-306 to the M terminal of the firing-mechanism section of TB-11 should show in figures 16, 22, 25, and 28.

▶ **TROUBLESHOOTER No. 4-60:** On page 12 in the third paragraph of "Flying saucers yet" the first DWG number should be 383630-4.

On page 15, after OP 1452, the first sentence should read Turn to page 139, col. 2. After OP 1844 the reference should be to page 34M, not page 34.

▶ **OP 1860:** If you happen to have a copy of the preliminary edition of the 1st revision, Vol 1, figure 4-11 on page 4-18 should have a solid line for connection between switch B's contact 5 and switch C's contact 5 as shown below (short dotted line).



DANGER BELOW

During the mine-hunting phase of a recent exercise two EOD divers located a Drill Mine Mk 25 Mod 2 whose recovery float still contained a live signal and explosive-fittings. It was floating normally—about four feet above the planted mine—attached by its nylon line and electrical cable CA-958.

When one of the divers began to cut through the cable with a knife to free the float, the cutter explosive fitting fired. The detonation—thanks to the same shock-wave phenomena that make relatively small mines so lethal against stout ships—dazed both divers.

In reconstructing the accident it appeared that the recovery clock's (CD-12's) B switch had closed, thereby placing positive polarity on one of the cutter explosive fitting's leads. Then, because negative polarity existed on one of the signal explosive fitting's leads, it was possible for the blade of the diver's knife to close the circuit to the second lead of the cutter explosive fitting, thereby causing the cutter fitting to fire.

Fortunately the hazard of accidentally firing either or both the explosive fittings used in these floats when the CA-958 may have to be cut can be eliminated in the course of mine assembly. To do it the following changes should be made to OP 1816:

▶ OP 1816 Adv. Copy to Rev 1. In figure 26 both the drawings for Mk 25-0 should show CA-23's lead 6 (black w/tracer) connected to the TB-19's -terminal, and CA-23's lead 8 (green w/tracer) connected to the TB-19's +12 terminal.

The drawing for Mk 25-2 should show CA-23's lead 6 (black w/tracer) connected to the TB-18's G terminal, and CA-23's lead 8 (green w/tracer) connected to the TB-18's H terminal.

The drawing for Mk 36-1 should show CA-23's lead 6 (black w/tracer) connected to the TB-8's D terminal, and CA-23's lead 8 (green w/tracer) connected to the TB-8's adjacent + terminal.

The drawing for Mk 36-3 should show CA-23's lead 6 (black w/tracer) connected to terminal 7 on Control Box Mk 15, and CA-23's lead 8 (green w/tracer) connected to terminal 2 on Control Box 15.

You should also know that figure 21 (functional wiring diagram) is not common to all the Mk 25 and 36 drill mines. Correct diagrams would show:

Mk 25-0—No sterilizer switch. (Sterilizing function is handled here by shorting out a different battery, the 141-volt section of the BA-239/Us).

Mk 25-1—No sterilizer switch. (Sterilizing function is handled here by shorting out a different battery, the 135-volt section of the BA-241/U).

Mk 25-2—Battery + to the left (connected to CD-12 switch C).

Mk 36-1—Battery + to the right (connected to CD-12 switch B).

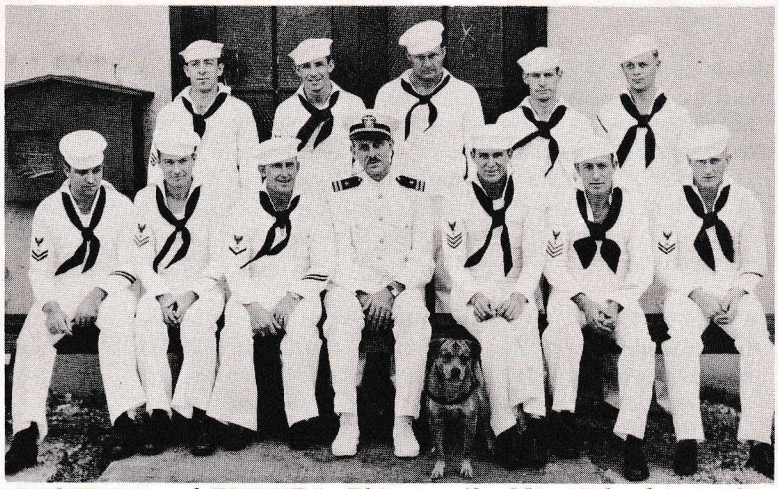
Mk 36-2—No sterilizer switch. (Sterilizing function is handled here by shorting out a different battery, the 135-volt section of the BA-341/U).

Mk 36-3—Battery + to the left (connected to the CD-12 switch C).

There is a new 7-volume revision to OP 1816 in the mill in which each of these changes has already been made. Meanwhile—considering the effect of ignoring the facts—we say Go Thou and Do Likewise in the books which ye now have.

I remember MINE SCHOOL

by
Foxy (F.C.) Fisher



"BROWNIE" and FRIENDS: This was the Mine School in early 1937, complete! From left to right, back row: F. C. Fisher (me), McStay, ?, Rubottom, ?. Front row: ?, ?, Frank Lowe, Lt. Maneese, Brownie (her snoring during lectures kept the rest of us awake), ?, ?, and Horton. Sorry for the ?s, mates. It's only the names that have been forgotten.

I guess you might say we were the class of early '37. There was another class later that year. You see, back in those days there'd been only one class before ours, the deal being that they'd set up a class whenever enough men could be made available. In the class of late '37 we even had a couple of officers enrolled. I say "we" because at that time I transferred aboard the OGALALA as assistant instructor and staff member of the flag.

Actually, the school had started as a sort of private institution organized at Pearl Harbor by Commander Mine Force Pacific and was officially called The Minecraft Mine School. Nevertheless it was the only mine school in existence. And not only was OGALALA COMINPAC's flagship and our only heavy mine layer back in those days, she also had the added distinction of having taken part in laying the famous 100,000-mine North Sea Barrage during WWI.

Under the OGALALA were the BREESE, RAMSEY, MONTGOMERY, and GAMBLE (my former ship). These were four-piper DMs. There were also four AMs (actually oversized sea-going tugs) the WHIPPORWILL, QUAIL, LARK, and PERIGRIN. These nine ships made up the entire United States Mine Force. In 1939 the DMs SICARD, PRUIT, PREBLE, and TRACEY were added.

Enrollment for the Mine School was selected from these ships. Occasionally gunners from visiting ships would attend the school for two or three days to familiarize themselves with mines and thus improve their chances for rating advancement. All minemen at this time were classified as gunners mates whose assigned duties involved mines, depth charges, and diving.

The School's O-in-C and lone instructor was Lt. Maneese. His primary duty was Mines Officer, CMFP. He was replaced in late '37 (at the end of his tour of duty) by Lt. Frieburghouse who was in turn replaced by Lt. Spofford who remained until all operations underwent some mighty big changes on Pearl Harbor Day.

Classes were held in Building 427 located on Magazine Island (Pearl's former NAD) which was connected to the mainland by a causeway running back of the submarine base. Most of the men "boarded" in a free-wheeling fashion right in the "schoolhouse."

Teaching was done in a straightforward manner with lectures and "explanations" in the morning followed by practical work in the p.m. Classes lasted for three months. Before graduating the men would assemble, plant, fire, recover, and recondition some 10 to 20 drill mines. The planting site was Lahini Roads.

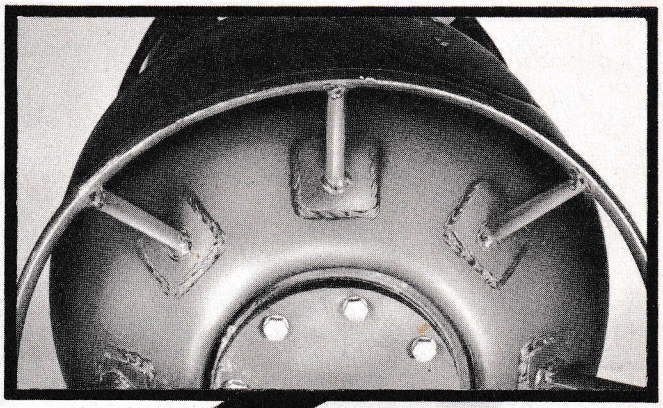
We had no fancy tools to work with. Recovered mines were manicured with hand wire brushes, scrapers, and emery paper. We cleaned, greased, and rewound cables (often 250 feet long) using a jury rig which boasted a beat-up electric drill with a weird and wonderful speed-reduction arrangement. A 50-lb dead weight on the end of the cable provided the necessary braking action. We hoisted mines by hand-operated chain falls.

Our stable of mines consisted of Mk 6s—including chain moor and lower antenna, Mk 7s—the now obsolete drifting mine, Mk 10s—with electro-chemical horns, and Mk 11s—especially built sub-laid mines for the ARGONAUT, largest in the Navy at that time. Shortly after World War II began she was stripped of mine gear and became a Marine Commando craft.

The Mine School schedule (page 13, this issue) is a far cry from our pioneer curriculum. But I'll bet my next month's pension check you'll find that plenty of today's know-how dates back to our cavalier contributions of the dirty and rugged '30s. Of course there were other interests than those four active mines...

—Anyone remember those horseshoes? Those blackjack games? That wild brand of poker?

Do You do this Job Right?



HOW TO LENGTHEN YOUR LIFE

We still get reports about Mk 9 Mods 2 and 3 depth-charge cases leaking TNT exudate because cracks develop where the nose-ring support brackets join the case. This is dangerous, and a surprising number of T-Shooter readers seem to be in a quandry as to what they should do about it.

The first thing you should know is that the only Mk 9 case still considered acceptable for fleet use is the Mod 4. What makes this sticky is that some Mod 2 cases are actually Mod 4's that have been redesignated Mod 2. Fortunately it's easy to tell which are which: the good Mod 2s, (the ones that were formerly Mod 4s and are still approved) have pads where the nose-ring supports are welded to the body of the charge (see illustration). These cases should have the word MODIFIED added at the right of the other stenciled markings, 1-inch high, in white letters per MIL-STD 709, exactly as shown. If you find some with pads that don't have the word, paint it on.

As for any mod 2 cases that do not have pads under those nose-ring support brackets they should be disposed of right now. Your authority and instructions are to be found in BUWEPS Message DTG P 152141Z of March '61.

Briefly, if afloat, the charges should be off-loaded at your nearest ammo depot and replaced with Mk 9 Mod 4s. If at sea (at least 10 miles offshore) you can deep-six 'em in 500 fathoms or more provided there'll be no great reduction in your state of readiness as a result. If there will, report it to your Operation Commander, CNO, and BUWEPS first, then wait for instructions. In any case you shouldn't lift the cases by those weak-in-the-knee nose rings, and it follows that you should not henceforth accept any more mod 2 or mod 3 cases from an ammo issuing activity.

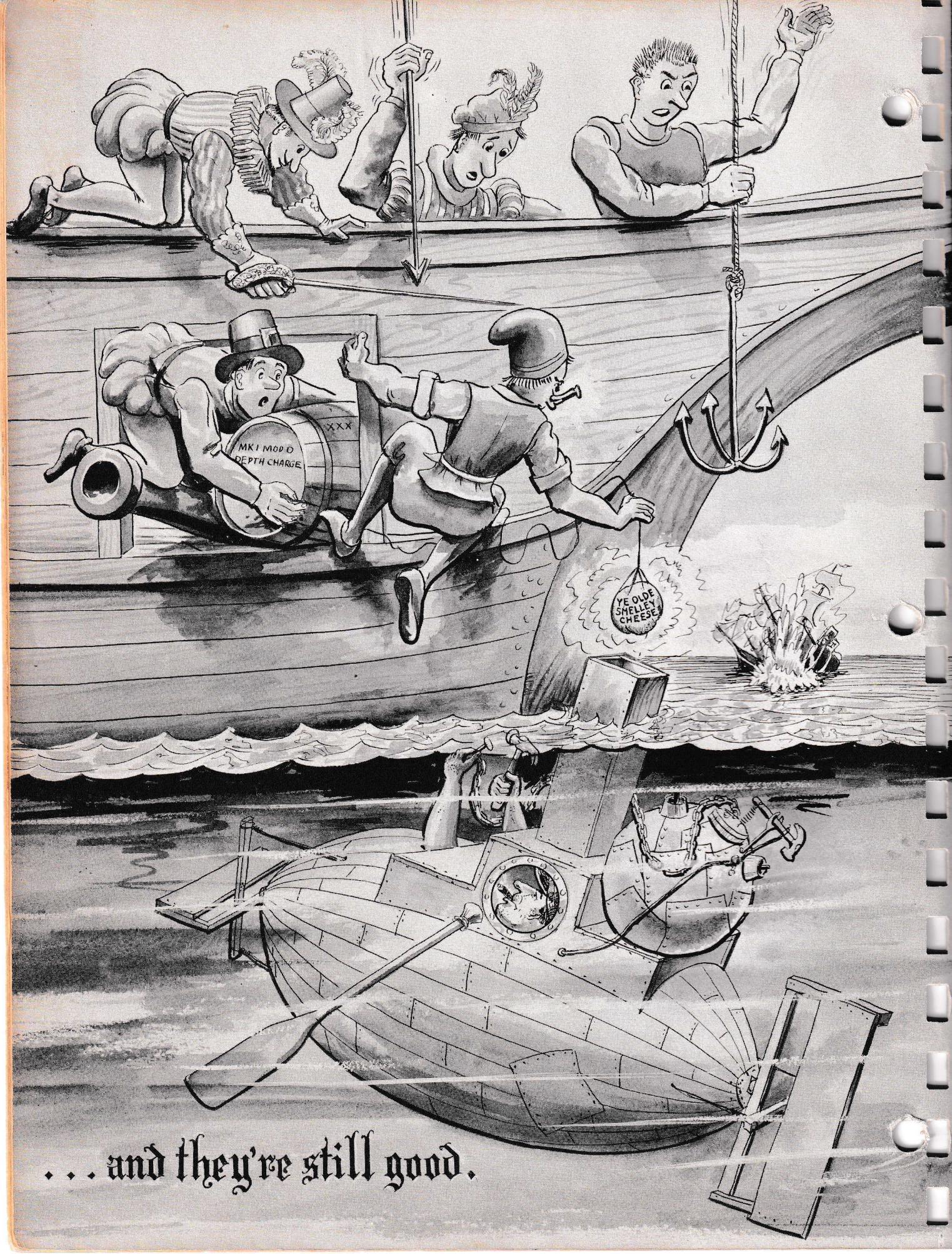
So much for that. Now let's consider what's to do when you find you're stuck with one or more leakers. First, make no mistake about that TNT exudate being dangerous. It's flammable, and it becomes explosive if mixed with wood chips, saw dust, cotton waste, or similar combustible material. First, then, get the leaker away from other loaded cases.

Next, clean up the exudate. For this clear hot water is good. So are acetone or alcohol as long as there's good ventilation and no chance of sparks or fire.

But never—repeat, never—use soap or other alkaline preparations. They usually contain hydroxide, caustic soda, or potash, very small amounts of which can make the TNT extra sensitive. And do not, under any circumstance, scrape the paint off non-leaking mod 2 cases to find out if the welds look okay.

—That could be your last scrape.

the Editor



. . . and they're still good.