

*mine and depth - charge*

# THE TROUBLESHOOTER

- ▶ How To Order OPs
- ▶ CD-18 Rundown Explained
- ▶ More Gear Obsolete



**AN OFFICIAL BUWEPS PUBLICATION**

*in this issue . . .*

*mine and depth - charge*

# THE TROUBLESHOOTER

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COVER PHOTO: L. L. Chrisman, MNSN, tests TB-21s at Navy 3867 before installation in Mk 36 mines for FSMT CNAP 7-63. Not only did Chris do an exceptional job of manufacturing a 36, he has also made third since picture was taken. And how come a fourth T-Shooter cover pic from 3867? Easy. They take lots of pix!

1 JULY 1963

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

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

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**THE OFFICIAL JOURNAL OF THE RUDMINDE PROGRAM**

# RUDMINDE REPORT TO THE FLEET

## What's Been Reported?

## What's Being Done?

### TEST-SET CALIBRATION INSTRUCTIONS

The trouble with most jobs — the kind you need someone else to do for you, that is — is the uncomfortable fact that they take time and cost money. And the job of producing ICPs is no exception.

ICP means Instrument Calibration Procedure, and the day may well come when we'll have an ICP for each test set. Meanwhile, though, there's OP 1860. And from the flood of messages, letters, coast-to-coast phone calls, and Rudmindees that have recently enveloped ye T-Shooter ed, it's obvious that all hands need some enlightenment on the status of this book.

"NAWWEPS OP 1860, Rev 1, Vols 1, 2, and 3" states Rudminde 42-63 from DMPF, COMINPAC, "does not contain calibration procedures for all mine test sets."

In Block 45 (Recommendations and Remarks) this Ruddy Rudminde concludes: "complete calibration instructions (should) be published and distributed to all commands and activities which have to comply with BUWEPS FLTREAD-PACINST 4355.1A."

—And so they should.

Unfortunately, though, the first revision to OP 1860 is not only incomplete but is also out of date. T-Shooter 4-62 (page 12) explained that NOL, which is producing 1860, decided to go into a second revision without completing the first . . . that volume 1 of the second was distributed in September 1962 . . . that volume 2 of the second would be distributed piecemeal between August '62 and January '63 . . . and that volume 3 of the second would get out piecemeal (by piecemeal we mean a few chapters at a time) between June '63 and June '64.

Now that's all fine as far as it goes but it leaves quite a lot still to be said. One problem is that some who got parts of the first revision haven't received parts of the second. Another is that some who've received parts of the second haven't received the parts of the first they need to use with them. Another is that people not equipped to calibrate have received parts of one or the other revision while people whose missions require that they calibrate have not.

Still another problem is that there are apparently no more copies of any portion of either revision available anywhere for issue.

### HELP ON THE WAY

Until such time as ICPs may be prepared, the Meteorology Department of BUWEPSREP, Pomona, which heads up the entire Navy Calibration System, has agreed to accept the three volumes of OP 1860 as a satisfactory reference for laboratory calibration of mine and depth-charge test sets. And to see that those who need it get it, NMEF is going to reprint all known copy for the second revision this month (July) and distribute it to all labora-

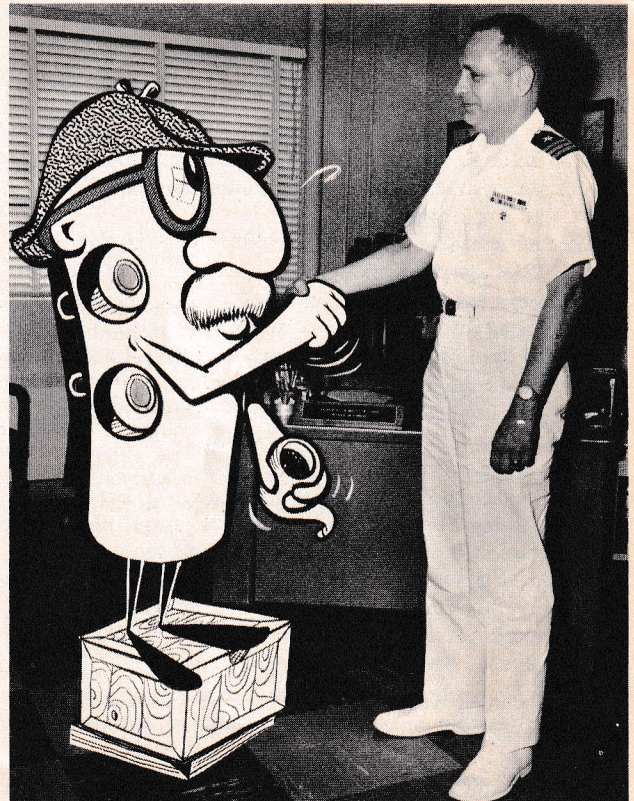
tories which are equipped and approved to calibrate the sets.

Copies of these reprints will also be stocked at NSD/Philadelphia, but that doesn't mean just anyone can get them. OP 1860 is specifically intended only for calibration labs. We feel that it is not required as a general reference at field activities and it will therefore not be so issued.

Next question is where the labs can get calibration instructions for test sets not yet covered by the 1860 second revision. For these, NMEF, is publishing informal Calibration Data Sheets this month (July) which will also be distributed to the calibration labs only. These sheets will not be stocked at the NSD. They become self-canceling upon publication of appropriate ICPs or of 1860 chapters that are still to be written.

### ANOTHER PUB NOT FOR ALL

Following the recent publication of change 1s to volumes 2, 3, 4, and 5 of OP 2637, BUWEPS will soon publish a



CDR F. F. Jewett II, NMEF's O-in-C, congratulates A.S.W. Mineright on recent assignment to T-Shooter staff. For a sample of Mineright's unrelenting pursuit of a Rudminde crime, see page 10.

### WATCH YOUR RUDMINDE

Take a good look at that RUDMINDE before you send it. If it contains classified information stamp it CONFIDENTIAL, stamp any other classified material that you plan to send with it, and turn it over to your command for transmittal to NMEF in accordance with security regulations.

Don't overlook this word to the wise!

new first revision to the first volume of that OP. Together, the new volume and the recent changes make all five volumes an official and complete work which supersedes ORD 696 as well as the various individual OPs on the operational characteristics of various mines.

Entitled Operational Characteristics of U. S. Naval

## CHARGING TIME FOR BA-340 U EXTENDED

A new procurement lot of Batteries BA-340/U has been accepted into stock even though some of them required up to 13-1/2 days charging time vs the normal 1 to 7 days. BA-340/U is the special battery that supplies voltage to the pressure detector in Firing Mechanism Mark 22 Mod 0.

One reason for taking 13-1/2 days to charge could be the size of the silver particles used in the BA-340/U's cells. The earliest production lot had particles of from 5 to 7 microns and the specification of 7 days charging time was based on tests of these batteries. But the manufacturing specs state that silver particles measuring from 1 to 10 microns are acceptable, and the manufacturer of the lot under discussion used particles ranging in size from 1 to 3 microns.

Another possible cause is a condition called "overvoltage." Test instructions call for adjustment of the test set's meter for an indication of 1.12 volts, in which case actual voltage will likely be between 1.09 and 1.15 volts. Now field data indicates a tendency for the actual voltage to remain on the high side of this reading, and with 1.15 volts being impressed on the battery current drain will be acceptable at 25 milliamps or less.

From what we've learned, then, it's going to be necessary to revise the instructions for charging Batteries BA-340/U. Using Test Set 305 Mod 0, you should charge for a maximum of 9 days (216 hours) during which time the ammeter of the set's voltage regulator must not be allowed to exceed 100 amperes. (If this value is exceeded, remove enough batteries or racks to reduce the load below 100 amperes. When more than one battery rack is used, stagger each additional rack into operation only when the ammeter reading on the voltage regulator falls below 24 amperes.)

Whenever battery current drain drops below 10 milliamperes, consider the battery fully charged and remove it from the rack. At the end of the nine-day charging period, all batteries whose current drain is 25 milliam-

Mines, OP 2637 is unlike most mine manuals in that it will remain in NOL's cognizance rather than NMEF's. We anticipate that the five volumes will be stocked at NSD/Philadelphia and we'll print stock numbers for all volumes and changes if and when they're assigned. But this does not mean you can order direct.

BUWEPS feels that activities whose missions are limited to the assembly, shipping, planting, activating, and recovery of mines do not need OP 2637, so has restricted its release even though it is not a registered publication as was ORD 696. To get copies, then, you must write BUWEPS (RUME-2), accompanying your request with an explanation of why you need it.

Primarily the intended audience of OP 2637 is made up of those who plan mining operations and "implement policies related to mines."

peres or less can be considered fully charged, and any whose current drain exceeds 25 milliamperes upon completion of the nine-day charging period should be rejected.

After charging as explained, the acceptable batteries must of course still pass the load and no-load voltage tests (Test Set Mk 127) in OP 1452. The forthcoming official third revision to OP 1452 will reflect the above information.

## WHEN TO SET THAT MK 66 CONTROL UNIT

No doubt many T-Shooter readers read H. E. Sander's informative article about the control Unit Mark 66 in T-Shooter 2-63 and felt a certain relief in learning that a three-month testing frequency is sufficient for these units. That'll be a lot easier to live with than the former two-week testing requirement.

Some readers, though, seem to have missed a most important point: the fact that you should always make sure that the units' barometric pressure switches are turned to maximum setting immediately after testing and are kept that way during all handling of the mines until after they're loaded aboard aircraft.

So when do they get set for the plant? When you get your new mine-loading check lists you'll find they specify setting just before takeoff, after the mines are hung in the racks, with only two exceptions: (1) You can set just before loading when it is definitely known that takeoff will be in eight hours or less; (2) You can set just before loading in a few rare instances where there's not enough time in the bomb bay to do it afterward.

In any case there's a real necessity that until now has been overlooked. All parapack control units in a plane load of mines must finally be adjusted for the same atmospheric pressure: for the pressure at the planting location if you can get it . . . at 30 if you cannot. Only in this way can the planting pattern conform to the pattern planned for the mine field.

Settings, then, will usually be made by AOs making pre-takeoff checks.

Let's talk about....



# HOW TO GET THOSE OP'S

ON page 1 of Troubleshooter 2-63 we reported the lack of success of Dick Moulton and others in requisitioning mine and depth-charge OPs, promising to put together an article that would help. This prompted Lt. J. Shreckengast aboard U. S. S. MITSCHER to write in and tell us that the first chapter of OP 0 tells all.

For this kind of interest we sincerely thank the lieutenant. But he's outnumbered. From BUWEPS to West Overshoe we continue to receive copies of OP requisitions that have made the rounds and produced nothing. And from Lt. Art Willis at the Mine Warfare School to MNSAs world-wide we've received request after request to please write that article.

So here goes.

## THE COG THAT TURNS THE WHEELS

In our opinion, one of the best things ever to happen to OPs came in 1957 when the Navy Forms and Publications Supply Office was established at Byron, Georgia . . . "to consolidate control of forms and publications under one central inventory control point." Operating under management control of BUSANDA and technical control of the Navy Printing and Publications Service, FPSO has since succeeded in bringing the vast majority of Navy forms and pubs into supply cognizance I.

Now this does not mean that all forms and pubs are in cog I. ODs are not, nor are Ordalts, OSTDs, OCDs, etc., which you must still request (by letter) from the Central Technical Documents Office, Iroquois Station, Louisville 14, Kentucky.

Neither are non-official NOLRs giving mine assembly instructions, nor advance copies, review drafts, or preliminary editions of OPs, nor changes or revisions to such interim pubs, of which we know of no issuable stocks anywhere, cog I or otherwise.

Neither do we mean to imply that FPSO is the place to get cog I forms and pubs. Cog I stock points are established in 25 locations world wide.

## WHERE THE WHEELS TURN

Of the 25 cog I stock points, only three are of real interest here and only one of the three stocks mine and depth-charge OPs.

NSC/Norfolk (NAVSTRIP Code NN2) and NSC/Oakland (NAVSTRIP Code NOZ) stock the few cog I forms pertinent to the mining mission: order from whichever is nearest.

The single stock and distribution point for our OPs is the Naval Supply Depot, 5801 Tabor Avenue, Philadelphia

(NAVSTRIP Code NFZ). Opened in 1943 to handle naval aviation publications, NSD/Philly was named DOD single stock and distribution point for specifications and standards on 1 July 1962 — Navy, Army, and Air Force — bringing the number of printed line items of supply stocked there to 231,061!

Don't let this number fool you though. The number is big and the number of employees handling pubs is small . . . yet the service on pub distribution and supply is first class. The reason: machinery and organization.

The organization is small but the machinery is incredible. It includes pneumatic tubes, automatic inserting machines, automatic packagers and labelers, all of which are connected by better than 6,000 feet of interbuilding conveyor that ends up, not surprisingly, in a whopping U. S. Post Office built right onto the end of the main building.

And you can take our word for it that orders that come in right are filled right and right away, too. Each month this outfit puts out 1.5 million pieces of printed matter (average) inserted in 600,000 packages. You should see it. The Supply Corps' monthly Newsletter runs 12,300 copies to 11,500 addressees. All Hands runs 80,000 copies to 5,700 activities and fills two semitrailers. Both are packaged, addressed, and delivered to the post office in one day!

## NUMBERS ARE THE KEY TO COG I

It's service like that that makes a single stock point practicable, and this brings us to the question of how one small activity can get such service in response to a request for a copy or two of a single OP. The answer lies in the use of NAVSTRIPS and stock numbers.

Does this mean there are now FSNs for OPs? No. The FSN system has been carefully adapted to items that are "static" in a sense in which pubs are not. Pubs are revised, changed, and appended, if there is such a word. And a pub can expand from one volume to three, or condense from four volumes to two and still be the same basic pub. Like OP 1452.

For these and other good reasons, then, the FSN system is simply not adaptable to pubs. Yet pubs do have numbers. FPSO calls them "cog I ordering numbers." You could just as well call them cog I stock numbers, or anything else, so long as you remember that while these numbers are not FSNs, they look and "handle" exactly like FSNs. By this we mean that they consist of four digits followed by three digits followed by four digits.

# COG I STOCK NUMBERS FOR MINE & DEPTH-

## NAVWEPS OPs

OP 0, 31st Rev (Index to Ord Pubs) . . . . .	0609-000-0000	OP 1765 2d Rev Vol 1 (25/2 Assy) . . . . .	0609-176-0000
Ch 1 to OP 0 31st Rev . . . . .	0609-000-0001	Ch 1 to 1765 Vol 1 . . . . .	0609-176-5101
Ch 2 to OP 0 31st Rev . . . . .	0609-000-0002	Ch 2 to 1765 Vol 1 . . . . .	0609-176-5102
Ch 3 to OP 0 31st Rev . . . . .	0609-000-0003	OP 1765 2d Rev Vol 2 (Improved Drill 25/2) . .	Not for release
Ch 4 to OP 0 31st Rev . . . . .	0609-000-0004	OP 1792 (Opn'l Char, 12/75 Rkt) . . . . .	0609-179-2000
Ch 5 to OP 0 31st Rev . . . . .	0609-000-0005	Ch 1 to 1792 . . . . .	0609-179-2001
Ch 6 to OP 0 31st Rev . . . . .	0609-000-0006	Ch 2 to 1792 . . . . .	0609-179-2002
OP 5, 2d Rev, (Ammunition Ashore) . . . . .		Ch 3 to 1792 . . . . .	0609-179-2003
OP 5, 2d Rev, Vol 1 (Handling, Shipping) . . . .	0609-000-5100	OP 1797 2d Rev Vol 1 (25/1 Assy) . . . . .	0609-179-7100
Ch 1 to OP 5 Vol 1 . . . . .	0609-000-5101	Ch 1 to 1797 Vol 1 . . . . .	0609-179-7101
OP 5, 2d Rev, Vol 2 (Product'n, Renovation) . .	0609-000-5200	OP 1797 2d Rev Vol 2 (Improved Drill 25/1) . .	Not for release
OP 5, 2d Rev, Vol 3 (Handling at Adv Bases) . .	0609-000-5300	OP 1798 2d Rev Vol 1 (36/2 Assy) . . . . .	0609-179-8100
Ch 1 to OP 5 Vol 3 . . . . .	0609-000-5301	Ch 1 to 1798 Vol 1 . . . . .	0609-179-8101
OP 605 2d Rev (Fire Mech K-Type) . . . . .	0609-060-5000	OP 1798 2d Rev Vol 2 (Improved Drill 36/2) . .	Not for release
OP 669 2d Rev (D-Chg 14/0 Assy) . . . . .	0609-066-9010 <sup>1</sup>	OP 1799 1st Rev (Fire Mech A5) . . . . .	0609-179-9000
OP 670 (Fire Mech Mk 9) . . . . .	0609-067-0000	OP 1807 1st Rev Vol 1 (49/0 Assy) . . . . .	0609-180-7100
Ch 1 to 670 . . . . .	0609-067-0001	Ch 1 to 1807 Vol 1 . . . . .	0609-180-7101
Ch 2 to 670 . . . . .	0609-067-0002	OP 1807 1st Rev Vol 2 (Drill 49/0 Assy) . . . .	0609-180-7200
Ch 3 to 670 . . . . .	0609-067-0003	OP 1808 1st Rev Vol 1 (49/1 Assy) . . . . .	0609-180-8100
OP 678 (Fire Mech 9/1) . . . . .	0609-067-8000	Ch 1 to 1808 Vol 1 . . . . .	0609-180-8101
Ch 1 to 678 . . . . .	0609-067-8001	OP 1808 1st Rev Vol 2 (Drill 49/1 Assy) . . . .	0609-180-8200
OP 681 1st Rev (Fire Mech M-11) . . . . .	0609-068-1000	OP 1809 1st Rev Vol 1 (49/2 Assy) . . . . .	0609-180-9100
Ch 1 to 681 . . . . .	0609-068-1001	Ch 1 to 1809 Vol 1 . . . . .	0609-180-9101
Ch 2 to 681 . . . . .	0609-068-1002	OP 1809 1st Rev Vol 2 (Drill 49/2 Assy) . . . .	0609-180-9200
OP 747 2d Rev (D-Chg 6/0-2 Assy) . . . . .	0609-074-7010 <sup>1</sup>	OP 1811 (50/0 Assy) . . . . .	0609-181-1000
OP 866 3d Rev (D-Chg 9/4 Assy) . . . . .	0609-086-6010 <sup>1</sup>	Ch 1 to 1811 . . . . .	0609-181-1001
OP 902 2d Rev (18/0 Assy) . . . . .	0609-090-2000	OP 1816 2d Rev Vol 1 (Drill 25/0 Assy) . . . .	0609-181-6100
Ch 1 to 902 (Drill 18/0 Assy) . . . . .	0609-090-2001	OP 1816 2d Rev Vol 2 (Drill 25/1 Assy) . . . .	0609-181-6200
Ch 2 to OP 902 2d Rev . . . . .	0609-090-2002	OP 1816 2d Rev Vol 3 (Drill 25/2 Assy) . . . .	0609-181-6300
OP 948 1st Rev (10/3, 9 Assy) . . . . .	0609-094-8000	OP 1816 2d Rev Vol 4 (Drill 36/1 Assy) . . . .	0609-181-6400
Ch 1 to 948 1st Rev . . . . .	0609-094-8001	OP 1816 2d Rev Vol 5 (Drill 36/2 Assy) . . . .	0609-181-6500
OP 956 3d Rev Vol 1 (25/0 Assy) . . . . .	0609-095-6100	OP 1816 2d Rev Vol 6 (Drill 36/3 Assy) . . . .	0609-181-6600
OP 956 3d Rev Vol 2 (Improved Drill 25/0) . .	Not for release <sup>2</sup>	OP 1816 2d Rev Vol 7 (Drill 52 and 55 Assy) . .	0609-181-6700
OP 1014 1st Rev (Ord Safety) . . . . .	0609-101-4000	OP 1829 (Ballistic Table, Rocket 12/75) . . . .	0609-182-9000
OP 1105 2d Rev Vol 6 (Preserv-Maintnace Ord Equip, Shore Storage) . .	0609-110-5600	Ch 1 to 1829 . . . . .	0609-182-9001
Ch 1 to 1105 2d Rev Vol 6 . . . . .	0609-110-5601	Ch 2 to 1829 . . . . .	0609-182-9002
Ch 2 to 1105 2d Rev Vol 6 . . . . .	0609-110-5602	Ch 3 to 1829 . . . . .	0609-182-9003
OP 1391 1st Rev (Naval Mines) . . . . .	0609-139-1000	Ch 4 to 1829 . . . . .	0609-182-9004
Ch 1 to 1391 1st Rev . . . . .	0609-139-1001	OP 1844 1st Rev (Fire Mech A6/0, 1; A8/0) . .	0609-184-4000
OP 1394 1st Rev (Ballistics, 25/0) . . . . .	0609-139-4000	Ch 1 to 1844 1st Rev . . . . .	0609-184-4001
OP 1395 1st Rev (Ballistics, 25/0; 36/1-3) . .	0609-139-5000	Ch 2 to 1844 1st Rev . . . . .	0609-184-4002
Ch 1 to 1395 1st Rev . . . . .	0609-139-5001	Ch 3 to 1844 1st Rev . . . . .	0609-184-4003
Ch 2 to 1395 1st Rev . . . . .	0609-139-5002	OP 1853 1st Rev Vol 1 (6/0-11 Assy) . . . . .	0609-185-3100
OP 1452 2d Rev (Mine Accessories) . . . . .	0609-145-2000	OP 1853 1st Rev Vol 2 (Drill 6/0 Assy) . . . .	0609-185-3200
Ch 1 to 1452 2d Rev . . . . .	0609-145-2001	OP 1854 (6/0 Acoustic System) . . . . .	0609-185-4000
Ch 2 to 1452 2d Rev . . . . .	0609-145-2002	OP 1860 2d Rev Vol 1 (Test Sets: Mine, D-Chg)	0609-186-0210
Ch 3 to 1452 2d Rev . . . . .	0609-145-2003	OP 1860 2d Rev Vol 2 (Test Sets: Mine, D-Chg)	0609-186-0140
OP 1459 1st Rev (Ballistics, 10/9; 25/1, 2; 50/0)	0609-145-9000	OP 1860 2d Rev Vol 3 (Test Sets: Mine, D-Chg)	0609-186-0160
OP 1631 2d Rev (Ammo Hazard Classifi) . . . .	0609-163-1100	OP 1878 1st Rev w/Ch 1 (Drill 10/3 Assy) . .	0609-187-8000
OP 1684 2d Rev Vol 1 (36/1 Assy) . . . . .	0609-168-4100	Ch 1 to 1878 1st Rev . . . . .	0609-187-8001
OP 1684 2d Rev Vol 2 (Improved Drill 36/1) . .	Not for release <sup>2</sup>	OP 1892 1st Rev Vol 1 (36/3 Assy) . . . . .	0609-189-2000
OP 1736 2d Rev (39/0 Assy) . . . . .	0609-173-6000	Ch 1 to 1892 1st Rev . . . . .	0609-189-2001
		OP 1892 1st Rev Vol 2 (Improved Drill 36/3)	Not for release <sup>2</sup>
		OP 1905 1st Rev (Fire Mech M5/1) . . . . .	0609-190-5000
		Ch 1 to 1905 1st Rev . . . . .	0609-190-5001

- 1 - Depth-Charge assy manuals include operational characteristics.
- 2 - For drill mine using current gear see OP 1816.
- 3 - Covers drill mine using Float Mk 15; for improved drill gear see listing for volume 2 of service-mine OP.
- 4 - OP 1860 2d Rev is incomplete and out of stock; see page 1 for reprint edition info and supplementary calibration data

- 5 - If you hold Advance Copy, order Change 1 only.
- 6 - Converts Advance Copy to official, technically corrected OP.
- 7 - Preliminaries are not for official use; first official release of 2567 expected September 1963.
- 8 - Covers drill OAs using new universal gear; for OAs using Float Mk 15 see OP 1816 Vol 7.

And you identify the cog by preceding the number with a capital "I," and you use the number on a NAVSTRIP exactly the way you use an FSN.

### YOUR KEY TO THE NUMBERS

Another thing not enough people seem to know is that, just as there is a stock catalog for material in A-cog, Z-cog and all the cogs in-between, there's also a catalog

for I-cog. It's NAVSANDA Publication 2002 — Navy Stock List of Forms and Publications, Cognizance Symbol I. A real monster, it consists of thirteen sections. Of these, three are of prime interest to T-Shooter readers: Section 1 (Information and Stock-List Index, stock number I-0535-004-0000) tells exactly how to use the complete 2002, how to interpret its coded listings, and where to find its listings of various kinds of forms and pubs. Als

# CHARGE OPs, FORMS, AND PERIODICALS

OP 1930 Vol 1 (Mine Syst 2/0, Install) . . . . .	0609-193-0100
OP 1930 Vol 2 (Mine Syst 2/0, Mtnce) . . . . .	0609-193-0200
OP 1930 Vol 3 (Mine Syst 2/0, Operate) . . . . .	0609-193-0300
OP 1935 Vol 1 (27/2, 3 Assy) . . . . .	0609-193-5100
Ch 1 to 1935 Vol 1 . . . . .	0609-193-5101
Ch 2 to 1935 Vol 1 . . . . .	0609-193-5102
Ch 3 to 1935 Vol 1 . . . . .	0609-193-5103
Ch 4 to 1935 Vol 1 . . . . .	0609-193-5104
Ch 5 to 1935 Vol 1 . . . . .	0609-193-5105
OP 1935 Vol 2 w/Ch 1 (27/2 Assy) . . . . .	0609-193-5200 <sup>5</sup>
Ch 1 to 1935 Vol 2 . . . . .	0609-193-5201 <sup>6</sup>
OP 1935 Vol 3 w/Ch 1 (27/3 Assy) . . . . .	0609-193-5300 <sup>5</sup>
Ch 1 to 1935 Vol 3 . . . . .	0609-193-5301 <sup>6</sup>
OP 2107 (Depth Chg 16/0, 1 Assy) . . . . .	0609-210-7000
OP 2120 (Ballistic Table, 39/0) . . . . .	0609-212-0000
Ch 1 to 2120 . . . . .	0609-212-0001
OP 2129 (6/14 Assy) . . . . .	0609-212-9000
Ch 1 to 2129 . . . . .	0609-212-9001
OP 2173 1st Rev (Handling Equip, Ammo) . . . . .	0609-217-3000
OP 2213 1st Rev (Pyrotech's, Misc Xpls) . . . . .	0609-221-3000
OP 2238 (Identification of Ammo) . . . . .	0609-223-8000
OP 2352 (Fire Mech 19/0) . . . . .	0609-235-2000
Ch 1 to 2352 . . . . .	0609-235-2001
OP 2363 Vol 1 (27/4, 5 Assy) . . . . .	0609-236-3000
Ch 1 to 2363 Vol 1 . . . . .	0609-236-3101
Ch 2 to 2363 Vol 1 . . . . .	0609-236-3102
Ch 3 to 2363 Vol 1 . . . . .	0609-236-3103
Ch 4 to 2363 Vol 1 . . . . .	0609-236-3104
Ch 5 to 2363 Vol 1 . . . . .	0609-236-3105
Ch 6 to 2363 Vol 1 . . . . .	0609-236-3106
OP 2363 Vol 2 w/Ch 1 (27/4 Assy) . . . . .	0609-236-3200 <sup>5</sup>
Ch 1 to 2363 Vol 2 . . . . .	0609-236-3201 <sup>6</sup>
OP 2363 Vol 3 w/Ch 1 (27/5 Assy) . . . . .	0609-236-3300 <sup>5</sup>
Ch 1 to 2363 Vol 3 . . . . .	0609-236-3301 <sup>6</sup>
OP 2370 (53/0 Assy) . . . . .	0609-237-0000
OP 2386 1st Rev (D-Chg 15/0-10 Assy) . . . . .	0609-238-6000
OP 2562 (Ballistics, 25/0-2; 52/0-6; 55/0-6; 56/0) . . . . .	0609-256-2000
OP 2563 (Ballistics, 36/1-3; 53/0) . . . . .	0609-256-3000
OP 2567 (Mine Firing Mechanisms) . . . . .	Not yet assign. <sup>7</sup>
OP 2595 (Ballistic Table, 39/0) . . . . .	0609-259-5000
OP 2608 Vol 1 (52/0-6 Assy, Service, & Drill) . . . . .	0609-260-8100 <sup>8</sup>
OP 2608 Vol 2 (52/0-6 Assy, Service & Drill) . . . . .	0609-260-8200 <sup>9</sup>
OP 2637 (Op'nl Characteristics, Mines) <sup>10</sup> . . . . .	Not yet assign.
OP 2637 Vol 1 (. . . in mine warfare) . . . . .	Not yet assign.
OP 2637 Vol 2 (air-laid mines) . . . . .	Not yet assign.
Ch 1 to 2637 Vol 2 . . . . .	Not yet assign.
OP 2637 Vol 3 (sub-laid mines) . . . . .	Not yet assign.
Ch 1 to 2637 Vol 3 . . . . .	Not yet assign.
OP 2637 Vol 4 (surface-laid mines) . . . . .	Not yet assign.
Ch 1 to 2637 Vol 4 . . . . .	Not yet assign.
OP 2637 Vol 5 (Actuation Data) . . . . .	Not yet assign.
Ch 1 to 2637 Vol 5 . . . . .	Not yet assign.
OP 2769 (Cable Reeler 2/0) . . . . .	0609-276-9000
OP 2843 (Ballistics, 25/0-2; 36/1-3; 52/0-6; 53/0; 55/0-6) . . . . .	0609-284-3000

OP 2959 (Ballistic Table 39/0) . . . . .	0609-295-9000
OP 2960 (D-Chg 8/3, 4, 5 Assy) . . . . .	0609-296-0000
OP 2974 Vol 1 (55/0-6 Assy, Service & Drill) . . . . .	0609-297-4100 <sup>8</sup>
OP 2974 Vol 2 (55/0-6 Assy, Service & Drill) . . . . .	0609-297-4200 <sup>9</sup>
OP 3232 (Mine Loading in Aircraft) . . . . .	See footnote 11
Supplement A (Loading Checklist, P2E) . . . . .	See footnote 11
Supplement B (Loading Checklist, P2H) . . . . .	See footnote 11
Supplement C (Loading Checklist, A3B) . . . . .	See footnote 11
Supplement D (Loading Checklist, P5B) . . . . .	See footnote 11
Supplement E (Loading Checklist, B57E) . . . . .	0609-323-2005 <sup>11</sup>
Supplement F (Loading Checklist, A4B) . . . . .	See footnote 11
Supplement G (Loading Checklist, A1J) . . . . .	See footnote 11
Supplement H (Loading Checklist, S2D) . . . . .	See footnote 11
Supplement I (Loading Checklist, F100) . . . . .	See footnote 11
Supplement J (Loading Checklist, F-105) . . . . .	See footnote 11
Supplement K (Loading Checklist, A5A) . . . . .	See footnote 11
Supplement L (Loading Checklist, P3A) . . . . .	See footnote 11
Supplement M (Loading Checklist, A6A) . . . . .	See footnote 11
Supplement N (Loading Checklist, A4E) . . . . .	See footnote 11
OP 3233 (Instrumentation for Mine Tests) . . . . .	See footnote 12

## FORMS

NAVWEFS Form 8500/5 (Rudminde) . . . . .	0140-850-0050 <sup>13</sup>
NAVORD Form 2008 (6/0 Acoust Syst Rec) . . . . .	0105-301-5100
NAVORD Form 2776 (Rudminde) . . . . .	0105-303-1900 <sup>13</sup>
NAVORD Form 2819 (Batt History Record) . . . . .	0105-303-3000
OPNAV Form 3370-1 (FSMT Mine Sheet 1) . . . . .	0107-600-9101
OPNAV Form 3370-2 (FSMT Mine Sheet 2) . . . . .	0107-600-9510
OPNAV Form 3370-3 (FSMT Mine Sheet 3) . . . . .	0107-600-9520
OPNAV Form 3370-4 (FSMT Mine Sheet 4) . . . . .	0107-600-9530
OPNAV Form 3370-5 (FSMT Mine Sheet 5) . . . . .	0107-600-9540
OPNAV Form 3370-6 (FSMT Mine Sheet 6) . . . . .	0107-600-9550
OPNAV Form 3370-7 (FSMT Mine Sheet 7) . . . . .	0107-600-9560

## PERIODICALS

Troubleshooter Index No. 1 . . . . .	0618-250-0010
Troubleshooter 1-58 . . . . .	0618-251-1580
Troubleshooter 1-59 . . . . .	0618-252-1590
Troubleshooter 2-59 . . . . .	0618-253-2590
Troubleshooter 1-60 . . . . .	0618-254-1600
Troubleshooter 2-60 . . . . .	0618-255-2600
Troubleshooter 3-60 . . . . .	0618-256-3600
Troubleshooter 4-60 . . . . .	0618-257-4600
Troubleshooter 1-61 . . . . .	0618-258-1610
Troubleshooter 2-61 . . . . .	0618-259-2610
Troubleshooter 3-61 . . . . .	0618-260-3610
Troubleshooter 4-61 . . . . .	0618-261-4610
Troubleshooter 1-62 . . . . .	0618-262-1620
Troubleshooter 2-62 . . . . .	0618-263-2620
Troubleshooter 3-62 . . . . .	0618-264-3620
Troubleshooter 4-62 . . . . .	0618-265-4620
Troubleshooter 1-63 . . . . .	0618-266-1360
Troubleshooter 2-63 . . . . .	0618-267-2630

- 9 - Contains Vol 1 assy & test instructions reiterated in instruction-sheet form.
- 10 - Issue restricted; see pages 1-2 this issue.
- 11 - OP 3232, new aircraft-loading manual with supplementary loading check lists, will supersede OP 1118 which is out of stock and will not be reprinted. Supplement E will be distributed about 30 July 1963. Other supplements and

- main volume will follow one at a time, with notification and stock numbers published in T-Shooter. Do not order now.
- 12 - Partial OP 3233 (Mine Locating System) will be distributed 15 September 1963, Stock No. 0609-323-3000. Do not order before.
- 13 - Use of NAVORD Form 2776 (Rudminde) approved until stocks depleted.

of interest is Appendix E to Section I, which tells how to get virtually any kind of published material which is not stocked in cog I, including commercial books!

Section II lists stock numbers for cog I labels and forms . . . buckets and buckets of forms. The stock number for section II is I-0535-005-0000.

Section VIII (stock number I-0535-013-0000) lists cog I BUWEPS publications. This is the one that gives stock

numbers for your current mine and depth-charge OPs and all current changes thereto. This is the section that MNs and TMs will undoubtedly use most.

**TWO PRECAUTIONS THAT HELP**

Already we can hear the groans: anyone who works much with pubs is bound to be wondering how he can have any assurance that the info in NAVSANDA 2002 is up to

date. The answer lies in 2002 Change Bulletins which are issued quarterly to all holders. These are not changes to insert, but separate pubs of 100 to 200 pages which supersede (rather than add to) each other and should be kept handy and used in two ways: 1) After finding a stock number in 2002 for a pub that you need, check that stock number in the current change bulletin to be sure there's not a newer revision or change that you should have; 2) when you can't find a pub you need listed in 2002, look for it in the change bulletin by pub number. New forms, pubs, or pub changes may be listed only in the change bulletins for a considerable time before they make their way into the basic 2002.

In any case, you should always consult the current 2002 change bulletin before you requisition an item from NAVSANDA Publication 2002. To get a current change bulletin order I-0535-002-0000. No matter when you order this number, you'll get the bulletin that's current at the time.

... AND DON'T WORRY

Naturally, when you order a sweatshirt from Sears for your mother-in-law's birthday you take pains to be sure you're not using their catalog number for a svelte blue bikini. Naturally! And you should do the same when you order an OP.

To help, we've done two things. First, beginning last March, we've started printing cog I stock numbers on all new NMEF/produced publications. It's even possible that the day will come when stock numbers will be the only numbers assigned to forms and OPs, but meantime we're printing stock numbers in addition to other publication numbers on the covers of all Troubleshooters, at the head of the title page in all OPs, and at the foot of the transmittal sheet of each OP change. Next, we've prepared the list printed on pages 4 and 5, giving the cog I stock number for all your most-used mine and depth-charge forms and OPs.

FPSO has adopted a policy that helps, too. Like we said, you can't use the number for a bikini and expect to get a sweatshirt. But you can use a cog I stock number that's out of date and still get pretty good service.

Suppose, for example, you send in the stock number for the second revision to OP 2222 and a third revision has been published but you didn't know it. Barring the occasional slip-up to which everyone is subject, the good ol' supply depot will promptly fill your order with that new third revision with no questions asked.

They're going to be helping with changes, too. They're working hard on a system right now whereby any order for a pub will automatically get you not only the pub but every published change to that pub that is stocked in cog I.

We'll let you know if and when this super service becomes available. Meanwhile, of course, you should naturally make sure your stock number is, or at least was once, the right number for the OP you want. And you should always check the listings to be sure you're sending a requisition for each listed change for any pub you request.

As a further help, we'll try to keep you posted by T-Shooters on numbers assigned whenever new OPs, revisions, or OP changes go into print.

HOW TO NAVSTRIP AN OP

On this page we show a NAVSTRIP (DD Form 1348) properly filled out for requisitioning two copies of an OP. And we can almost hear the screams now, because it doesn't have some of the information NAVSTRIPS usually require.

Our answer is that it doesn't have to, our reason is that cog I pubs are free (no billing required), and our authority is BUSANDA Notice 4440 of 7 March 1963. To quote: "The Naval Supply Depot, Philadelphia, is peculiar to any other supply depot of the navy distribution system in that the only items stocked for issue are printed matter.

continued on page 21

Send to: NSD/Philadelphia      Your address here

DOC. IDENT.	ROUT. IDENT.	FSC	PTIN	ADVTL	UNIT	QUANTITY	REQUISITIONER	DATE	SERIAL	SUPPLEMENTARY	FUND	DISTRIB	PROJECT	PRIOR-REV.	DEL. DATE	ADV. DATE
SEND TO:	STOCK NUMBER	DOCUMENT NUMBER	REQUISITION IS FROM:	ADDRESS	PROJECT	DATE	ADDRESS	PROJECT	DATE	PROJECT	DATE	PROJECT	DATE	PROJECT	DATE	PROJECT
(288) NSD/PHILA., PA.	(110) NAVSCOLS MINWAR, NB	CHASN, S. C.	A	B	C	D	E	F	G	H	I	J	K	L	M	N
YOUR USUAL FORMULA	A0A NFZ	306092608100	EA	00002	CODE FOR NSD/PHILLY	STOCK NO. FOR OP YOU WANT	NO BILLING REQUIRED	NUMBER OF COPIES YOU WANT	COG SYMBOL	PRIORITY	UNIT PRICE	TOTAL PRICE	DOLLARS	CENTS	DOLLARS	CENTS
N0011031770012	I	10	NO BILLING REQUIRED	NUMBER OF COPIES YOU WANT	COG SYMBOL	PRIORITY	UNIT PRICE	TOTAL PRICE	DOLLARS	CENTS	DOLLARS	CENTS	DOLLARS	CENTS	DOLLARS	CENTS



# FIELD ADJUSTMENT NEED NOT BE MADE ON CD-18

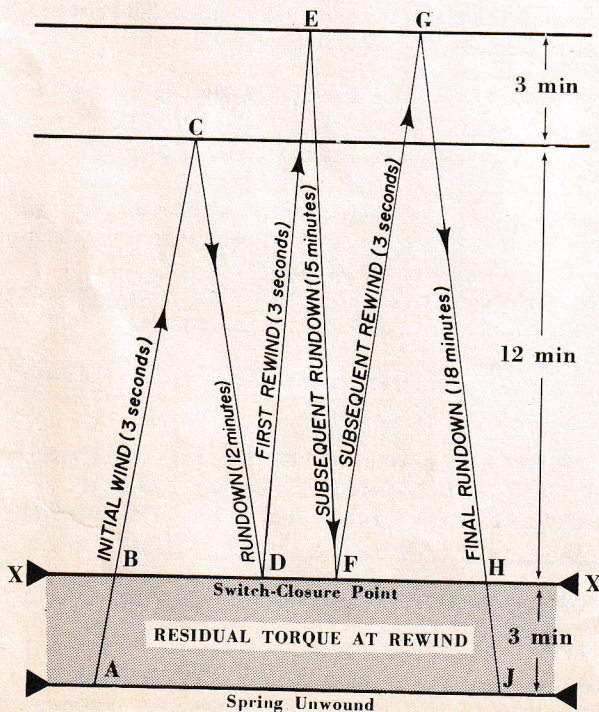
TWO of the first field activities to test components used in Mines Mark 52 and 55 found that their Clock Delays CD-18, whose run-down times they had checked with a stopwatch, averaged only 12 minutes. This they promptly reported as missing by 3 minutes the 15-minute interval prescribed by OP 1452.

Going one step further, our friends concluded logically enough that this fault would be cumulative (20% running error) if the clocks were to be installed in planted mines, and that this would mean trouble. To prevent, they tried to adjust the clocks' escapements to provide the prescribed 15-minute rundowns. They couldn't.

But while we don't know absolutely, we're pretty sure that it was only the initial rundown period that they were recording as averaging 12 minutes. And if that was the case, we're going to say the clocks were okay, but that our friends' conclusions and attempts to adjust were wrong. The sketch here shows why.

To understand our sketch you must remember that a CD-18 freshly removed from storage is completely run down. This means it has run three minutes (line HJ) past its winding-switch closure point.

Now the clock is designed so that each rewind adds enough torque to the clock's mainspring to provide a 15-minute run, and the mechanism is designed to add this torque (rewind) whenever the spring's torque is reduced by rundown to a point at which there is still sufficient torque for a three-minute run (line XX).



The initial wind in a test, then, represented by line ABC, starts the clock at C, adding — so to speak — 15-minutes-worth of torque to the spring. But because the winding switch must close when there is still 3-minutes-worth of torque on the clock's spring, you can see that the initial rundown period will end at point D after only 12 minutes (15 — 3 = 12).

After the first rewind (line DE), however, the problem is removed. The first rewind adds the specified 15-minutes-worth of torque, and because there is already 3-minutes worth on the spring the clock will now actually run its full 15 minutes (line EF). This process will then continue indefinitely, until power for the winding motor is removed . . . whereupon a final rundown phase takes place. Line GHJ shows such a phase: the switch closes as usual at H, but the clock does not rewind because there is no rewinding energy applied.

Instead, the clock runs off its 15-minutes-worth of torque (line GH), then runs off the 3-minutes-worth of residual torque (line HJ), and then stops. The residual torque is thus exhausted . . . to be regained by subtraction from the clock's first rundown period whenever power is applied to the clock again.

## A FLOAT HOOK BY ANY OTHER DWG NO

IT appears that the writers of the first revision to OP 1853 Vols I and II got hooked on their data regarding the float hooks on the Mk 6 mine case. Apparently these cases had once had hooks that were too long, because the original OP 1853 specified that only cases with short hooks (DWG 57555-15) should be used. Meanwhile, a float hook in every way identical to 57555-15 was designed for the Mk 16 case and, for reasons known only to a now obscure draftsman or engineer, it was documented as DWG 342964-5. Later, DWG 57555-15 was declared obsolescent, which led the OP writer of the first revision to OP 1853 to state that Mk 6 cases with hooks other DWG 342964-5 should be rejected.

Now if nobody bothered to check, nobody'd get in trouble. But along comes FSMT 5-63 calling for Mk 6 mines from NAD/Bangor, and suddenly comes a message to BUWEPS from Bangor stating that every last one of their Sixes had Hooks DWG 57555-15. Rejects!

Since the hooks are identical, you've probably already guessed that a fonecon went right back telling them their hooks were okay . . . but not before some real digging to come up with the scoop we've given you here.

So much for that. To keep this emergency from striking anywhere else, all hands dig out your first revisions to OP 1853 Vols 1 and 2 and make the write-in changes from PUB-S-CRAWLIN', this issue.

# Pub-S-Crawlin'

with  
Clark Starter, MN2



*NOTE: Holders of NAVWEPS OPs and ODs on depth charges and mines are authorized to make the write-in changes given here. All reflect change directives verified by the design-cognizant agency for incorporation in forthcoming official BUWEPS Publication Changes which upon release automatically supersede pre-dated information given here.*

## OP CHANGES AT LAST!

We can't think of any T-Shooter readers who've complained about being flooded by official printed OP changes in recent years. And for good reason. Except for the write-ins published regularly in this column, NMEF has never had the human wherewithall to get out more than a trickle.

But at last things are different. Except in some rare instances you won't be finding any big OP changes in your mail but you are going to be finding a fairly constant flow of small ones coming through, many of them generated by the faithful flow of Rudminides, FSMT reports, the

World-Wide Surveillance Program, and letters to ye T-Shooter Editor.

Starting the flow will be an official Change 2 to OP 1765 Volume 1 (stock number for this change is I-0609-176-5102) and a Change 3 to OP 1844 (I-0609-184-4003). Both preceded this T-Shooter issue to the printer and should have been distributed by the time you read this. They'll be followed by plenty more.

Meantime we still plan to run our usual T-Shooter write-ins as advance information . . . of which the latest batch follows:

► **MASS CHANGE:** To clarify wording relating to amperage required to fire Detonator Mk 46 Mod 1, cross out applicable sentences in OPs 902 2d Rev, page 5; 948, page 25; 956, page 16; 1736 2d Rev, page 10; 1797 2d Rev, page 17; 1798 2d Rev, page 16; 1807 Vol 1 1st Rev, page 17; 1808 1st Rev, page 13; 1809 1st Rev, page 15; 1853 Vol 1 1st Rev, page 48; 1892 1st Rev, page 10. And write in: Electric detonator Mk 46 Mod 1 is used to fire the mine booster. This detonator contains PETN and is designed to fire instantaneously on application of any current of 0.35 ampere or above.

► **OP 681 1st Rev (Firing Mech M-11):** On page 12, paragraph 45b(1), second line, cross out G3-G4 and write in G2-G4.

► **OP 1452 2d Rev (Mine Accessories):** On page 95, after Section 2 heading, write in: NOTE: Sensitrol Relays SR-6 Mod 1, and SR-7 Mods 0 and 1 moving coil leads (yellow and black) are jumpered with Shorting Bar DWG 1402216. The SR-7 Mod 2 moving coil is shorted with Shorting Plug DWG 1402124 plugged onto the AN connector or with a coiled shorting spring inserted between the G and F contact pins on the AN connector. Combine present step a with step b, and add new step a: a. Remove the shorting bar, shorting plug, or coiled shorting spring.

On page 98, column 1, after step n write in: NOTE: If tested SR is to be stored or shipped, reinstall the shorting bar, shorting plug, or coiled shorting spring,

then check to be sure the relay has been reset after shorting element is in place, and attach a tag warning personnel to remove the shorting element before testing or installing.

► **OP 1452 2d Rev (Mine Accessories, Description and Instructions for Testing):** In Chapter 11, page 121, under "Filling and Stowing SD Mechanisms" cross out sub-paras a, b, c, d, e and write in:

- For maximum reliability, it is recommended that SD-4 mechanisms be filled only when a requirement for assembled mines occurs.
- Sterilizer Device SD-4 Mod 1 may remain assembled in a mine case for two years after date of filling.
- At the end of this period, the mechanism shall be removed and replaced.

► **OP 1684 Adv Copy (Mine Mark 36-1):** On page 1 of C-10, item 3 under material required. and on page 2 of C-10, paragraph 7, cross out Screw 6-32 x  $\frac{1}{2}$ " and write in Screw, Machine, Steel, Round Head, No. 6-32NC-2A x  $\frac{3}{8}$ ".

► **OP 1799 1st Rev (Firing Mech A-5):** On page 30, cross out the NOTE in paragraph 5.

► **OP 1807 Vol 1 1st Rev (Mine Mark 49-0):** On pages 37, 39, and 40, reverse assembly procedure so that BA-

239/U Battery Installation comes just ahead of TB-19 and TB-20 Assembly Installation.

► **OP 1807 Vol 2 (Drill Mine Mark 49-0):** On page ix, add WARNING: Make sure each mine is properly positioned in the tube for planting. Improper positioning can cause the tripping latch to catch in the clock well and rupture the mine case when the mine is ejected.

On page 32, after paragraph Mines Not Stowed In Tubes, add the above WARNING.

► **OP 1808 Vol 2 (Drill Mine Mark 49-1):** On page xi, add WARNING: Make sure each mine is properly positioned in the tube for planting. Improper positioning can cause the tripping latch to catch in the clock well and rupture the mine case when the mine is ejected.

On page 60, after paragraph Mines Not Stowed In Tubes, add the above WARNING.

► **OP 1809 Vol 2 (Drill Mine Mark 49-2):** On page xi, add WARNING: Make sure each mine is properly positioned in the tube for planting. Improper positioning can cause the tripping latch to catch in the clock well and rupture the mine case when the mine is ejected.

On page 60, after paragraph Mines Not Stowed In Tubes, add the above WARNING.

► **OP 1816, Vol 1, 2d Rev (Drill Mine Mark 25-0):** On page 32, column 1, under Cutter - Housing Preparation and assembly; paragraph 2 now reads "figure 25," should read "figure 26."

► **OP 1816 Vol 2 2d Rev (Drill Mine Mark 25-1):** In figure 1 on page 1, cross out Parachute Pack Mk 18 Mod 0 and write in Parachute Pack Mk 19 Mod 0.

► **OP 1816 Vol 7 2d Rev (Drill Mine Marks 52 and 55):** In the caption for figure 21 on page 25, cross out Mk 25 Mod 1 and write in Mk 44 Mod 0.

► **OP 1844 1st Rev (Firing Mechanisms A-6 Mods 0, 1 and A-8 Mod 0):** On page 32, paragraph 5, cross out "between 9.5 and 12" and write in 8, 10, and 12, each -0 or +0.5.

On page 34P, Change 2, paragraph 5, cross out "between 9.5 and 12" and write in 8, 10, and 12, each -0 or +0.5. (Note: 1844 is still official. This contradiction with preliminary OP 2637 will be resolved when official 2637 is published.)

On page 34Q, after the word "and" at the end of the eleventh line of step 2, add the words at least.

On page 34T (Change 2) add the following to the end of the first sentence of step 6: and return switch to center.

► **OP 1853, Vols 1 and 2, 1st Rev (Mine Mk 6-0, 4, 7, 8, 10, 11):** After the sentence "checks to see that the case has two float securing hooks, BUORD DWG 342964-5" add the words "or DWG 57555-15" as follows: Volume 1, Chapter 3, page 93 in paragraph 3 under Case Inspection and Preparation, and on page 179 of Instruction Sheet A-10

in paragraph 3 under Procedures. Volume 2, Chapter 3, page 53 in paragraph 3 under Case Inspection and Preparation, and on page 143 in Instruction Sheet 12D in paragraph 3 under Procedures.

► **OP 1860 Vol 1 2d Rev (Mine and Depth-Charge Test Sets):** In chapter 3, on page 3-3, last line cross out (1) and write in (12).

In chapter 15, on page 15-12, in figure 15-10, cross out 10V DC and write in 110V DC.

In chapter 19, on page 19-4, paragraph 16, last line, cross out 40 and write in 4.0.

► **OP 1860 Vol 3 1st Rev (Mine and Depth-Charge Test Sets):** In chapter 60, on page 60-3, under Associated Equipment, correct the second line to read: . . . of cable CA-731, a standard . . . Cross out the last two lines of the same paragraph.

► **OP 1892 1st Rev (Mine Mark 36-3):** On page 44, in paragraph 49, line 5, cross out 13 and write in 3.

► **OP 1935, Vol 2 (Mine Mk 27-3):** On page 39, paragraph 6, and on page 83, paragraph 33e, change specifications to read 1. . . 94.5-115.5; 2. . . 49.5-60.5; 3. . . 27.0-33.0. On page 107 cross out paragraphs 9 and 10.

► **OP 2363, Vol 2 (Mine Mk 27-4):** On page 39, first paragraph 6; and on page 80, paragraph 32; change specifications to read 1. . . 94.5-115.5; 2. . . 49.5-60.5; 3. . . 27.0-33.0.

On page 61, between paragraphs 1 and 2 insert: NOTE: Install two 6-32 x 1/2" screws through underside of left-hand battery strap to secure the two cable clamps 12-Z-7003-5004.

On page 62, in Fig. 19, change screw 6-32 x 1/4" to 6-32 x 1/2" and add 6-32 hex nut for securing cable clamp 12-Z-7003-5004.

► **OP 2370 (Mine Mark 53-0):** In table 3 on page 13, cross out: Wire and Cordage Meter LD 296055.

► **TROUBLESHOOTER INDEX NO.** On page 3, under Cable below CA-93, add CA-99, potential hazard . . . 2-62 13. On page 6, under Explosive Fittings, add Potential Hazard, CA-99's capacitor . . . 2-62 13. On page 8, under Mines, add Mks 52 and 55, connecting CA-99 . . . 2-62 13.

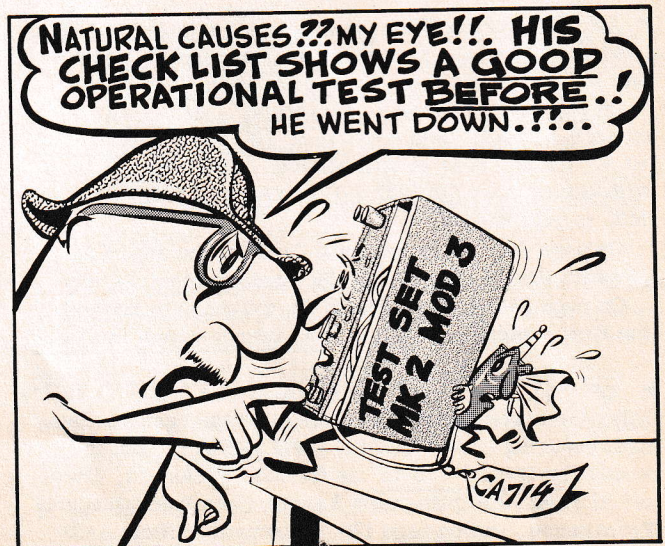
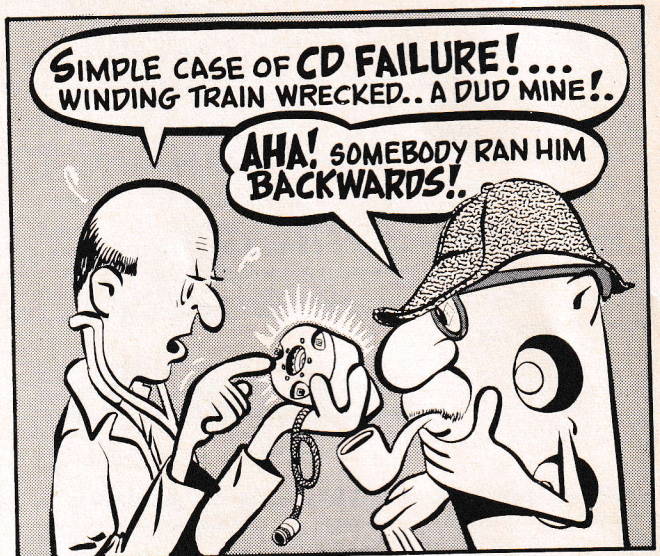
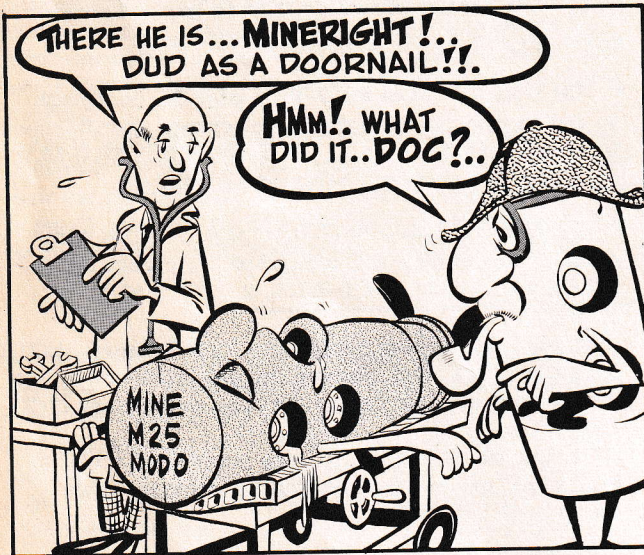
► **TROUBLESHOOTER 1-63:** On page 16, top of left column, in identification of OP 1878 change (Drill Mine Mark 10-0) to (Drill Mine Mark 10-3).

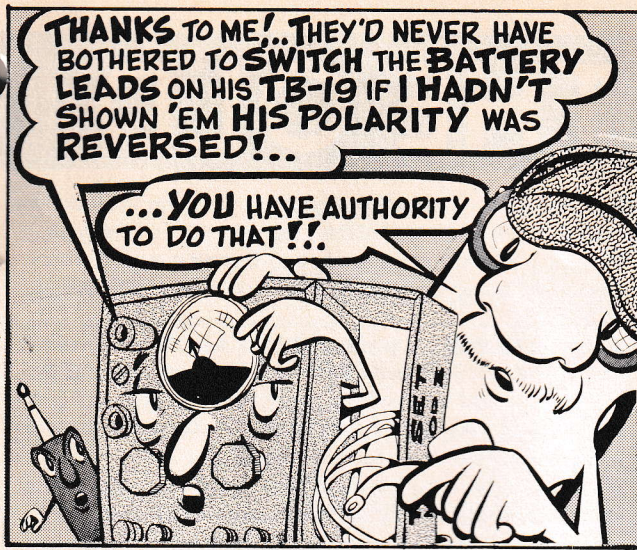
In Bibliography on page 12, seventh block down and fifth block across, cross out OP.in OP 9169 and write in OD.

► **TROUBLESHOOTER 3-62:** On page 15, Item on OP 1452, in the 8th and 9th lines of the second paragraph, cross out 2, 6, 4.5, and 13.5; insert 4, 7, 9, and 15.75.

A.S.W. MINERIGHT solves.....

# THE CASE of the PHONE-Y PLUG!!!



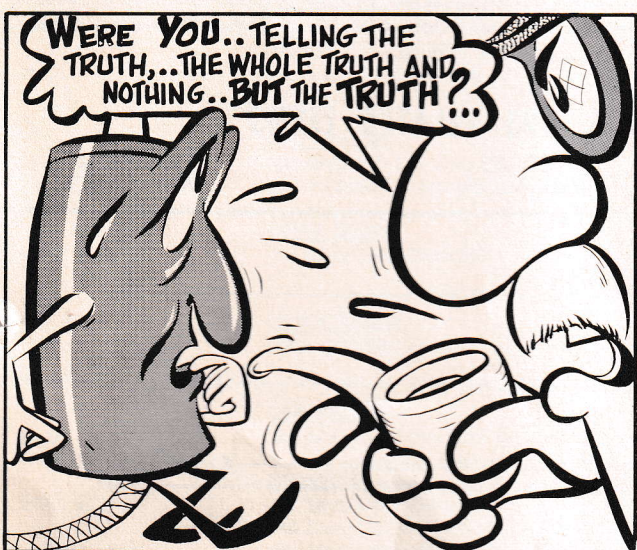


THANKS TO ME!...THEY'D NEVER HAVE BOTHERED TO SWITCH THE BATTERY LEADS ON HIS TB-19 IF I HADN'T SHOWN 'EM HIS POLARITY WAS REVERSED!...

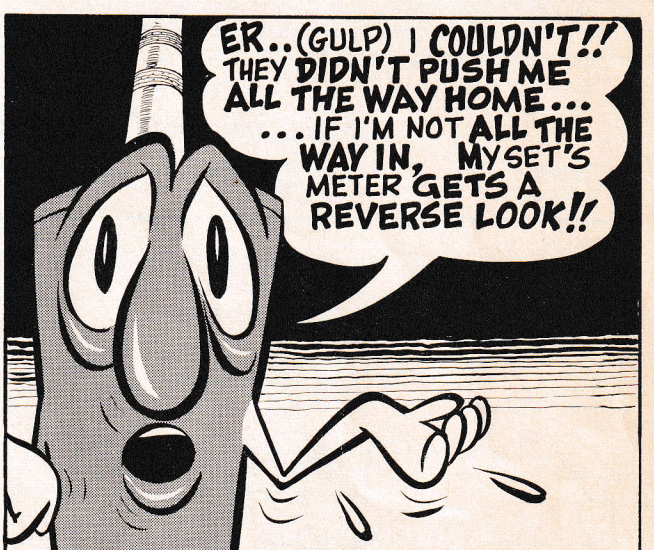
...YOU HAVE AUTHORITY TO DO THAT!!



OP 956!... PAGE 60.. PARAGRAPH 46c STOPS 'EM COLD ANYTIME CA-714 PHONE PLUG PEGS MY METER IN THE WRONG DIRECTION!..



WERE YOU..TELLING THE TRUTH,..THE WHOLE TRUTH AND NOTHING..BUT THE TRUTH?..



ER..(GULP) I COULDN'T!! THEY DIDN'T PUSH ME ALL THE WAY HOME... ..IF I'M NOT ALL THE WAY IN, MYSET'S METER GETS A REVERSE LOOK!!

**ELECTRIC MOTORS RUN BACKWARDS WHEN POLARITY IS REVERSED... THIS INCLUDES THOSE CD-14 WINDING MOTORS !!!**

**WHEN A CD-14 WINDS BACKWARDS ITS DRIVE GEAR SPLITS AND THE SWITCHING TRAIN WON'T WORK....THE MINE IS DESTINED TO DUD BEFORE IT EVER GETS DROPPED..!**

**THIS COULD JUST AS EASILY HAVE BEEN A DUD 25-1 OR 2, A 49-0,1 OR 2, OR A 50-0... TO MAKE SURE IT DOESN'T HAPPEN, ADD INSTRUCTIONS TO THE 7 OPs FOR THESE MINES LIKE IT SAYS ON PAGE 6 OF T-SHOOTER 2-63!...**

**DO IT NOW-THIS CRIME PAYS OFF IN DUDS!!!**

# RING OUT THE OLD

ONE of the many NMEF jobs your T-Shooter has had little to say about is the DOD Standardization Program. We do not, of course, run this show. But we do, by assignment from BUWEPS, perform all the technical studies and engineering reviews related to standardization as it affects the depth-charge and mine weapon systems.

The purpose of the program is two sided: to make sure needed materiel does not get dropped from the supply system, at the same time taking advantage of instances where a single item can take the place of a multiplicity of similar items. And to this end we could list better than 1500 mine items for which we've eliminated the need for maintaining in DOD stocks!

Such a list would contain so many parts within parts that it would be meaningless to most of our readers, so

instead here's a mine-by-mine list of items such as are called out in OPs and ODs, telling what's obsolete, what is currently preferred, and listing current alternates. In using it, though, you should keep two things in mind:

► Instances where a preferred item has the same mark and mod as an obsoleted item are not typographical errors; the stock number for the preferred item will get you an item that is different from the obsoleted item in some detail that is actually relevant.

► Inclusion here as obsolete does not mean mine shops should deep-six stocks on hand and thereby deep-six their present state of readiness. Instead, report your obsolete gear to BUWEPS and request the proper replacements . . . and hold onto the gear you have until those replacements arrive.

## OBSOLETE MINE COMPONENTS AND RELATED ITEMS

MINE Mk/Mod	OBSOLETE ITEMS	CURRENT PREFERRED	CURRENT ALTERNATE
	<u>Air Dryers</u>		
6/0-11	Mk 2-0/1350-038-5361 Mk 10-0/1350-038-5369	Mk 10-1/A1350-038-5370	None
	<u>Extenders</u>		
6/0-11 6/0, 4, 7, 8, 11	Mk 6-2/1350-038-6852 Mk 14-2/1350-038-6869	Mk 14-1/4T1350-038-6868	Mk 14-2/4T1350-038-6871
	<u>Firing Mechanisms</u>		
6/0-11 6/0-11	K3-0/1350-038-7005 (standard) K3-0/1350-038-7006 (shallow)	K4-1/4T1350-038-7009 (standard) K4-2/4T1350-701-5284 (shallow)	K4-0/4T1350-038-7008 None
	<u>Safety-Line</u>		
6/0, 4, 8, 10, 11	Type X/1350-671-5203	None	None
	<u>Soluble Washers</u>		
6/0-11	DWG 486808/1350-038-7672 DWG 486810/1350-038-7674 DWG 242150-2/1350-038-7664	DWG 1779683/A1350-707-0649 None	None None
	<u>Air Dryers</u>		
6/14	Mk 2-0/1350-038-5361	Mk 10-1/A1350-038-5370	None
	<u>Air Dryers</u>		
10/3, 9	Mk 2-0/1350-038-5361 Mk 10-0/1350-038-5369	Mk 10-1/A1350-038-5370	None
	<u>Clock Starter</u>		
10/9	CS 1-10/1350-038-6723	CS 1-4/4T1350-038-6718	{ CS 1-3/4T1350-038-6717 CS 1-11/4T1350-038-6724
	<u>Extender</u>		
10/9	Mk 14-2/1350-038-6869	Mk 14-2/4T1350-038-6871	None
	<u>Fin</u>		
10/3	Mk 3-0/1350-038-6974	Mk 7-0/4T1350-038-6979	None
	<u>Hydrostats</u>		
10/3, 9	HS 1-0/1350-038-7316 HS 2-0/1350-038-7317	HS 2-2/4T1350-701-7085	None

**RING OUT THE OLD**

MINE Mk/Mod	OBSOLETE ITEMS	CURRENT PREFERRED	CURRENT ALTERNATE
	<u>Parachute Pack</u>		
10/9	Mk 3-0/1350-038-7427	None (OAs 01, 02, 03, 04 cancelled)	None
	<u>Release Mechanism</u>		
10/9	Mk 8-2/1350-038-7526	None (OAs 01, 02 cancelled)	None
	<u>Anticountermeasure Mechanism</u>		
18/0	AC 1-0/1350-038-5352	None (AC no longer required)	None
	<u>Clock Starter</u>		
	CS 1-10/1350-038-6723	CS 1-3/4T1350-038-6717	CS 1-11/4T1350-038-6724
	<u>Extender</u>		
	Mk 14-1/1350-038-6867	14-1/4T1350-038-6868	None
	<u>Float, Drill-Mine</u>		
	Mk 15-0/1350-038-7221	Mk 15-1/4T1350-651-5576	None
	<u>Actuation Counters</u>		
25/0	SE 3-0/1350-038-7580 SE 3-1/1350-038-7581	SE 3-3/4T1350-038-7582	None
	<u>Air Dryers</u>		
25/0, 1, 2	Mk 2-0/1350-038-5361 Mk 10-0/1350-038-5369	Mk 10-1/A1350-038-5370	None
	<u>Clock Delay</u>		
25/0, 1, 2	CD 14-0/1350-038-6293	CD 14-4/4T1350-707-0661	{ CD 14-6/4T1350-707-0660 CD 14-3/4T1350-038-6296
	<u>Clock Starter</u>		
25/0, 1, 2	CS 1-10/1350-038-6723	CS 1-4/4T1350-038-6718	{ CS 1-3/4T1350-038-6717 CS 1-11/4T1350-038-6724
	<u>Control Box</u>		
25/2	Mk 13-0/1350-038-5922	Mk 13-1/4T1350-038-5924	None
	<u>Extenders</u>		
25/0, 1, 2	Mk 12-2/1350-038-6859 Mk 12-4/1350-038-6861 Mk 14-1/1350-038-6867 Mk 14-2/1350-038-6869	Mk 14-2/4T1350-038-6871	Mk 14-1/4T1350-038-6868
	<u>Fairing</u>		
25/0, 1, 2	Mk 1-0/1350-038-6963	None (OAs 07, 08, 09, 15, 17, 18, 19, 20 cancelled)	None
	<u>Firing Mechanisms</u>		
25/1	A5-0/1350-038-6984 A5-1/1350-038-6985	A5-2/4T1350-038-6986	None
25/2	A6-2/1350-671-5181	A6-3/4T1350-620-3419	None
25/0	M11-0/1350-038-7034 M11-1/1350-038-7035 M11-2/1350-038-7036 M11-3/1350-038-7037	M11-4/4T1350-038-7038	None
	<u>Float, Drill-Mine</u>		
25/0, 1, 2	Mk 15-0/1350-038-7221	Mk 15-1/4T1350-651-5576	None
	<u>Parachute Packs</u>		
25/0	Mk 1-1/1350-038-7424 Mk 1-2/1350-038-7425	None (OAs 01, 02, 03, 13 cancelled)	None
25/1, 2	Mk 3-2/1350-038-7429	None (OAs 01, 02, 03, 13 cancelled)	None
25/0	Mk 9-2/1350-038-7433	None (OAs 07, 08, 09, 15 cancelled)	None
25/1, 2	Mk 13-1/1350-038-7434 Mk 13-4/1350-707-0623 Mk 13-5/1350-707-0626	Mk 13-2/4T1350-038-7435	None

**RING OUT THE OLD**

MINE Mk/Mod	OBSOLETE ITEMS	CURRENT PREFERRED	CURRENT ALTERNATE
25/0	<u>Release Mechanism</u> Mk 7-0/1350-038-7521	None (OAs 01, 02, 03, 13 cancelled)	None
25/1 25/0	<u>Sensitivity Switches</u> Mk 3-0/1350-038-7627 Mk 5-0/1350-038-7630	Mk 3-1/4T1350-038-7628 Mk 5-1/4T1350-038-7631	None None
25/0, 1, 2	<u>Suspension Lug</u> British/1350-038-6543	None	None
25/2	<u>Terminal Blocks</u> TB 18-1/1350-093-0738	TB 18-0/4T1350-038-7805	None
25/0	TB 19-0/1350-038-7806 TB 19-0/1350-038-7825	TB 19-0/4T1350-038-7807	None
25/1	TB 25-0/1350-038-7817 TB 25-1/1350-038-7818	TB 25-1/4T1350-038-6399	None
27/2, 3, 4, 5	<u>Air Dryers</u> Mk 2-0/1350-038-5361 Mk 10-0/1350-038-5369	Mk 10-1/A1350-038-5370	None
27/3, 5	<u>Clock Delay</u> CD 14-0/1350-038-6293	CD 14-4/4T1350-707-0661	{ CD 14-6/4T1350-707-0660 CD 14-3/4T1350-038-6296
36/1, 2, 3	<u>Air Dryers</u> Mk 2-0/1350-038-5361 Mk 10-0/1350-038-5369	Mk 10-1/A1350-038-5370	None
36/1, 2	<u>Clock Delay</u> CD 14-0/1350-038-6293	CD 14-4/4T1350-707-0661	{ CD 14-6/4T1350-707-0660 CD 14-3/4T1350-038-6296
36/1, 2, 3	<u>Clock Starter</u> CS 1-10/1350-038-6723	CS 1-4/4T1350-038-6718	{ CS 1-3/4T1350-038-6717 CS 1-11/4T1350-038-6724
36/1, 2, 3	<u>Extenders</u> Mk 12-2/1350-038-6859 Mk 12-4/1350-038-6861 Mk 14-1/1350-038-6867 Mk 14-2/1350-038-6869	Mk 14-2/4T1350-038-6871	Mk 14-1/4T1350-038-6868
36/1, 2, 3	<u>Fairing</u> Mk 2-0/1350-038-6964	None (Mod 1 OAs 07, 08, 09; Mod 2 OAs 07, 08, 09, 15, 17, 18, 19, 20; Mod 3 OAs 05, 06, 09, 10 cancelled)	None
36/2	<u>Firing Mechanisms</u> A5-0/1350-038-6984 A5-1/1350-038-6985	A5-2/4T1350-038-6986	None
36/1, 2, 3	<u>Float, Drill-Mine</u> Mk 15-0/1350-038-7221	Mk 15-1/4T1350-651-5576	None
36/1, 2, 3	<u>Parachute Packs</u> Mk 1-1/1350-038-7424 Mk 1-2/1350-038-7425 Mk 9-2/1350-038-7433	None (Mod 1 OAs 01, 02, 03, 08, 09, 10; Mod 2 OAs 01, 02, 03, 07, 08, 09, 13; Mod 3 OAs 01, 02, 05, 06 cancelled)	None



**RING OUT THE OLD**

MINE Mk/Mod	OBSOLETE ITEMS	CURRENT PREFERRED	CURRENT ALTERNATE
36/1, 2, 3	<u>Release Mechanism</u> Mk 7-0/1350-038-7521	None (Mod 1 OAs 01, 02, 03; Mod 2 OAs 01, 02, 03, 13; Mod 3 OAs 01, 02 cancelled)	None
36/2	<u>Sensitivity Switch</u> Mk 3-0/1350-038-7627	Mk 3-1/4T1350-038-7628	None
36/1, 2, 3	<u>Suspension Lug</u> British/1350-038-6544	None	None
36/1 36/2	<u>Terminal Blocks</u> TB 21-0/1350-038-7810 TB 27-0/1350-038-7820	TB 21-1/4T1350-038-7811 TB 27-1/4T1350-038-7821	None None
39/0	<u>Air Dryers</u> Mk 2-0/1350-038-5361 } Mk 10-0/1350-038-5369 }	Mk 10-1/A1350-038-5370	None
	<u>Clock Delay</u> CD 14-0/1350-038-6293	CD 14-4/4T1350-707-0661	{ CD 14-6/4T1350-707-0660 CD 14-3/4T1350-038-6296
	<u>Clock Starter</u> CS 1-10/1350-038-6723	CS 1-11/4T1350-038-6724	None
	<u>Extenders</u> Mk 14-1/1350-038-6867 } Mk 14-2/1350-038-6869 }	Mk 14-2/4T1350-038-6871	Mk 14-1/4T1350-038-6868
	<u>Firing Mechanism</u> M11-3/1350-038-7037	M11-5/4T1350-038-7039	None
	<u>Suspension Lug</u> British/1350-038-6543	None	None
	<u>Terminal Block</u> TB 24-0/1350-038-7815	TB 24-1/4T1350-038-7816	None
49/0	<u>Actuation Counters</u> SE 3-0/1350-038-7580 } SE 3-1/1350-038-7581 }	SE 3-3/4T1350-038-7582	None
49/0, 1, 2	<u>Air Dryers</u> Mk 2-0/1350-038-5361 } Mk 10-0/1350-038-5369 }	Mk 10-1/A1350-038-5370	None
49/0, 1, 2	<u>Clock Delay</u> CD 14-0/1350-038-6293	CD 14-4/4T1350-707-0661	{ CD 14-6/4T1350-707-0660 CD 14-3/4T1350-038-6296
49/2	<u>Control Box</u> Mk 13-0/1350-038-5922	Mk 13-1/4T1350-038-5924	None
49/1 49/2 49/0	<u>Firing Mechanisms</u> A5-0/1350-038-6984 } A5-1/1350-038-6985 } A6-2/1350-671-5181 } M11-0/1350-038-7034 } M11-1/1350-038-7035 } M11-2/1350-038-7036 } M11-3/1350-038-7037 }	A5-2/4T1350-038-6986 A6-3/4T1350-620-3419 M11-4/4T1350-038-7038	None None None

**RING OUT THE OLD**

MINE Mk/Mod	OBSOLETE ITEMS	CURRENT PREFERRED	CURRENT ALTERNATE
49/1 49/0	<u>Sensitivity Switches</u>		
	Mk 3-0/1350-038-7627	Mk 3-1/4T1350-038-7628	None
	Mk 5-0/1350-038-7630	Mk 5-1/4T1350-038-7631	None
49/2 49/0	<u>Terminal Blocks</u>		
	TB 18-1/1350-093-0738	TB 18-0/4T1350-038-7805	None
	TB 19-0/1350-038-7806 TB 19-0/1350-038-7825	TB 19-1/4T1350-038-7808	None
49/1	TB 25-0/1350-038-7817 TB 25-1/1350-038-7818	TB 25-1/4T1350-038-6399	None
	<u>Air Dryers</u>		
50/0	Mk 2-0/1350-038-5361 Mk 10-0/1350-038-5369	Mk 10-1/A1350-038-5370	None
	<u>Clock Delay</u>		
	CD 14-0/1350-038-6293	CD 14-4/4T1350-707-0661	{ CD 14-6/4T1350-707-0660 CD 14-3/4T1350-038-6296
<u>Extenders</u>			
	Mk 16-1/1350-707-0655 (EMT)	Mk 16-0/4T1350-038-6877 (EMT)	None
	Mk 16-1/1351-707-0656 (XPL)	Mk 16-0/4T1351-038-6878 (XPL)	None
<u>Fairing</u>			
	Mk 3-0/1350-038-6965	None (OA 02 cancelled)	None
<u>Hydrostatic Switch</u>			
	Mk 22-0/1350-038-7354	Mk 22-1/4T1350-671-5235	None
<u>Parachute Pack</u>			
	Mk 15-1/1350-038-7438	Mk 15-0/4T1350-038-7437	None
52/0-6	<u>Parachute Pack</u>		
	Mk 20-1/1350-038-7444	Mk 20-0/4T1350-038-7443	None
53/0	<u>Parachute Pack</u>		
	Mk 21-1/1350-038-7446	Mk 21-0/4T1350-038-7445	None
55/0-6	<u>Parachute Pack</u>		
	Mk 24-1/1350-707-0622	Mk 24-0/4T1350-707-0621	None
56/0	<u>Parachute Pack</u>		
	Mk 28-0/No Stock Number	Mk 28-1/No Stock Number (DWG 2004386)	None

**... and that's not all**

**I**N addition to the above you should know that the complete Drill Mine Mark 50 Mod 0 has been declared obsolete, as has Controlled Mine System Mark 1 Mod 0. And this, of course, is still not the end. Because of the vast dollar savings involved the standardization program will continue and the list of obsoleted items will grow, and all this fine work will be reflected in changes and revisions to your OPs and ODs.

One more thing: An incredible number of interchange-

able soluble washers are being combined under single FSNs for stocking purposes, in the process of which the following ones are no longer needed and have been declared obsolete:

- Soluble Washer DWG 231445-7, FSN 1350-038-7675
- Soluble Washer DWG 362592-6, FSN 1350-038-7669
- Soluble Washer DWG 362615-16, FSN 1350-038-7663
- Soluble Washer DWG 362726-2, FSN 1350-038-7677
- Soluble Washer DWG 394836-12, FSN 1350-038-7678

## YOU CERTAINLY CAN

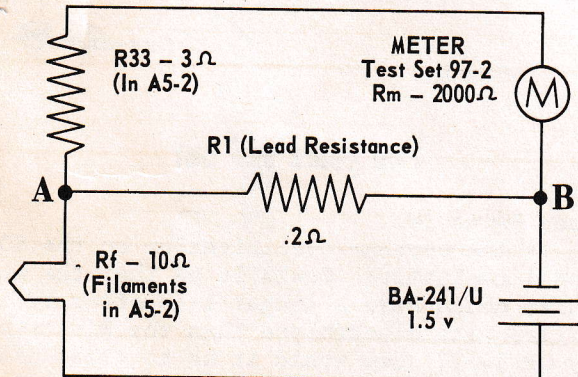
Any number of times since T-Shooter was last named official (Issue 3-62) readers have asked whether they could also consider info in the earlier issues as official scoop.

The answer is yes. Just remember that it's always possible that info in a later issue may have corrected an earlier item. Always check the Pub-S-Crawlin' items and your index to be sure of the latest word.

## NO-VOLTAGE TEST SHOWS VOLTAGE?

<sup>OPERATIONAL TESTS</sup>  
**I**n pre-det tests for Mine Mark 49 Mod 1 stray voltages in the firing mechanism have been showing up on the test-set meter, a red flag to all minemen. This voltage disappears when the set is disconnected, and can be ignored as a danger signal. When Navy 66 experienced this phenomenon with some 49-1s this voltage showed when they connected their Test Set 97-2 to the detonator leads of the Firing Mechanisms A5. Naturally they stopped assembly until they got the all clear.

After some truth seeking we've come up with an explanation that will reassure others who experience the same thing. Here is a portion of the test circuit that shows the whys and wherefores:



NOTE: In Mod 3 of Firing Mechanism A5 Resistor R33 is not present. This does not affect explanation here.

When the filaments of Firing Mechanism A5-2 are energized there is a very small voltage drop across common lead A-B (resistance L) in the lower loop of the circuit. If we assume that the only resistances in the lower loop are RL and RF (total 10.2 ohms) voltage drop across RL will be .03 volts (although R33 and RM are in parallel with RL there is no loading effect and the voltage drop across R33 and, RM will be .03, the same as across RL alone). Ohms law then gives a current of 15  $\mu$ a through the test set's meter.

When the test set is disconnected the common lead including RL is eliminated, removing the stray voltage in the circuit. And with no voltage on the det leads, there is no danger in proceeding with detonator connections.

TROUBLESHOOTER 3-63

## AND WHAT HAPPENED TO THOSE CA-800's?

**C**ABLES can weave a tangled web. If you don't believe it, just consider what happened with those new molded jobs used in Mods 2 through 6 of Mines Mark 52 and 55.

To begin with, Actuation Counter Mark 10 is used for these Mods and Cable Assemblies 832 through 836 made the connections just right. Then along came Actuation Counter Mark 13. It's better than the Counter Mark 10, but we're still going to use up the 10s already bought before we switch 100 percent to the 13s. Good thinking.

So what's the rub? The Counter Mk 13 needs one more lead than the Mark 10. So cables in the 1800-series were designed (CAs 1832 through 1836) which have the extra lead for the Counter Mark 13 and can also be used with the Counter Mark 10. Still the thinking is good.

### LET'S GET 'EM RIGHT

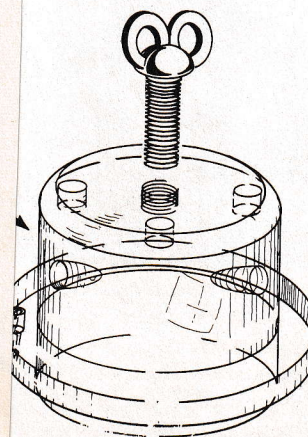
The rub is that Change Bulletin #2 to the "G" book (OD 12067-G) deleted the 800-series cables. And that's bad, because these cables cost about \$134.00 each and they'll just be junk if they are not used up when the Actuation Counters Mark 10 are used up. The word: Save BUWEPS some dough by using only the 800-series cables in Mk 52 and 55 mines in which you install Actuation Counters Mark 10.

Another mistake in Change Bulletin #2 was that it listed the 1800-series cables with the DWG and FSN numbers for the 800-series. Probably the next change will put the 800-series back in the book, get the numbers right, etc., etc., but meanwhile — so you can start saving that dough right now — here's the advance dope on which to use with what:

'Nuff said?

*B. Amablebert*

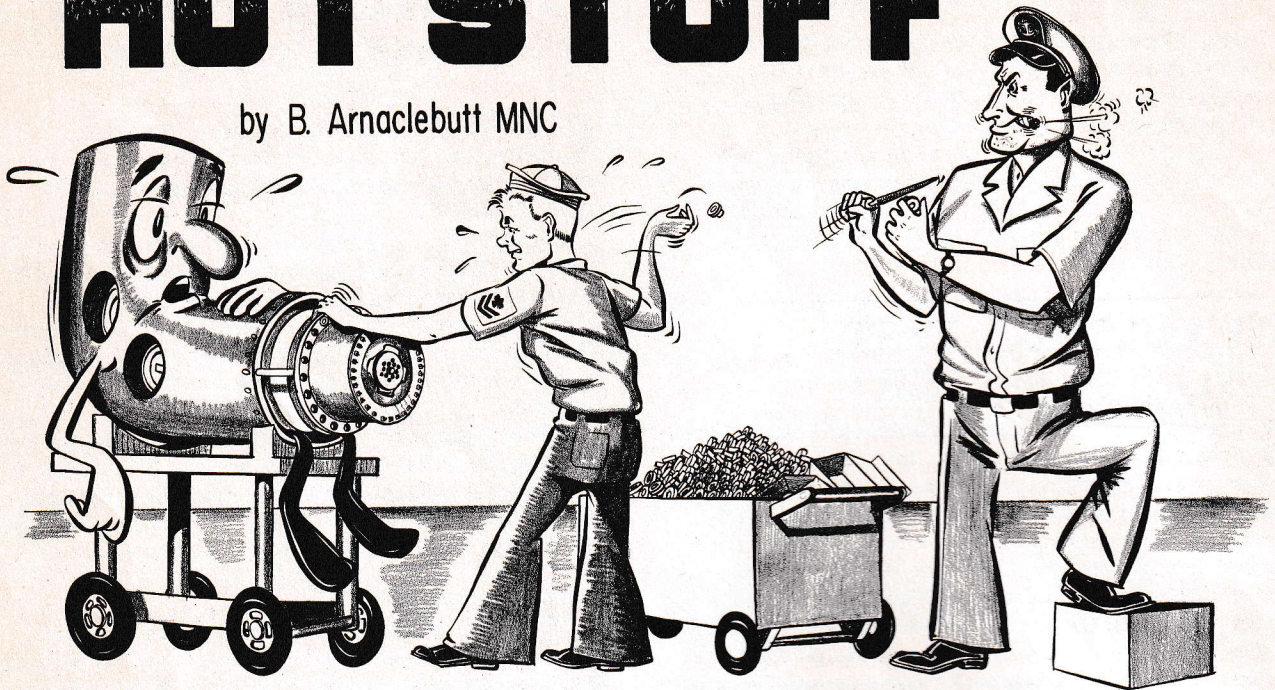
### DEPRESSOR Mods 9 and 12



- ▶ Drill and tap hole through top of plastic covers for 1/4 inch screw with at least one inch of thread.
- ▶ May weld washers to screw heads for leverage.
- ▶ File flat one side of Safety Pin to thickness shown.

# HOT STUFF

by B. Arnaclebutt MNC



NOTE: Information in this feature has been verified by BUWEPS' design-cognizant agency for depth-charges and mines. Except where otherwise indicated readers are therefore authorized to adopt these ideas and procedures pending preparation of changes and revisions to master design documentation.

One caution: don't reduce outer diameter of the bushings' barrels portion to less than half an inch.

*B. Arnaclebutt*

## Thirty per mine!

Dear Barnacles:

Figure 1 of OP 1935 Volume 3 shows the cylindrical adapter that holds the firing components separated from the case. Paragraph 8 on page 80

55/0-6

Parachute Pack

Mk 24-1/1350-707-0622

56/0

Parachute Pack

Mk 28-0/No Stock Number

## ... and that's not all

**I**N addition to the above you should know that the complete Drill Mine Mark 50 Mod 0 has been declared obsolete, as has Controlled Mine System Mark 1 Mod 0. And this, of course, is still not the end. Because of the vast dollar savings involved the standardization program will continue and the list of obsoleted items will grow, and all this fine work will be reflected in changes and revisions to your OPs and ODs.

One more thing: An incredible number of interchange-

## Two years and out

Dear Barnacle:

Is the current specification on the SD-4 Mod 1 realistic? Could it be that the mechanism could have a longer life after it is filled with electrolyte than the limits set by OP 1452? How would it be to allow use of SD-4s as long as the device passes the continuity, current-drain, and leakage tests in OP 1452?

M. G., MNC

Dear Chief:

You're right and wrong. Here at NMEF we're pretty sure the average filled sterilizer will have a useful life of at least two years. This includes shelf life and mine plant life. So far you're right.

But when it comes to sterilizer life being based on tests, you're wrong. The best info we have to date indicates that SD-4s, after two years with electrolyte in them, are at the end of the road no matter how many tests they pass. So for now, retire them! This story may be dif-

ferent, though, if laboratory studies now underway show that life can be extended by replacing the electrolyte.

When the results are in we'll pass the word. Meanwhile T-Shooter readers can get up to date by changing their copies of OP 1452 as directed in Pub-S-Crawlin' in this issue.

*B. Annaclett*

### Help for the depressed

Dear Chief Barnacle:

So in "Trim the Fat" (T-Shooter 4-62) you say that Clock Starter Depressor Z1350-093-1043 will be dropped from the supply system because we all can make our own so much cheaper than Navy can buy them. That's great for mods 3, 4, and 11 of Clock Starters Mk 1, but what about mods 9 and 12?

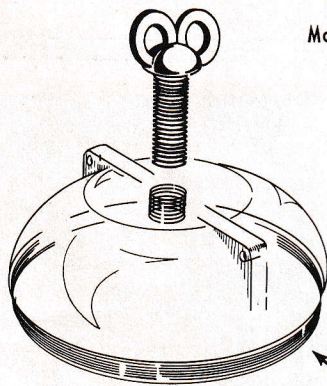
A. T. M., TM2

Dear A. T. T.,

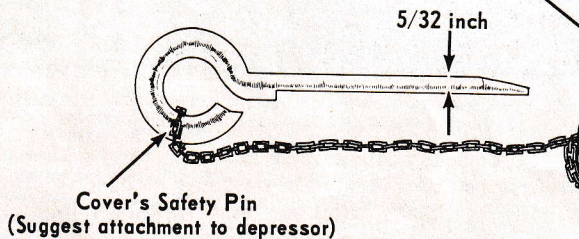
Same deal. Anybody who wants depressors will make their own from here on out. The sketches on this page show how I made two types that handle all mods.

*B. Annaclett*

DEPRESSOR  
Mods 3, 4, and 11



DISCARDED PLASTIC COVERS

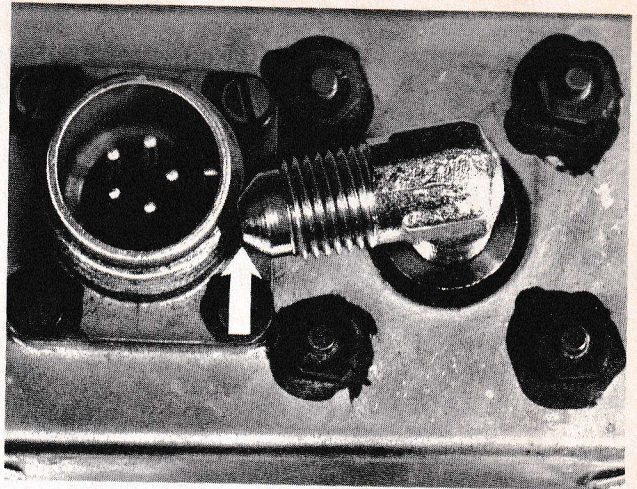


DEPRESSOR  
Mods 9 and 12

▶ Drill and tap hole through top of plastic covers for 1/4 inch screw with at least one inch of thread.

▶ May weld washers to screw heads for leverage.

▶ File flat one side of Safety Pin to thickness shown.



### More elbow room

Dear Columnist:

In your Hot Stuff column in T-Shooter 2-62 you had a piece called "Elbow Room" about oversize elbows on Mk 3-1 sensitivity switches that looks as if it had pooped out. Otherwise where's that BUWEPSNOTE telling us to screen our stocks?

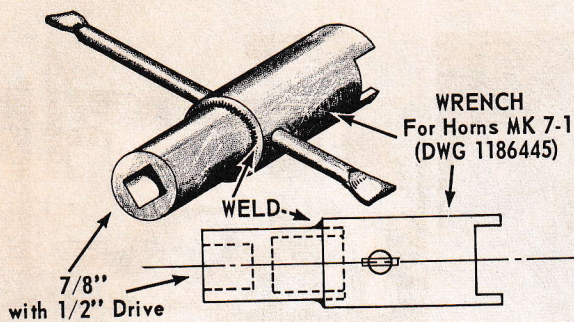
E. T. O. MN2

Dear ETO:

It's nowhere. But we're official now so I can tell you again to do just like I said: When you come across an elbow that's too long to clear that 3-1 switch's amphenol, set it aside and find an elbow that will. If you don't have any luck this way, then remove the amphenol and tighten that long john into position, and then put the amphenol back.

Also be sure to secure it's fastenings with glyptal. 'Nuff said?

*B. Annaclett*



### Do it yourself

Dear Butt:

OP 2129 (Mine Mk 6 Mod 14) calls for torque limits on the nuts for Horns Mk 7-1 but you can't use a torque wrench with those special wrenches DWG 1186445. How come?

Terry, MN2

Dear Terry:

Originally that wrench had no provision for torque wrench use but Revision A to DWG 1186445 added a 7/8" socket with 1/2" square drive, welded to the top end of the wrench. This was fine for new procurement but what about people like you who got an original? Here's what you do:

Get a 7/8" socket with a 1/2" square drive, G5120-189-7934, put it in the top of the wrench so the drive end

protrudes enough to fit the male end of your torque wrench, weld like we show here, and you're in business!

*B. Amadebutt*

### Hue and cry havoc

Dear Barnacles:

Many pubs don't agree on colored drill signals. Once and for all, what are the correct colors?

H. U. E., MN1

Dear Huey:

Once and for all was in "Smoke on the water" on page 5 of T-Shooter 3-62, like so: Drill Mine Signals Mark 39-0 green, Mark 40-0 green, Mark 43-0 red, and Mark 44-0 red. Here's some help with those pubs problems:

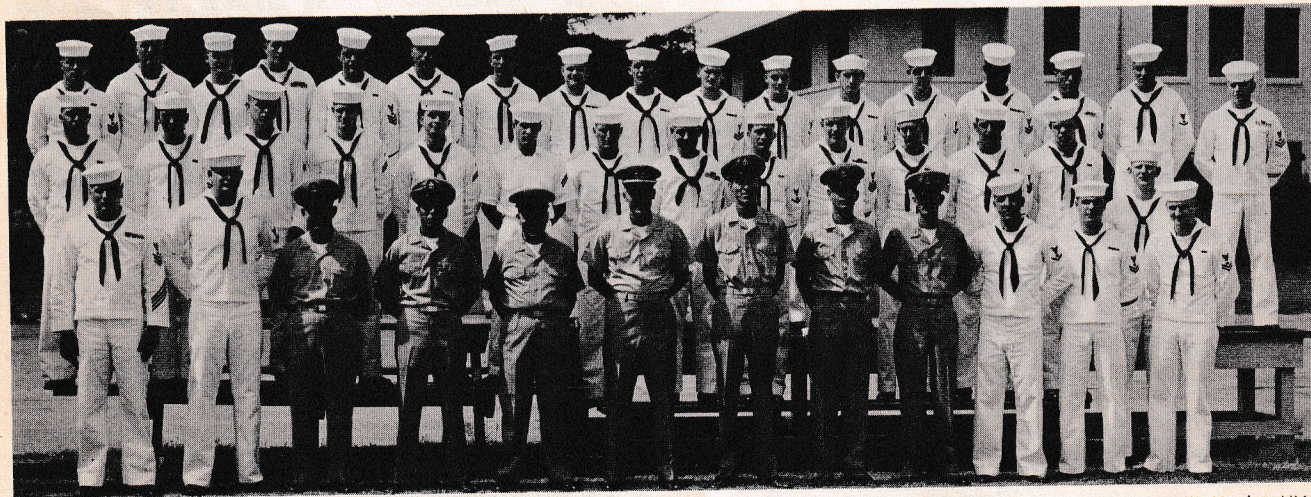
Make the correction to OD 7303 called for on page 14 of T-Shooter 3-62.

In OD 12067-G 1st Rev, on page 106, add: SIGNAL ASSEMBLY, MARK 43 MOD 0, RED, LD 480068, F/ DRILL MINES, FSN J1351-000-4782. This OD should now contain all you need for correcting any pub discrepancies regarding the identification of these signals.

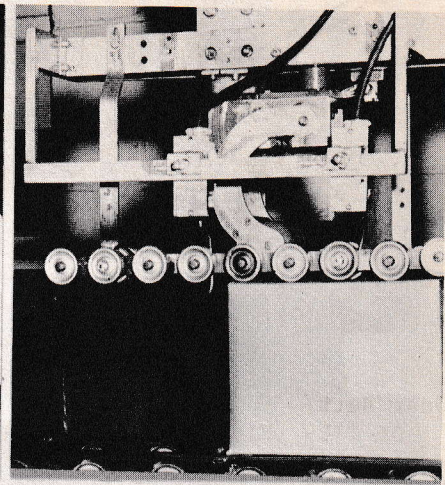
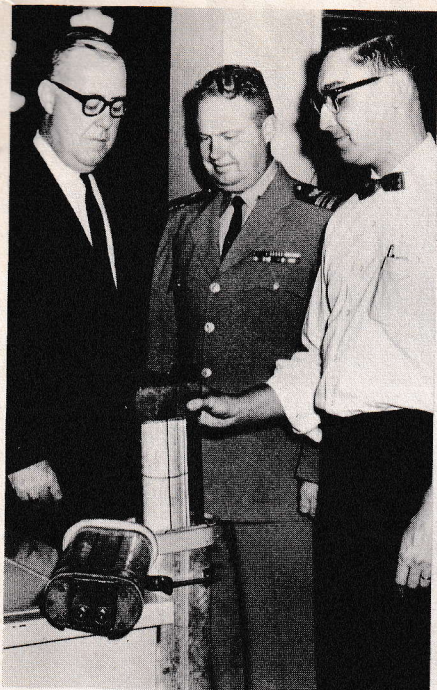
The seven volumes of OP 1816 2d Rev have this signal info straight; OD 16135 2d Rev w/Change 1 does not list these signals.

Right now, Signals Mark 40 and Mark 43 are not available. We'll let you know when you can get them.

*B. Amadebutt*



A group proud of its record is the Mine Production Crew at Navy 66. L to R: Front row - L.A. Foster, MN1; M.J. Taylor, MN3; P.W. Hanks, MNC; J.M. Alonzo, MNCA; J.W. Powers, MNCM; CHMINWARTECH R.F. Dredger; J. Bucholz, MNCA; M.L. McCune, MNC; D.J. Branan, MNCA; G.T. Barger, MN3. B.E. Rebbetoy, MN2; D.L. Miller, MN2. Middle row - G. Mason, MN2; F.J. Bartram, MN2; G.W. Davis, MNSN; W.E. Vines, Jr., MNSN; D.L. McCalla, MNSN; R.W. Vermette, MNSN; H.P. Hart, MN3; E.F. Muszynski, MN1; B.G. Gotshall, MN1; J.R. Ruth, MN1; H.M. Williams, MN1; C. E. Combs, MN3; D.M. Sharp, MNSN. Back row - W.R. Jacques, MN1; R.C.H. Davis, MN1; R.B. Moutier, MNSN; A.P. Kirkwood, MN3; O.G. Smith, MN1; F.J. Cline, MN1; R.D. Evans, MNSN; C.F. Schaefer, MN3; G.A. Hellein, MN1; R.J. Rohr, MN2; G.J. Relosky, MN3; D.R. Jones, MN2; R.R. Haldy, MN3; K.H. Brown, MN2; J.F. Harrison, MN2; D.H. Holt, MN3; R.L. Koeller, MN2. Not present - J.W. Fields, MNCS; G.A. Chipman, MNC; R.L. Anderson, MN1; R.M. Austin, MN1; D.L. Collins, MN2; R.L. Head, MN2; E.R. Szczutkowski, MN2; W.R. Terry, MN2; C.S. Cowell, MN2; P.E. Crum, MN3; A.J. Dipko, MN3; R.C. Knight, MN3; T.V. Samino, MN3; H.B. Steen, MN3; J.A. Hoehne, MN3A.



**MACHINE MAGIC AT NSD/PHILADELPHIA:** Your requisition is speeded to Bin Storage Branch by pneumatic tube (upper left). In other depot areas mailings are prepared by a collating machine and automatic envelope inserters (upper center) and if your pubs don't fit in an envelope the automatic carton sealing machine (upper right) does the job. A pallet load of pubs are shown (right) being fork lifted to a ready-for-issue stock bin.

*continued from page 6*

The majority of (these) items . . . are not financially accounted for and are issued on a no-charge basis. Issues of this material normally are made for immediate use and are not intended for stock. [Before] NAVSTRIP, NSD/Philadelphia was authorized to discontinue maintaining proof-of-delivery or proof-of-shipment files for the reasons stated above.

"In view of the economies realized as a result of these simplified procedures, [all ships and stations] will requisition [cog I] material . . . on DD Form 1348."

Our sample NAVSTRIP, then, shows all the info you need to get any OPs you want, almost by return mail. NSD/Philadelphia supplied samples to us, and they should know better than anyone else what they need.

You can order back issues of Troubleshooter exactly the same way. Only two are still out of print and both will be back in stock soon.

**HOW TO TURN OFF A FLOOD**

Knowing that NMEF has succeeded in getting virtually all mine and depth-charge OPs into cog I, you've probably guessed that NSD/Philadelphia is now handling distribution

of all our new changes and OPs. They are. And while a few activities may still find they're being slighted, far more are complaining that they're getting too many copies of everything we publish.

Now we're not bothered by your complaints either way. Getting our distribution formulas and label-printing procedures mechanized is bound to have introduced mistakes that need corrections and without your complaints we'd be lost.

But please — repeat, please — don't send us extra copies of forms, changes, Troubleshooters, or OPs. It's not that we're not an NSD. The NSD doesn't want them either, and for very good reason: most such returns cost more to handle than new items cost to print.

The word, then, is merely to notify NMEF by letter whenever you receive too many or too few of a mine or depth-charge OP. Once you've done that, destroy what you don't need.

Your authority to destroy is paragraph 1b(1) of Part E of NAVSANDA Publication 2002. If it's classified matter, destroy by burning as explained in paragraph 0623.1 of section 5 of OPNAVINST 5510.1B.

# NAIL THAT PROBLEM

A high-contrast, black and white illustration. A hand in a dark, textured glove holds a nail vertically, driving it into a document. The document is crumpled and has the word 'RUDMINDE!' printed in bold, black, sans-serif capital letters. The background is dark and textured, suggesting a rough surface. The overall style is gritty and dramatic.

**RUDMINDE!**