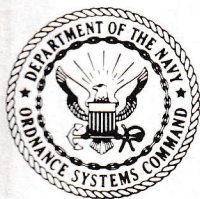
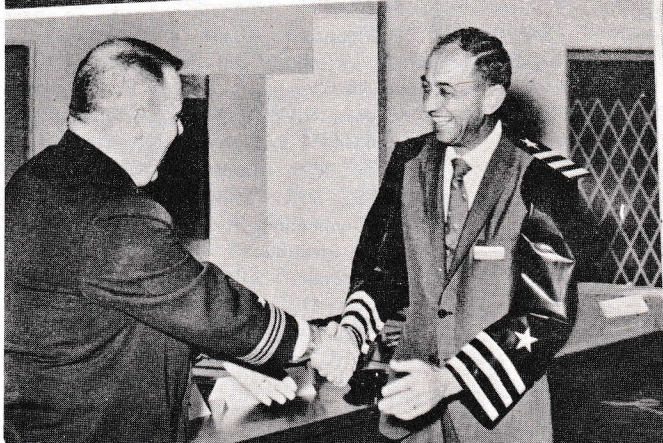


THE MINE AND DEPTH CHARGE TROUBLESHOOTER

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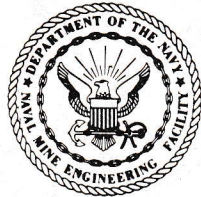
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RADM MARK H. WOODS, USN
 Commander, Naval Ordnance Systems Command

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

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



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TROUBLESHOOTER

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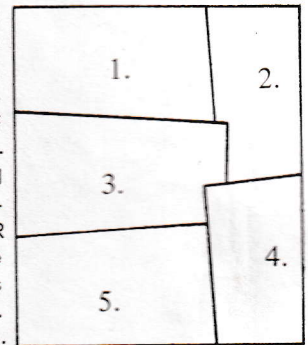
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COVER

A composite of views of some of the activities snapped during the 26th Annual Mine Conference hosted by the Naval Mine Engineering Facility at Yorktown. 1) Seated at the speakers' table, left to right, are: J.R. Blouin, NAVORDSYSCOMHQ; CDR C.I. Stratmann, CNO; CAPT G.H. Davis and CAPT J.E. Myrick, NAVORDSYSCOMHQ; CDR R.H. Almonrode, OIC NAVMINENGR-FAC; D.R. Traina, NAVORDSYSCOMHQ. 2) Commander Almonrode welcomes conference attendees. 3) A candid camera shot of the members of the mine community in attendance. 4) Captain Myrick, co-host and head of the Mine Warfare Division, NAVORDSYSCOMHQ, addresses the conference. 5) LCDR E.L. Roberts, NAVORDSYSCOM, whose name has appeared on the CDR promotion list, is the victim of a prophetic gag. LCDR L.M. Stryker is on the other end of the handshake.



PUBLISHED BY THE NAVAL MINE ENGINEERING FACILITY, YORKTOWN, VIRGINIA, 23491

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WHY AND HOW OF B- AND C-TEST FORMS

Hundreds of the new B-test and C-test report forms are being received monthly at NAVMINENGRFAC contributing valuable data to support the Mine Maintenance Program. No little credit for this is the way mine activities have grasped the intent of the new forms and included correct data neatly inscribed.

Before the introduction of the new test forms, the Rudminde Program was utilized in the same area of reporting in narrative form that emphasized defects. Defects alone, while a major source of information relative to problem identification, cannot truthfully assess stockpile quality. The new test report forms include data on the results of all testing, good as well as bad and so give a true picture. The B-test and C-test forms also have the virtue of standardizing reports so that identical defects will relate one to the other.

Data reported to date has been very gratifying. This type of timely information not only provides a running account of the quality of pre-positioned mine hardware but also sheds light on related areas. Trends, for example, are uncovered which point to "weak link" components, analysis of which can lead to changes in design, publications, procedures, or storage criteria, to insure a quality end item.

The introduction of any new systems introduces unanticipated problems. Important decisions, for example, are made from the data received; so first off, the data received must be accurate. Here are some other less obvious pitfalls that can cause confusion.

Legible and Complete

Legibility is of first importance. Poor or careless handwriting may create many errors that would not otherwise occur. Also forward only the original and retain the carbon for your own purpose. The forms are printed on NCR carbonless paper so they make their own copy. It is preferable to print. For example a handwritten "A" sometimes looks like a "K". Copying your figures from a test report can also present a recording problem if you do not put a slash (/) through the numeric zero. It should be shown as "0". An "0" may be recorded as a letter.

When information is not available or unknown, leave the block blank. Do NOT insert "N.A.", "Unk.", or "None". But remember, a blank block reduces the effectiveness of other data on the test report. A block should not be left blank as "the easy way out". Every effort should be made to fill each and every block with usable information, including the Element Code block (Troubleshooter 1-70).

B-Test and C-Test Forms are only concerned with service material. The inclusion of components used in drill mines distorts the picture of the quality of mine stocks. Do not report results of tests of drill mine material.

So the B-Test Forms could be used as a test log of all components B-tested. Space is provided for all serials passed or failed. This is for mine activities that desire such a log. Only serial numbers of components that failed are required by NAVMINENGRFAC, but the total number of components tested, if the serial numbers are recorded or not, should appear in the Total block at the bottom of the Component Serial Number column. It should agree with the sum of the totals at the bottom of the passed and rejected columns. Totals shown on any B-test form sheet will be for that component appearing on that sheet only. Do not include cumulative totals on the last of a series of identical test forms.

Whenever a C-test form that lists a component, or components, that caused a mine failure is forwarded, be sure a B-test form that lists that component or those components that caused that failure accompanies it. Disposition instructions will not be issued on components recorded on a C-test form only. When a component is involved in a C-test form report of a mine failure, but subsequently passes a B-test it will be reported, and the circumstance explained via the remarks column, on the B-test form.

For Special Attention

If the report of the number of components failing exceeds the number of mine failures as listed on a C-test form, note the circumstance in the Subsequent Actions/Remarks column on that C-test form.

The assembled instrument rack test for the Mks 52, 55, 56, and 57 mines is a C-test and requires a report on a C-test form.

Although there is no B-test for cables they should be reported when rejected in the course of a C-test and also reported on a B-test form. Rejected cables will be held for disposition, properly packaged to insure against shipping damage, awaiting recall for analysis by NAVMINENGRFAC. But do not ship them until called for. Otherwise the Facility will not know the reason for return of the cables.

Continued on page 2

The FLEET LIAISON STAFF

Naval Mine Engineering Facility, Yorktown, Virginia 23491

The FL Desk responsible for this Shoptalk column stands ready to assist minemen everywhere with their problems, large and small.

Lt. Paul W. Hanks, Department Head
 CWO B. E. Wharton CWO P. E. Dechene
 CWO O. G. Smith CWO R. W. Padgett

(703) 887-2410 AUTOVON 723-1900
EXTENSIONS 492/695

SHOPTALK

Continued from page 1

Marks and mods should not be mixed, that is should not be reported on the same B-test form. An odd animal is the SR 7 and the Mk 25 sensitive relay, but the rule against mixing still holds here. They are identical, but each requires a separate B-test sheet for reporting. Make sure both the Mk and Mod of a component is recorded.

C-test forms are classed confidential without exception, but B-test forms are not. The Facility is receiving over-classified B-test forms. Only when NAVORDINST 5511.9 requires it, should the B-test form be classified. Don't classify except for cause.

If you mail B- and C-test forms as maintenance is performed instead of saving them until the maintenance cycle is complete, it will be easier for everybody. Storage area will be conserved at the activity and the possibility of loss of forms will be less, and for the Facility the work load will be spread more evenly. It is you people that will be responsible for the success, or failure, of the program. The front-line troops are those in the mine-force who are responsible for accomplishing the forms. At the Facility its correct evaluation depends on those who record it and process it for computer memory banks that will let the overall picture emerge. But no electronic hocus pocus will assure the programs success without the intelligent efforts of the men who report and evaluate the data.

SEE YELLOW? HEED WARNING

In the past when a culprit was being marked with yellow he was usually being drummed out of the service. Not so in this case, but he is being restricted. The culprit is one lot of the battery BA 1359/U, normally a good performer as the firing and sterilizing battery of the Mines Mk 56 and 57. The bad performance of one group does not reflect the performance of all and it's the Code 12-69, contract DAAB 05-70-C-1218, that causes the problem.

This group of BA 1359's can't take the combination of the low temperatures associated with high altitude and the shock of water entry. Since the dollars involved precludes complete removal from service use, they are being restricted for use with the Mine Mk 57. That's where the yellow marking comes in. On the socket end of the battery, in 1/4" yellow characters, will be stenciled, by the depots, "MINE MK 57 ONLY." On the outside cardboard box, below the identification label and on the shipping container below the identification marking, all stenciled in black, will be "USE IN MINE MK 57 ONLY."

NAVMINENGRFAC is ensuring that these batteries are not issued to activities with Mine Mk 56 only, but those with both the Mines Mk 56 and Mk 57 will have to control the use of the restricted batteries. During the crucial moments of a "no-drill" upgrading, you wouldn't want to discover you had broken out the wrong batteries for thawing.

At this writing the remaining life of the batteries at the depots is 18 months. So, as long as they're around don't let them get installed where they're not wanted.



Recently Distributed

- OP 956 REV 5: Mine Mk 25-0, Assembly
- OP 1452 VOL 2 REV 4 CH 1: Adds B-tests, Depth Compensator Mk 3 and Sensitivity Switch Mk 3
- OP 1765 REV 4: Mine Mk 25-2, Assembly
- OP 2567 PT 1 VOL 3 REV 0 (Secret): Adds B-tests, Firing Mechanism Mk 37 and Control Box Mk 49
- OP 2572 VOL 1 REV 3: Service Mine Mk 56, Assembly
- OP 3232 REV 0: Air-Laid Mines, Preparation for Delivery to Aircraft.
- OP 3388: Test-Set Qualification
 - VOL 1 REV 1: Sets Mk 1 thru 126
 - VOL 2 REV 0: Sets Mk 127 thru 264
 - VOL 3 REV 0: Sets Mk 265 and above
- OP 3504: Mine Configuration Data
 - VOL 1 REV 3: Cross References
 - VOL 4 REV 3: Bills of Material
 - VOL 6 REV 0: Parts Breakdowns
 - VOL 7 REV 5: Deployment References

Released to Print

- OP 1452 VOL 2 REV 4 CH 2: Adds B-tests, Hydrostatic Switches Mk 41 and 42
- OP 1452 VOL 5 REV 4 CH 0-2: Adds Magnetic Pole detector Mk 10
- OP 2718 VOLS 1, 2 REV 2: Mine Mk 57 Assembly
- OP 3388 VOL 1 REV 1 CH 1: Test-Set Qualification. Adds instructions for placing meter switches in storage, shipping position.

In Final Preparation

- OP 1452 VOL 1 REV 4 CH 3: Cancels postal changes
- OP 1452 VOL 2 REV 4 CH 3: Adds B-tests, Arming Devices Mk 10, Mk 11, and Depth Control Unit Mk 78
- OP 1452 VOL 3 REV 4 CH 2: Updates stenciling and color-codes
- OP 1452 VOL 5 REV 4 CH 1: Cancels postal changes
- OP 1860 VOL 1 REV 3 CH 2: Alters Set 456 Calibration procedure.
- OP 2572 VOL 2 REV 3: Drill Mine Mk 56 Assembly

In the works (in order of intended release)

- OP 3379 VOL 1 REV 1: Maintenance Guide
- OP 3504 VOL 5 REV 2 CH 1: Adds test equipment Allowances
- OP 1860 VOL 6 REV 0 (Secret): Adds Sets MK 435-0, Mk 436-0, and Mk 450-0
- OP 1452 VOL 4 REV 4 CH 1: Alters B-tests, CD-8, CD-10, CD-14, and CD-17

* This report is designed to keep readers abreast of what is going on behind the scenes concerning technical manual projects. It is not designed to compete with OP 3504 VOL 7, which is the only list of technical manuals, revisions, and changes authorized for fleet use.

NEW TEST SET SHIPPING CONTAINERS ON THE WAY

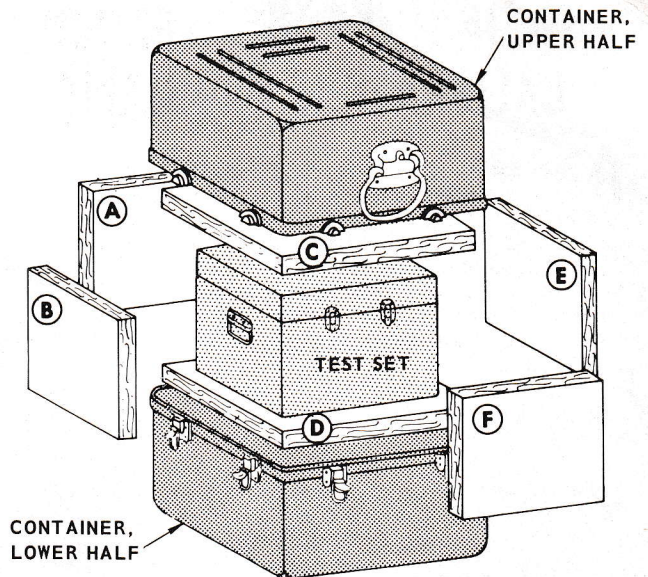
TEST SETS:

Activities should be receiving the first of the new, reusable fiberglass shipping containers any day now. They are designed to give older design test sets protection from shock and vibration damage when being shipped for repair or calibration. The test sets requiring the protection of these containers include all except the Mk 400 series, and some higher number in the Mk 300 series, which already have newly-designed carrying cases incorporating the protection and cushioning to insure against damage from handling during shipment. There is one exception; i.e., the Test Set Mk 456, part of the Test Set Checkout Group Mk 1 for which Shipping Container Mk 505 is provided.

The shipping containers and the newer carrying cases are lookalikes, but should not be confused in use. The containers are for shipment of test sets only and not to be used for shelf stow or transport within the activity area. There are not enough containers for that. The four sizes, Mks 502, 503, 504 and 505 are designed to take care of 36 test sets, 6 power supplies and 2 accessory sets. They are airtight so that the air relief valves with which they are equipped must be operated when the containers are closed and opened. Each activity will receive containers as they become available. Allowances have been based on the number and variety of test sets the activity holds. Also taken into consideration is the location of available repair and calibration facilities; the more distant they are, the greater the need. For example, a CONUS activity such as WPNSTA Charleston, will receive fewer of any one container than NAVMAG Subic. There, no doubt, will be some disagreement; but do not requisition additional containers for your convenience since no stocks exist to supply them. These containers will be kept in circulation so that they will come back to you with your repaired or calibrated test set. They should never be allowed to accumulate at repair depots or cal labs.

A tabular listing of the test sets which each container will carry is published in the introduction to Volume 1 of OP 3388 Revision 1. The tables also show the size and number of cushions each container will need to firmly hold the test set it contains. These cushions will not be supplied with the containers, but will be cut from 2-inch sheet cushioning material, 5C00110, requisitioned independently by the user. The cushioning is an uncompressed horsehair-type fiber, FSN 8135-664-0057. The sheets measure 2 by 6 feet, cost \$2.35 a sheet, and come twelve sheets to a standard pack.

The first containers off the production line will be the Mk 502's and 503's. In a matter of months the Mk 504's and 505's will follow. Dollars will not support the allowance in NAVMINENGRFAC INST 8011.1 as it is being updated, for the Shipping Container Mk 504, but don't believe you are being short changed; you are being sent all that we have



Cushions, identified as (A) through (F) will vary in size and number.

SHIPPING CONTAINER DIMENSIONS						
NOMENCLATURE				SIZE (Inches)		
MMC		Mk	Mod	L	W	D
3C00408	Container	502	0	15	14	10
3C00410	Container	503	0	22	14	14
3C00412	Container	504	0	30	18	14
3C00414	Container	505	0	41	23	19

SHIPPING CONTAINER DISTRIBUTION LIST				
Activity	Mk 502	Mk 503	Mk 504	Mk 505
WPNSTA Yorktown	1	1	3	3
NAD Hawthorne	1	1	3	2
NAD Oahu	2	2	4	5
NAD Bangor	1	1	3	2
NAD Earle	1	1	2	2
WPNSTA Charleston	1	1	3	2
MOMAU LANT	2	2	5	6
MOMAU PAC	2	2	3	4
NAVMAG Subic	2	2	5	5
NAVMAG Guam	2	2	5	5
NAF Naha	2	2	5	5
NAVORDFAC Sasebo	1	0	1	2
NAVORDFAC Yokosuka	2	2	5	5

available under the current contract. Before you put any of the containers into use, be sure to read the introduction to Volume 1 OP 3388 Revision 1 which you should now have on your OP shelf. In addition to the tables crossing containers to test sets and cushion sizes, it includes other important directions for stenciling.

CORRECTION

On page 6 of Troubleshooter 2-70 the photographs accompanying the text Foiled By A Solenoid inadvertently were reversed. That photograph identified as top left should have been bottom left and vice versa. With this change the identification reads properly.

EASING TORQUE WRENCH CALIBRATION PROBLEMS

Replacement of torque wrenches that fail to pass calibration continue to plague mine shops. Time effort and expense are the factors that make the problem of getting a higher degree of reliability from torque wrenches burdensome. For relief, activities have been asking for relaxation of calibration or calibration only within the range of torque for which the wrench will be used. Here is the word.

Navy Calibration Labs are not authorized to relax the $\pm 1\%$ tolerance required by instrument calibration procedures under which they operate but they are authorized to calibrate within specific torque ranges for which the wrench is to be used. The activity must determine and request the ranges in which each torque wrench is to be calibrated. Acting upon this request NCLs will affix a limited-use label indicating the torque range for which calibrated and the shop supervisors must take steps to insure that the wrench is used to torque only within these limits.

This action, hopefully, will materially reduce large scale rejection and replacement of torque wrenches which otherwise would fail full-range calibration requirements. It does not mean that shop personnel can relax precautions for the proper care of torque wrenches. They are precision instruments. Abuse and misuse can still knock them out of calibration limits regardless of how restricted is the range of their use.

Another departure in calibration procedures is in the offing. Intermediate level mine activities will soon be granted Phase D Qualification status by the Metrology Engineering Center, Pomona which in effect allows them to calibrate (qualify) their own torque wrenches with torque measuring equipment that parallels the use of Test Set Checkout Group Mk 1 in the Phase G program for qualification of test sets. More about this will appear in a later Troubleshooter when the necessary test equipment is procured, training of personnel for its use is provided, and standards of procedure are established.

TRICHLOROETHYLENE FLAMMABLE

ALL MINES:

Heed that warning in OP 3379 Volume 14 Change 2 which tells you that Trichloroethylene is flammable and toxic. This is noted under Safety Precautions in connection with the use of the chemical in preparation of the Mechanism Section Mk 1 Mod 1 (Mine Mk 56) for repainting.

The determination that this solvent, a degreasing agent, 5S00261, is flammable is relatively new. Other publications concerning this chemical make no reference to the hazard, but Navy Material Command Headquarters, Material and Safety, advises that any reference requiring its use, FSN 9Q6810-184-4794, should also be accompanied by the warning "Flammable, use in well ventilated area." The authority is the Bureau of Mines.

What ever happened to Charley?

Here is the annual unofficial list of LDO Charleys and, for the first time, Chief Warrant Officers. Some rotation dates are missing and others are only educated guesses. As the warrants do not have year groups they are listed in accordance with their lineal numbers from the 1970 Register. If any of you former 6151's, 6152's, or 7332's are not listed please drop us a line. Everyone wants to know what happened to Charley.

NAME	LOCATION	ROTATION
Year Group 57		
LCDR E. L. ROBERTS ¹	NAVORD	Feb 1971
Year Group 59		
LCDR H. E. SPRECHER ²	COMINELANT	Jan 1971
Year Group 60		
LCDR L. M. STRYKER	NAVMINENGRFAC	Jul 1971
LCDR R. A. JANKE	KWESTEVDET	Feb 1971
LT R. McGAW	WPNSTA Yorktown	Jun 1972
LT T. K. WILEY	SERVSOLCOMD Orlando	Oct 1972
Year Group 61		
LCDR A. R. BOREEN ³	JUSMAT Turkey	Dec 1970
Year Group 62		
LCDR B. A. KREUSEH	KIDCOMDASA Albuquerque	Jul 1973
LCDR H. E. ELSTON	CO MOMAULANT	Mar 1972
LCDR D. A. DeCRONA	COMINEPAC	Oct 1972
LCDR F. A. DRAPER	NAVSMAG Subic	Sep 1972
LCDR R. A. BILLINGS	WPNSTA Yorktown	Sep 1972
LT B. BENINTENDE ⁴	NAF Naha (MMF Ryukyus)	Jul 1972
LCDR L. E. RONAN	EOD MUPAC	Aug 1971
Year Group 63		
LT R. F. GREENE	MOMAULANT	Aug 1973
LT W. J. MEHARD	NAD Oahu	Nov 1972
LT H. M. CAMPBELL	MOMAULANT	Feb 1972
LT H. L. KOCHER ⁵	NAVSCOLMINWARFARE	Mar 1972
LT. R. W. RINES	NAVSMAG Guam	May 1971
LT G. E. MEADOWS	POMFLANT	Jun 1971
LT C. J. WRIGHT	SERV PAC	Mar 1971
LT B. P. HERNANDEZ	WPNSTA Yorktown	Jul 1971
Year Group 64		
LT P. W. HANKS	NAVMINENGRFAC	Dec 1971
LT P. E. THOMAS	OIC EOD MUPAC	Jul 1971
LT E. D. OYER	MOMAULANT	Nov 1972
LCDR M. D. HORN, JR.	NAVORD	Aug 1972
LT R. L. ANDERSON	CO MOMAUPAC	May 1973
Year Group 65		
LT. W. A. ROBERTS	JUSMAT Turkey	Jun 1972
LT R. F. RUHLAND	MOMAULANT	Jun 1971
Year Group 70		
LTJG G. W. RUSSELL	NAVSCOLMINWARFARE	Mar 1971
CHIEF WARRANT OFFICERS		
CWO S. J. SCHARSHAN	NAD Oahu	Mar 1972
CWO J. F. McDONNOUGH	NAVSTA Key West	Jan 1972
CWO J. F. LOONAM	WPNSTA Yorktown	Oct 1972
CWO P. E. DECHENE	NAVMINENGRFAC	Jun 1972
CWO T. E. HOGAN	NAVORDFAC Sasebo	Jul 1973
CWO O. G. SMITH	NAVMINENGRFAC	Oct 1972
CWO E. R. JONES	MOMAULANT	Sep 1973
CWO S. A. ENGLISH	MOMAULANT	May 1973
CWO R. W. PADGETT	NAVMINENGRFAC	Oct 1972
CWO R. C. CHAPIN ⁶	MOMAULANT	Feb 1973
CWO F. P. LAFLEUR	NAVORDFAC Yoko	Jul 1971

¹ Selected for CDR. Congratulations, Earl!

² In receipt of orders to report to NAVORD approximately Jan 71.

³ In receipt of orders to report to COMINELANT Staff approximately Dec 70-Jan 71.

⁴ Enroute to Naha from Sasebo via MSA course at NSMW Charleston.

⁵ Due to report early 1971 when relieved at Naha.

A QUICK LOOK AT SUSPENSION LUGS

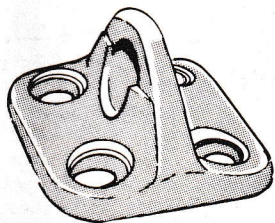
AIR-LAID MINES:

The employment of high performance aircraft mine delivery has brought about, among other things, a multiplicity of suspension lugs.

Instructions for the selection of those compatible with various aircraft types, and for their installation, have been incorporated in a new OP 3232 which was in the printing process at the time of this writing. Until that volume is received, here is a rundown of the lug picture at this time.

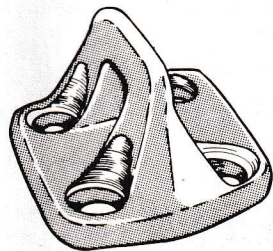
Screw-on Type Lugs

World War II Suspension Lug, DWG 495955. This lug, originally designed for Mk 25 and Mk 39 mine cases, is now obsolescent. Mines Mk 25 were formerly issued with this lug attached but these lugs must be replaced by Mk 12 lugs for catapult launchings, arrested landings, and delivery on wing stations of high-speed aircraft. As things stand now the WW II lugs can only be used on mines designated for delivery by P2 aircraft, and will only remain in the system until enough Mk 12 lugs are in stock to replace them. Meanwhile depots are removing WW II lugs and installing Mk 12 lugs as they become available. You will be able to forget WW II lugs before very long.



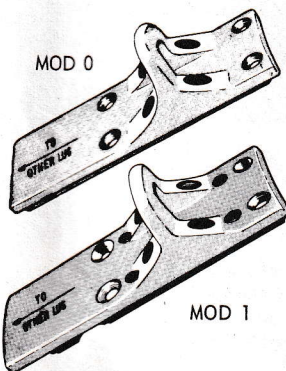
World War II Suspension Lug

Suspension Lug Mk 12 Mod 0. This is the standard lug for Mine Cases Mk 25 Mod 1 and Mod 3. This lug can be used without restriction when properly fitted and torqued, the problem being that the thickness of its cross bar, if more than 0.490-inch, is too thick to fit the Mk 8 bomb shackles used on P2 aircraft. The alignment is also critical, so that the lug must be trial-fitted before delivery to P2 squadrons.



Mk 12 Suspension Lug

Suspension Lugs Mk 13 Mods 0 and 1. These lugs are specified for use on Mk 36 Mod 2 mine cases, replacing the original World War II type identified by Drawing No. 495999, which is now obsolete. Both Mods 0 and 1 are designed for use on high-performance aircraft. The purpose of the Mod 1 is to accommodate mine cases that have three-piece vs one-piece flush strongbacks, and they should be reserved for that purpose as long as Mod 0s are available. Mod 0s cannot be used on three-piece strongback cases with any degree of success. The mod designation is clearly die-stamped on the underside of the lugs. The two mods are easily identified by inspection: the Mod 0 has



Mk 13, Suspension Lug

eight holes and the Mod 1 twelve holes. The four extra holes are to take care of the set screws used to align the lugs when the sections of strongback under the lugs are not in the same plane.

Screw-in Type Lugs

Newer mines use screw-in type lugs. The general appearance, lug for lug, is the same, but they are of different sizes. This is intentional, so that each can only fit the lug attachment holes for which it was designed. If mismatched to case weight or spacing (14" vs 30") they just will not go!

Suspension Lug Mk 6 Mod 0. This lug is also identified as the MAU 76/A, an Air-Force designation. Lugs bearing both identifications have been pooled under a common standard designation MS-3314. Stocks will remain mixed until lugs bearing Mk-Mod and MAU designations are exhausted, at which time the MS designation will remain as the only identification. Meanwhile all three are obtained by stock number 2E 1325-580-1120. The Mk 6 lug is used with mine cases Mk 52 Mod 0 and Mod 3, and Mk 36 Mod 3, at 14-inch spacing only. The reason it can be used on the 36-3 case is because the external strongbacks on that case and on the 52-2 case have identical threaded holes to accept this lug. The external strongback on these cases is required to compensate for the shift in the center of gravity caused by installation of drill gear for the new "B" drill assemblies.



Screw-in Type Suspension Lug

Suspension Lugs Mk 3 Mod 0 and Mk 7 Mod 0. These lugs are used with Mk 55 Mod 2 and Mod 3 cases, Mk 3s if 30-inch suspension and Mk 7s if 14-inch spacing. Both lugs are installed. Those not needed are removed and the vacated openings filled with grease.

Suspension Lugs Mk 17 Mod 0 and Mk 18 Mod 0. These lugs are used on Mechanism Section Mk 1 Mod 1 which section is common to Mines Mk 56, service and drill. Unlike the lugs for Mk 55 mines, these lugs are not supplied with the mechanism section but must be requisitioned separately. These are lugs of a special titanium alloy, non-magnetic and expensive. They are not to be installed for the purpose of handling the mechanism section or mine. In place of the lugs the threaded lug holes are capped to keep out trash. Only when the mine is ready for delivery to an aircraft squadron are the appropriate lug holes uncapped and the lugs installed: Mk 17 for 30-inch spacing, or Mk 18 for 14-inch spacing.

Hoisting Lugs. It has been written many times before, in many places, but we will write it again: hoisting lugs are obsolete. Ignore any profile sketch that indicates otherwise. If by odd chance one appears on a Mark 52 or Mark 55 case, a screw-in type, remove and discard it, and fill the opening with grease. Hoisting lugs serve no useful purpose.

by B. Arnaclebutt, MNC



Needs no gunk

MINE MK 56:

Dear Barney:

During the recent Mk 56 FIAT we had to install suspension lugs on the Mechanism Section. Before doing so, we had to clean some black preservative from the threaded wells. How about giving us an FSN so we can replace it when we return the mines to storage.

NM1 WAG

Dear WAG:

The FSN you are asking for is one you won't have to worry about. There isn't any need to replace the preservative as the Mechanism Section is constructed of stainless steel and requires no preservative for protection. When upgrading Mk 56 mines preservative must be removed from all bare metal surfaces but when downgrading preservative will not be replaced.

Be sure not to lose those plastic plugs when they are removed in favor of lugs. They must be replaced, when downgrading, to keep the lug wells from collecting dirt and there are no replacements for that purpose if they are lost.

B. Arnaclebutt

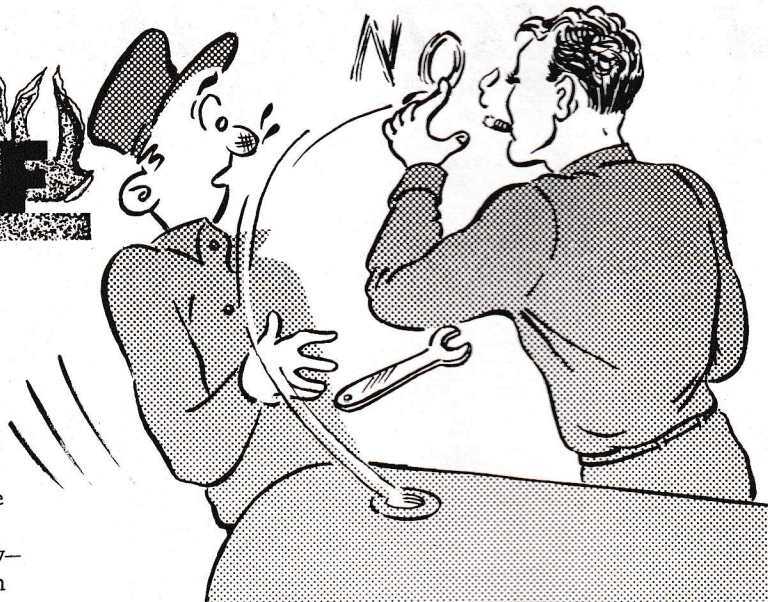
Save that plug

MINE MK 56:

Dear Chief Butt:

Changes to OP 2572 direct that the shorting plug, part of the cable and tube assembly for the mine anchor Mk 56 Mod 4 should be taped to the battery spacers in Delta configured mines. This means that when the mine is upgraded the plug must be stored elsewhere since the spacers are in use. No provision is made for the "elsewhere" storage just in case it is needed later if the anchor is downgraded or when disassembled for maintenance.

MN2 SPL



Dear SPL:

There is no other place to store the shorting plug for the cable and tube assembly with the anchor. Just the same it cannot be put anywhere. It is small and could be mislaid. The answer is to pick a safe place and let all hands know where that place is so when it is needed again it can be found. The manufacturer supplies one shorting plug with each cable and tube assembly so there should be plenty of them around for future needs. If they all do disappear the FSN is 1A5935-221-5483 but before you decide to get careless with the old ones remember the price of a new one is \$6.50.

B. Arnaclebutt

O-ring correction

ALL MINES:

Dear Hot Stuff:

In the table of packings (o-rings) for Accessory Sets, Troubleshooter 1-70, page 8, Accessory Set Mk 10 is tied to Test Set Mk 266 and Accessory Set Mk 17 is tied to Test Set Mk 263. It should be the other way around.

MN1 FT

Dear FT:

You are right. It was a goof, and readers using the table should change 266 to 263 and 263 to 266 in the test-set column on page 8. O-ring MS-29513-239 is the same for both accessory sets, so that couldn't be transposed.

B. Arnaclebutt

No heat, just tape

MINES MK 52/55/56/57:

Dear B:

In Troubleshooter 4-69 Job Right you state the bag of barrier material should be heat sealed when repackaging Explosive Fitting Mk 18. Question the advisability of using heat-seals when the enclosure involves explosive devices.

MN1 HSP

Dear HSP:

Ten thousand thanks for your early and accurate diagnosis of T-Shooter's latest outbreak of editorial-foot-in-mouth disease. No one should ever heat-seal explosive-item packaging and all hands are hereby directed to dig out ye 4-69 issue and change the item to read: Expel air from bag and seal with Tape 5T00038.

This is safety; DO IT NOW!

B. Amalebutt

Reuse of drill components

DRILL MINES:

Dear Barnacles:

What is the official word on unexpended explosive fittings and signals after they have been used in a drill mine exercise? It would seem that these drill components could be returned to Code A if they meet all Class B test requirements.

MN2 PPE

Dear PPE:

There is no prohibition against reuse of explosive fittings and signals which were used but not expended in drill exercises but they can not be returned to Code A. Once they have been installed in a drill mine and recovered unexpended they become Code B and are so marked. In addition to passing Class B tests they also should show no evidence of damage and should be repackaged while awaiting reuse. Attempt no repairs.

B. Amalebutt



A recent photograph of the Mine Division at NAD OAHU. They are, left to right: Front row: MNSN W. L. Reep; MNC R. G. Pinson; LT. W. J. Mehard; MNCS B. W. Fowler; MNC E. C. Merrill, MNSN S. G. Bunn. Second row: MNSN P. R. Carlson, MN3 E. D. Pinkie; MN1 P. E. Crum; MNSN G. A. Domson; MN3 O. A. Gipple; MN1 G. J. Teague; MN1 A. Kirkwood; MN3 J. J. Jones, MN3 L. W. Shaw; MN3 R.E. Vadais; MN3 H. B. Robertson; MNSN J. R. Howlett; MN1 W. S. Fortner; MN3 A. N. Cowan; MN3 G. W. H. Thomas. Third row: MN3 C. L. Weber; MN2 D. L. Valentine; MN2 E. Danielson; MN1 D. Lozen; MNSN J. A. Notch; MN3 D. R. Griffiths; MNSN E. J. Farrugia; MNSN M. Gonzales.

Those not present when photograph was taken are: MN3 R. D. Greer; MN3 G. K. Mink; MN3 R. A. Russell; MN1 P. K. Beckwith; MN C J. J. Dwyer; MNCM D. Hutchison; MNSN R. D. Gill.

Paint it RIGHT

MINE MK 56:

Retouching paint-scarred mine cases has been considered more or less routine. This is not true, especially when maintaining sections of the Mine Mk 56. Supervisors just can't send an inexperienced man off to paint. The mineman for the job should be instructed in the proper method, with an appreciation of why, for applying undercoats as well as the final coat. Directions that have been incorporated into Change 2 to OP 3379 VOL 14, should be followed religiously. The haphazard application of touch-up paint to save time can cause damage that will take more time to repair than the short cut saved.

The mechanism and explosive sections of the Mine Mk 56 are made of a special stainless steel covered with a final coat of an antifouling copperpac paint with peculiar properties. The chemical composition that makes this paint an effective deterrent to sea growth can also make it an enemy, rather than a protector, to the skin of the Mk 56 Mine unless it is protected by a pre-treatment wash and a primer. Copperpac paint does not provide a watertight layer around the mine case. To the contrary, it is intended that the paint's copper chemicals leach out when submerged to form a barrier resistant to sea growth. Should this paint be applied to bare metal, it would, after immersion in sea water, set up corrosive galvanic action between it and the stainless steel of the case. To protect the steel of the case from this action a vinyl-zinc chromate primer, 5P00138, is used, and to make this primer stick, a pre-treatment wash primer, 5P00132 is used. The primer may require thinning for which there are two thinners, Tolnol, 5T00513, FSN 9G 6810-579-8431, and Methyl Isobutyl Ketone, 5M00501, FSN 9G 6810-286-3785. Directions for the use of these thinners are on their containers. Read them before using.

All this emphasis on touch-up painting is because Mk 56 Mine sections are accumulating scrapes and abrasions in one degree or another in shipment. A great saver of manhours would be the exercise of more care in handling the sections. Also there are some explosive sections with paint blistered caused by the application of hot melt. This is being repaired at depots but some units were shipped to fleet activities before discovery of the blisters and must be repaired by the activities.

Paint damage must be repaired according to extent and not by simply painting over with copperpac. Only if the vinyl primer is intact will copperpac alone do the job. Always, before repairing, the surface will be cleaned by solvent as the MRCs direct. If down to the bare metal the entire painting sequence must be repeated. It takes close inspection to determine the extent of the paint damage. The vinyl primer is a dark green and hard to distinguish from the pretreatment which is also greenish. Because the wash primer is applied directly to the bare metal in one coat a steely glint can be seen through it. The primer itself, applied in multiple coats, will appear opaque.

If any repairs to paint adjacent to mating rings are needed, care must be taken that the final coat does not overlap the primer and come in contact with bare metal. When performing maintenance on the mechanism section, remember the mooring arm is made of stainless steel and should receive the same care when painting. Also can't forget to inspect the mooring arm tube for paint damage.

Indications are that copperpac applied over bare metal will cause damage in a much shorter time than if metal is left bare. However if there is time to properly touch up prior to planting it should be done. It is imperative that any touch-up paint job be done right; otherwise all manhours spent in maintaining, testing and upgrading the mine could go down the drain because of cases that corrode and leak. Let's face it, a moored mine could end up on the bottom because of a poor paint job--an operational disaster.

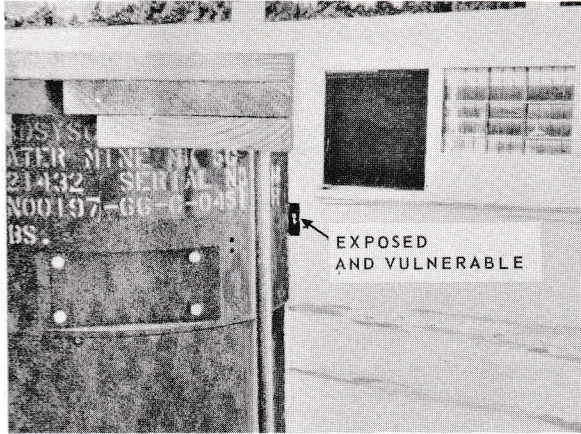


FAREWELL APPEARANCE

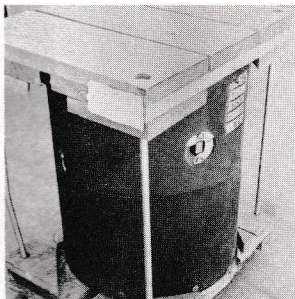
Members of TEVDET's Mine Division at Key West gather for their farewell group photo. The men will be given other assignments as soon as work is completed on a current project and the mine shop is closed. The Mine Division functions will be assumed by MOMAULANT. TEVDET is being phased out after fifteen years of performing test and evaluation tasks for the Navy. The mine shop crew pictured here, left to right, are:

MN2 W. C. Briggs, MNSN A. F. Orr, MN3 G. F. Shirey, LTJG A. D. Barron (Mine Division Officer), MN3 D. A. Menhorn, MN2 R. F. O'Brien, MN3 D. A. McMenimen, MN3 R. J. Teeters, MN3 J. A. Fabiano. Not present when the photo was taken are MN3 J. W. Peters and MN3 O. D. Shytle.

Do You do this Job Right?

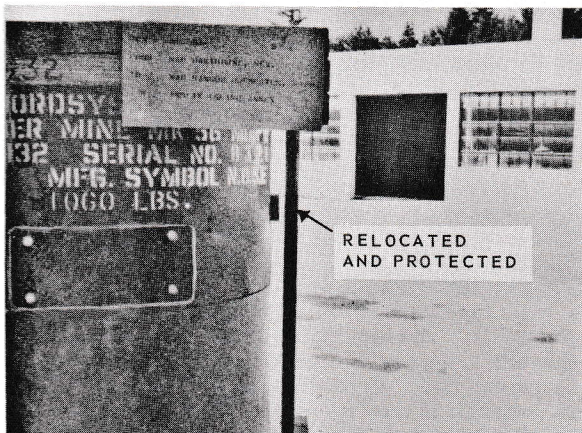
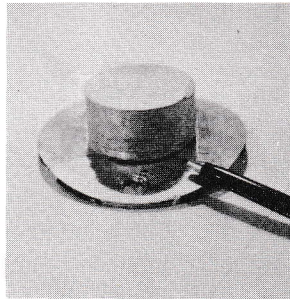


EXPOSED AND VULNERABLE



Shown above is an example of an inspection hole cover with boss broken off. The end of the helper spring retaining bar is exposed.

The pen in the picture below points to the crack that damaged this cover so that it had to be replaced.



RELOCATED AND PROTECTED

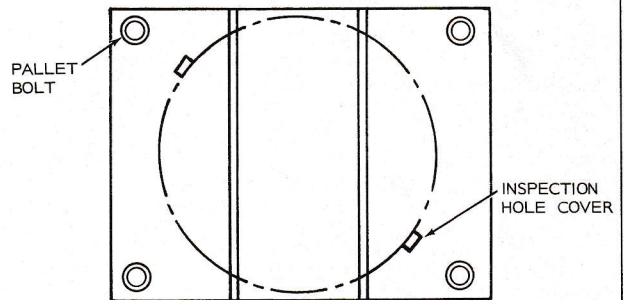
PROTECTING INSPECTION HOLE COVERS

MINE MARK 56:

DIRECTIVE

As mine anchors Mk 56 Mods 4 and 5 are now oriented on pallets for shipping and storage the inspection hole covers, there are two 180 degrees apart on the anchor shell, are exposed to damage. The reason is that the cover bosses, which also serve as anodes for the anchor marriage compartment, protrude from the periphery of the anchor and therefore, in most cases, beyond the edge of the pallet tangent to it. The result is bent and cracked covers that must be replaced. In some instances they are broken off as the photographs sent us by MN1 L.D. Moir at NAD Bangor show.

To correct, the anchor will be rotated 45 degrees or so that the protruding bosses of the covers are oriented on the diagonal between the rods (bolts) that tie the top and bottom halves of the pallet together as shown.



In this position blows that otherwise would strike the protruding boss of the inspection hole cover will be stopped by the bolt. When the anchor is married to the mechanism compartment the bar that retains the helper springs is no longer needed and is removed. The covers are now reversed with the bosses inward and no longer in danger of damage.

The Mk 56 anchors will be placed on the pallet in the new position by the manufacturer in the future to protect the covers. Meanwhile when maintenance requires removal of the anchor from its pallet return anchors to the pallet in the position shown in the sketch above. Action is being taken to get extra covers (anodes) to replace those that are broken.

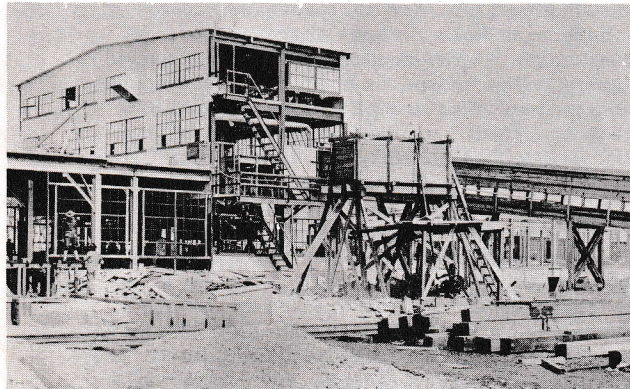
The Editor

MINES, MINEMEN & MEMORABILIA

HISTORICAL SERIES No. 5

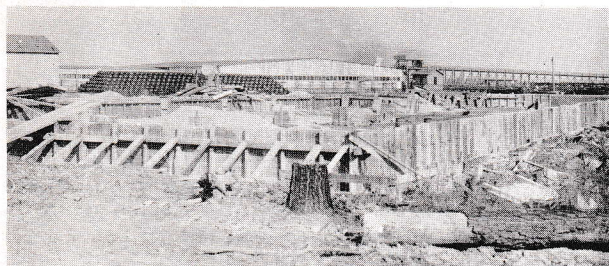
NEW WEAPON, NEW PROBLEMS

The World War I Armistice had been signed and the Navy was back home not having made much use of its conventional naval weapons. But it did have another effective weapon in its arsenal, an old creation of American ingenuity that dated from the Revolution but whose development had been neglected until 1917, the underwater mine. The North Sea Mine Barrage crash program had been directed toward getting the Mark 6 Mine manufactured, explosive-loaded, transported overseas and laid. Now the problem was what to do about the future of this weapon. Its exploits had made it impossible to let it slip into oblivion again.



A new mine filling plant at St. Juliens Creek was working before debris of construction was cleared away. (March 1918)

By the War's end, the Navy had been primarily occupied with new ship types and increased explosive loading facilities made necessary by the minefield project. Mine layers were innovations, converted cruisers and modified commercial vessels. Mine sweepers were seagoing Navy tugs that had been attached to the mine force and left to work out modifications to fulfill the mission of sweeping. Based on studies and the experience of the crews of these

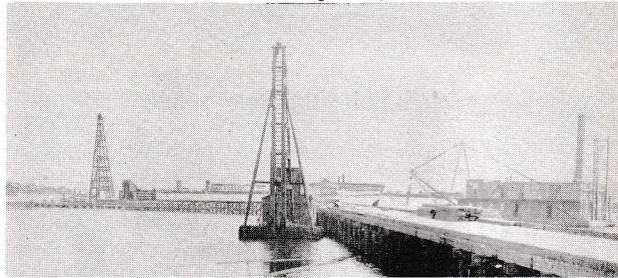


Construction program at St. Juliens was still under way in January 1919.

tugs the Navy had by 1917, contracted for a combined tug and minesweeper of the Bird Class. The first twelve of these were assigned to the mine force but were not completed in time to join the squadron.

Stateside, the loading facility for the Mk 6 Mine was developed by the expansion of an ammunition support activity created in September 1844 by transfer of Fort Norfolk from the War Department to the Navy and moved in January 1898 to 96 acres on the southern branch of the Elizabeth River at the mouth of St. Juliens Creek in Tidewater Virginia. It was manned by 65 civilians and three officers in 1908, a manning level that remained about constant until the beginning of World War I. By 1917 it was redesignated a

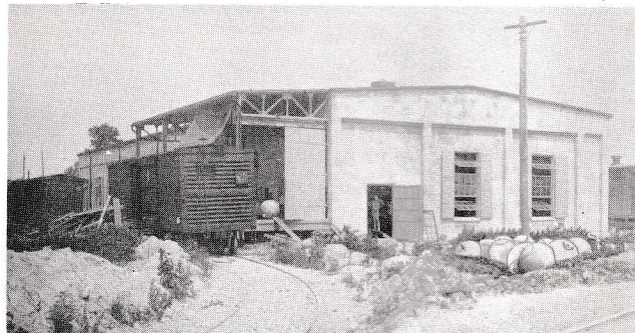
Naval Ammunition Depot, expanded by the construction of eighteen buildings and a wharf, and installation of equipment designed for loading Mk 6 Mines. The depot then was operating 24 hours a day, manned by 16 officers, 525 enlisted men, 600 civilians and near the limits of its capacity.



Mine filling plant wharf at St. Juliens March 1918.

War-time requirements came to an end while this program was in full swing and with new construction still under way at St. Juliens. Overseas shipments stopped with a resulting glut of mines and mine material. With the end of the mine barrage project, mass production of loaded mine cases slowed to a halt and the depot went back to its peacetime mission of supplying ammunition to the Fleet. The civilian working force dropped to an average of 400.

The problem that remained for Navy planners was how to provide for the storage of mine material when the pipe line to England shut down, a function St.



Mines at St. Juliens could be found anywhere waiting for construction to catch up with requirements (August 1918).

Juliens Depot was not designed to encompass. Unused mine material also was coming back from England in squadron ships. Contractors were still filling contracts for mine material that was no longer needed for completing the North Sea barrage. All this reversal of the logistic flow was solved by the creation of a new facility for mines, the mine depot at Yorktown, Virginia, the subject of the next in this historical series.

While stateside planners were busy solving their problem of what to do with this mine surplus, the Navy overseas was busy with sweeping the mine field, a task that took as much time and effort as the laying of it. Between 75 and 100 ships, including sub chasers and trawlers took part in the thankless and dangerous job. A protective circuit was improvised to neutralize the operation of the K device, but this did not prevent sweep wires tangling with mine cables. The untangling operation was hazardous and exploding mines damaged the sweeping ships. In one case the ship's captain was killed and members of the crew injured. It was not until September 1919 that the barrage was considered completely swept and the North Sea again safe for sea transportation.