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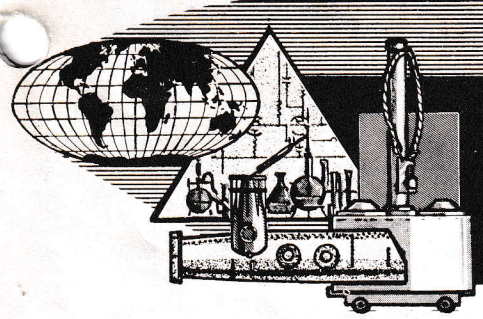
LT ELSTON

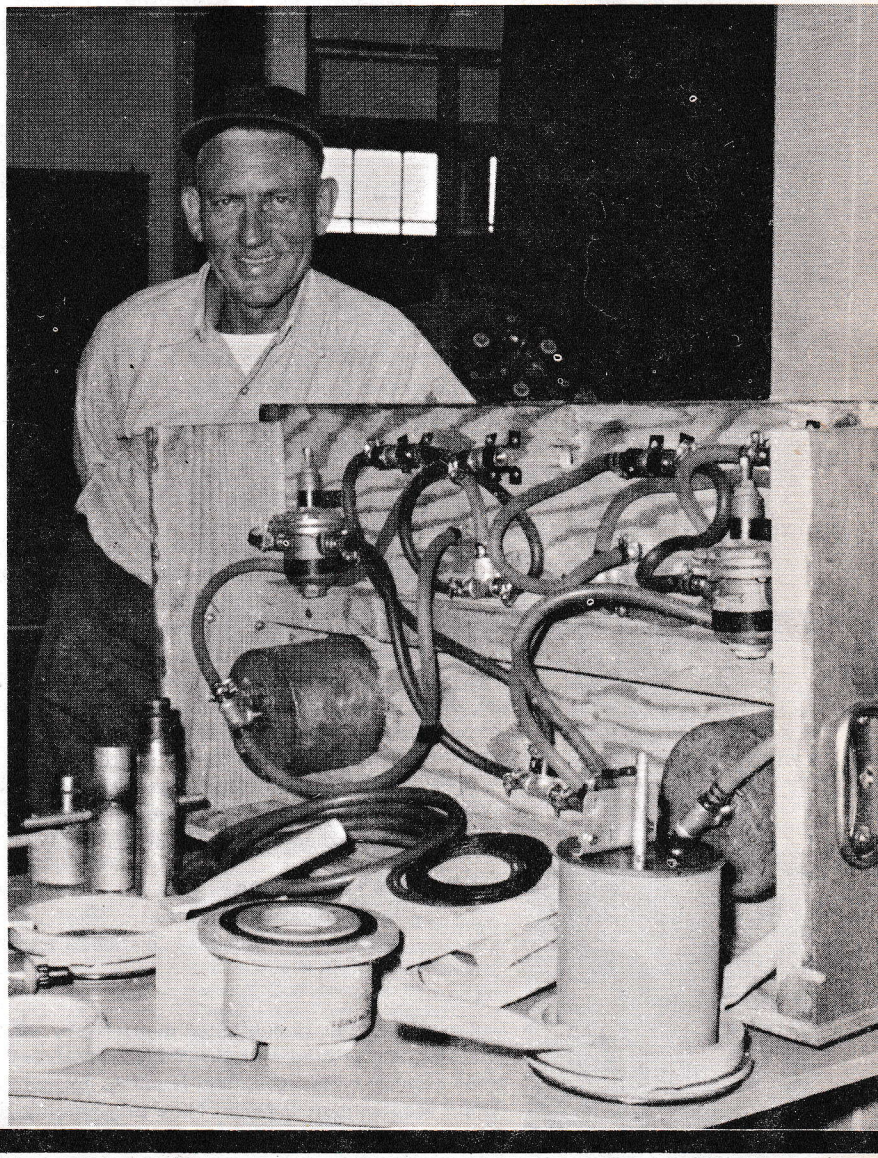
No. 3-67



mine and depth-charge

THE TROUBLESHOOTER

- SUPPLEMENTAL BATTERIES
- MOMATS IN NEW HOME
- WEAPONS DOLLY MK 11



AN OFFICIAL *NAVORD* PUBLICATION

in this issue . . .

THE TROUBLESHOOTER

mine and depth-charge

Published by the Naval Mine Engineering Facility, Yorktown, Virginia

Roland H. Almonrode, CDR, USN ..... *Officer-in-Charge*
Haines A. Miller ..... *Technical Director*
Thomas R. Nevitt ..... *Editor*
D. Jack LaBar ..... *Art Director*

REGULAR FEATURES

ARTICLES

COVER PHOTO: Al Niederbaumer, formerly MN-1 with MOMAT 0305 and now transferred to Fleet Reserve after 20 dedicated years of active service, poses with rig he designed and built to simplify use of Mark 3 test pots. For instructions on duplicating Al's rig see story on page 5.

1 OCTOBER 1967

The Troubleshooter, an official NAVORD publication, contains technical information pertinent to the assembly, testing, and delivery of US naval depth charges and mines. It is both authoritative and directive in nature, and reference may be made to a particular issue as the authority for adoption of ideas promulgated therein.

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 NAVORD Form 8500/5 (1-63). Everyone who encounters problems with these weapons should report them via this form direct to the Naval Mine Engineering Facility as prescribed by NAVORDINST 8500.8.

ARTHUR R. GRALLA
Rear Admiral U.S. Navy
Commander, Ordnance Systems Command

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THE OFFICIAL JOURNAL OF THE *RUDMINDE* PROGRAM

RUDMINDE REPORT TO THE FLEET

HAPPY NEW YEAR

Just about a year ago in this column we made a prediction: "By 1968 the first new book published in 1967 by NMEF may well have become the most-used manual on the mineman's bookshelf." The book we had in mind was OP 3504 – Authorized Configuration Data for Underwater Mines. But has it in fact become most used? Yes and no.

By October all hands had received Volumes 1, 2, and 4. As promised, the content of these three volumes was such that their title pages asserted in bold type that Volumes 1 and 2 of NAVORD OD 10604, all NMEF Service-Mine Assembly Parts Lists, and 47 General-Requisite ODs were thereby canceled and superseded. Later Volume 5 and new revisions to Volumes 1, 2, and 4 were released, and now Volume 7 (a surprise) is nearing completion, Volume 3 is running neck-and-neck with it, and Volume 6 – now planned as a complete Illustrated Parts Breakdown covering every active mine in the business – is well underway. To NMEF this is a cause of great relief. Not the volumes still not out, but the fact that those already out have superseded all those hoary ODs. And for a very good reason: For ten years there was never enough man-effort available to keep those ODs even halfway up-to-date. The methods required to do so, as compared to the automatic machine process of OP 3504, were simply too ponderous and archaic.

WOULD YOU BELIEVE

In that past column we pointed out that in OP 3504 there would surely be errors, and asked all hands to report them patiently, in the knowledge that, once corrected, they would not likely show up again. In many mine shops this is exactly what has happened. OP 3504 has been put to work, errors have been found and corrected, and all hands are happy with the result. Happy? That's the understatement of the year. We wish you could see some of the letters reporting the MN's satisfaction with this new system. They would make anyone proud.

Yet there is always that certain percentage who just don't get the word. Would you believe, for example, that in recent months we have seen mine-assembly shops where OP 3504 was stowed away virtually unopened while those obsolete ODs that it supersedes remain in continuous use . . . where Bibliography #4, published in 1964, is still in use as the arbiter of which pubs, changes, etc., are latest . . . where the September 1963 edition of OP 2567 is used while the 1966 edition gathers dust . . .

RING OUT THE OLD!

Now there's no reason why a shop that has valid reasons for keeping a superseded technical manual should be forced to deep-six it. That's for sure. But there's also no excuse for not taking time to look over new pubs when they come in. Read title pages to find out what older manuals may be superseded, then make it a point to give the superseded book the deep six or else to clearly mark it OBSOLETE in a way in which all can see. Also read forewords and introductions. Sometimes they may tell you little because there's not much to tell, but more often you'll find they provide guidance that you need in order to use the book right. Why ignore it?

ON YOUR TOES FOR THE NEW

A case in point will be found in Change 2 to Revision O of OP 2608 Volumes 1 and 2, which many readers may well have received by the time they read this. What is unusual is that it converts OP 2608 Rev O into an assembly manual for Mods 1 through 6 of both the Mark 52 and the Mark 55 mines, rather than the 52s alone. Thus it cancels and supersedes both volumes of Revision O to OP 2974, which was formerly assembly manual for Mods 1 through 6 of Mine Mark 55. All this is explained carefully in the change itself; we call special attention to it here just in case you missed it.

Change 2 is a big change and thus not an easy one to get properly incorporated in the book. Once in, though, we believe all hands will find that the resultant two volumes are a lot easier to use than the four volumes previously required for these mines.

Better yet, though, will be Revision 1 to OP 2608, a single volume covering Mods 1 through 6 of the 52 and 55 mines. With incorporation of Change 2 the current edition (Revision O) provides instructions for assembly to Conditions A, B, C, and D, and interim instructions for the application of planned maintenance in those conditions When the new single-volume Revision 1 comes out it will be oriented to Conditions A, B, C, and D in considerably more detail, and will be in a format which is expected to be adopted as standard for all assembly manuals for mines.

— Happy New Year, again!

On 25 August 1967 CDR Roland H. Almonrode relieved CAPT George A. Harper as NMEF's OIC. CDR Almonrode has attended Dartmouth College, Vanderbilt University and the U. S. Naval Intelligence School at Washington, D.C. He was graduated from Vanderbilt University with a Bachelor of Arts degree in December 1947 and received his commission as Ensign, USNR, on 6 June 1947. CDR Almonrode has served in the Destroyer PERKINS; U.S. Fleet Sonar School, San Diego (ASW Officers' Instructor and OIC, Emergency Ship Handling School); Minesweeper DIRECT (as Executive Officer and Commanding Officer); Mine Warfare Evaluation Detachment, Key West, Florida (as Mine Countermeasures Officer); Joint Staff of Commander-in-Chief, Caribbean, Balboa, Canal Zone (as Intelligence Analyst); Amphibious Force Flagship POCONO (as Operations Officer); Staff, Commander Amphibious Training Command U.S. Atlantic Fleet (as Logistics Planning Officer).

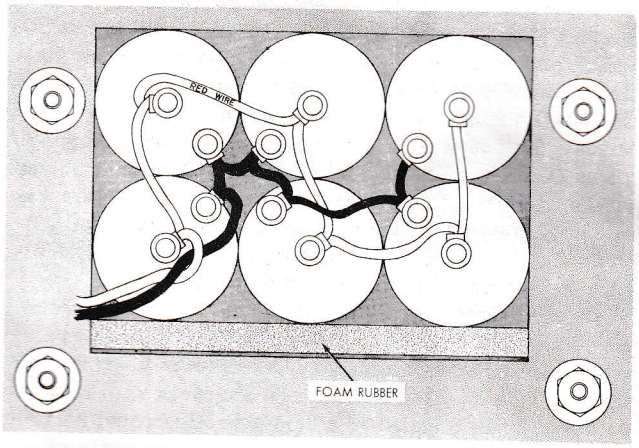
Commander and Mrs. Almonrode, Debra 14, Patrick 12, and Cindy 8, have moved to Yorktown from Saudi Arabia, where CDR Almonrode was Chief, U. S. Navy Section, United States Military Training Mission to Saudi Arabia.

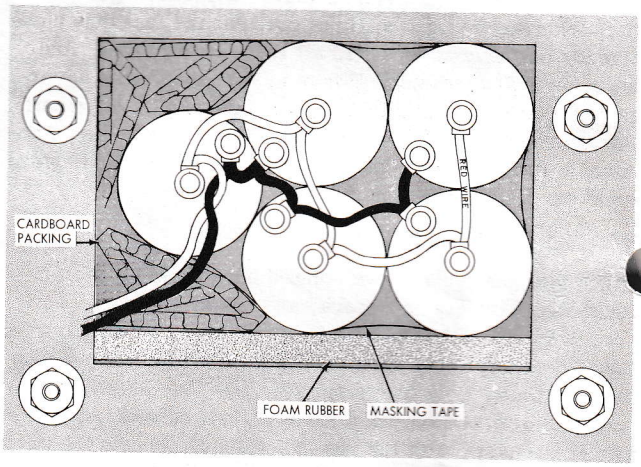
LONGER ARMED LIFE FOR MINES

NOT A FEW knowledgeable souls were started when they received Change 15 to OP 1452 Vol 1 and realized its effect. What we present here is an antidote, as an interim procedure authorized by ORDSYSCOM, which in effect tells how to install supplementary batteries in Mine Marks 25-1, 36-2, and 49-1. The supplemental batteries are BA-23s which have a nominal 24-month life (Group C per OP 1452), and which can be requisitioned (temporarily) from NMEF. They will be received accompanied by history cards which must be kept up-to-date by recipients.

For immediate installation of these supplementing batteries, the cables and spacers must be fabricated locally. Materials required for installation of the BA-23 batteries are:

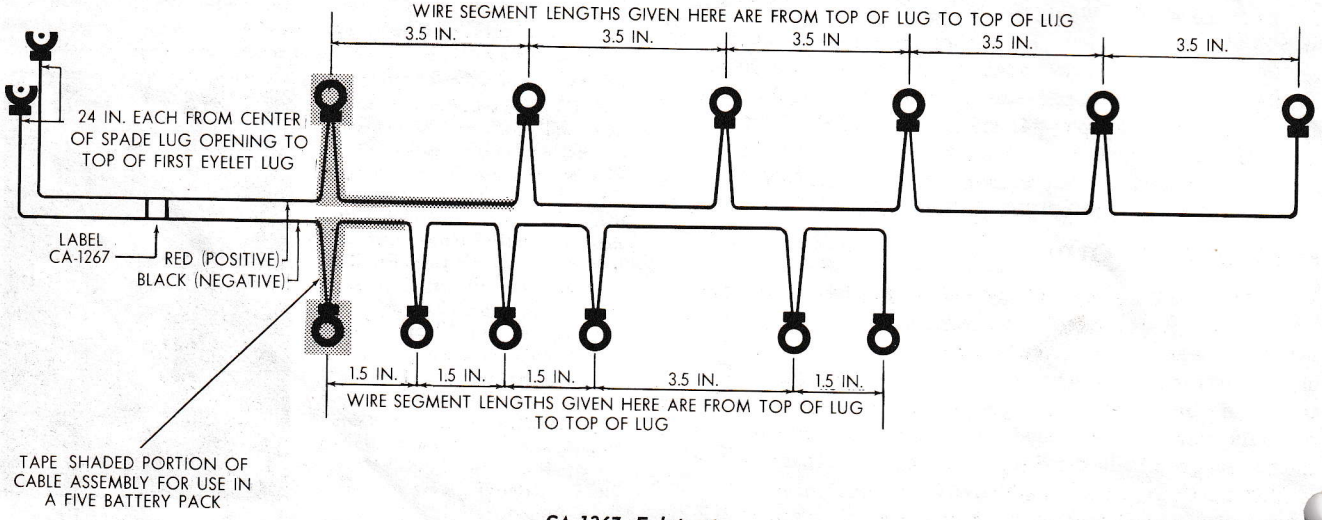
- Foam rubber (MIL-R-6130, Type 2 Grade B) 1/2-inch thick, in sheets 36 by 36 inches, FSN 9G9320-580-5671,
- Polyurethane foam (MIL-P-26514, Type I Class 1), 2-1/2 inches in diameter, manufactured by Multiglass Products Co., Buffalo, N. Y. This material, used for spacers, is not in the supply system so must be procured on open purchase. One known source is Atlantic Supply Company, 1666 West Pembroke Avenue, Newport News, Virginia, for about $14.00 per 36-inch length.
- Electrical wire MIL-W-16878, AWG No. 20, with thermoplastic insulation, available by the foot under FSN 9Z6145-803-0663 (red), and FSN 9Z6145-542-6194 (black).
- Spade-type lugs MS35440-3, FSN 9G5940-681-9682.
- Eyelet-type lugs MS35430-4, FSN 9G5940-681-8185.
- Cloth (Ordnance) tape, pressure-adhesive, PPP-T-60, Type I, 3-inch, in rolls, FSN 9Q8135-579-8494.
- Masking tape 2-inch, in rolls, FSN 9Q7510-266-6710, and cardboard packing.





FIVE-BATTERY INSTALLATION

Supplemental Batteries Installed in Mine Mk 25-1



CA-1267 Fabrication

THAT USE BA-241/U

► Battery BA-23, FSN 1N6135-050-0915; six per Mine Mk 25-1 five per Mine Mk 36-2 or Mk 49-1. (To assure fit, remove the paper jacket from each battery before installation. Some 25-1 mines will accept only five BA-23s even with jackets removed.)

Installation instructions

For use in the Mine Mk 25 Mod 1 fabricate Cable Assembly CA-1267. Each requires 45 inches of red-coded and 37 inches of black-coded wire, as specified in the materials list above, cut in segments as shown. Solder spade lugs on free ends of cable and eyelet-type lugs for battery connections.

From the half-inch foam rubber cushioning material cut two pieces, one 3/4 x 5 inches and the other 5-1/2 x 7 inches, and fit into corresponding spaces in the bottom of the mine's rectangular battery compartment.

Cut one piece to 7-1/2 by 10 inches and place against the rear wall.

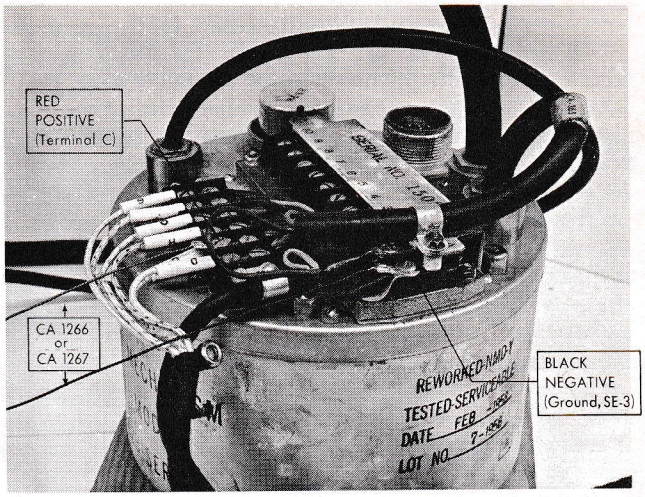
Cut one piece to 5 by 7-1/2 inches and place in the bottom of the battery compartment, covering the two pieces previously installed.

Install six BA-23s in the compartment as shown. If six batteries will not fit, install five after arranging the five on a flat surface in a group and binding with two strips of 2-inch wide masking tape (one strip around the batteries flush with the top rim, the other flush with the bottom rim of the batteries).

Place batteries in the battery compartment and insert pieces of cardboard (spacers), snug between the battery assembly and compartment walls to prevent batteries from shifting.

After batteries are installed in battery compartment connect CA-1267, red wires to the batteries' positive (center) terminals, and black to their negative (edge) terminals.

Cut 7-1/2 by 5-inch piece of 1/2-inch foam rubber cushioning and place over top of batteries before installing the CD-14 mounting bracket assembly.



Connection of CA-1266 or CA-1267 to Terminals on Firing Mechanism A-5

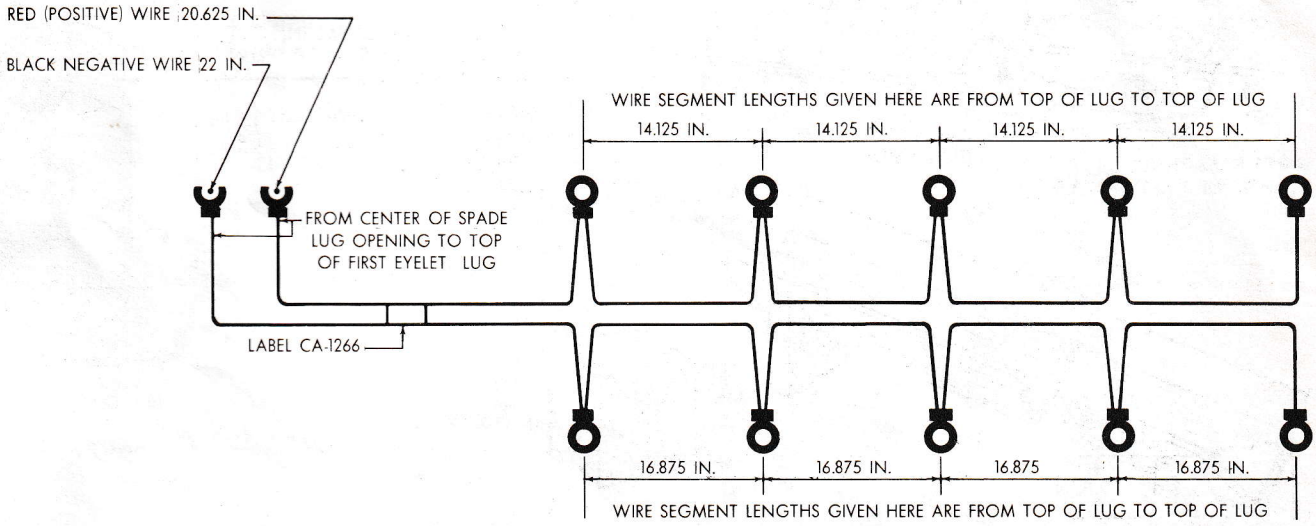
Connect the free end of CA-1267 black (negative) wire to the ground screw of the SE-3 and red (positive) wire to Terminal C of the terminal strip on the A-5 firing mechanism.

For use in Mine Mk 36-2 and 49-1 fabricate Cable Assembly CA-1266 as shown here using 80 inches of red-coded and 92 inches of black-coded wire per cable per mine. Solder spade lugs on free end of cable and use eyelet-lugs for the battery connections.

Assemble five BA-23s in a search-coil trough such as was formerly supplied with Test Set Mk 128. If such a trough is not available, fabricate one as shown.

Cut polyurethane foam cylinder into 5-inch lengths for spacers and shape as shown, for insertion between each battery and at ends of the assembly. Six spacers are required for Mine Mk 36-2, nine for Mine Mk 49-1.

Connect CA-1266 to batteries, red wires to the positive (center) terminals, and black to the negative (edge)



CA-1266 Fabrication

terminals of each. Route the cable assembly along the outside of the alternate spacers and batteries of the battery assembly to the after end of the last battery, then through the hole in the center of the aftermost spacer.

Beginning at the forward end of the assembly, place a 3-inch wide strip of ordnance tape along the entire assembly, covering the positive and negative wires of the cable assembly and holding them in place. Let the tape extend four or five inches past the end of the aftermost spacer.

Place another strip of cloth tape of the same length along the opposite side of the assembly. Twist the ends of the two strips of tape together around the wires where they exit from the last spacer.

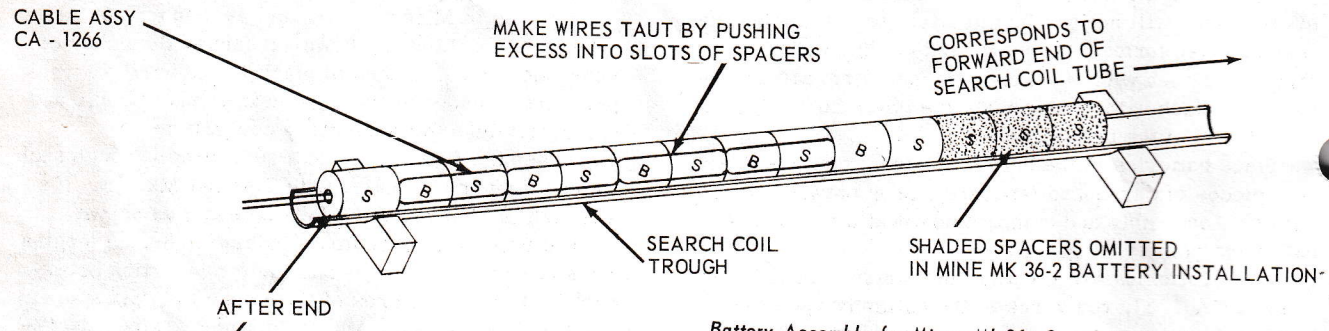
Install the battery assembly in the mine's search-coil tube by holding the forward end of the trough in alignment with the after end of the tube and sliding the batteries into the mine. Stuff excess tape into search-coil tube so it clears end of tube and secure with search-coil retaining strap, lock washers, and screws provided with the 36-2 mine case. Then connect the CA-1266 black (negative) wire to the ground screw on the SE-3 and red(positive) wire to Terminal C of the terminal strip on the A-5 firing mechanism.

X marks the mods

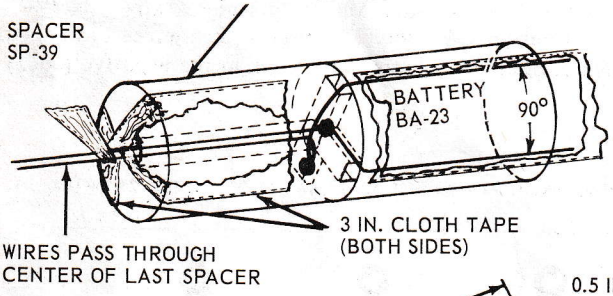
As implied earlier, the installation of these batteries is scheduled to become a permanent part of the assembly of each of these mines, with all necessary parts made available in the Navy stock system and included in OP 3504, instructions added to the appropriate mine assembly manuals, Class-B test instructions and life data added to OP 1452, and characteristics data added to OP 2637.

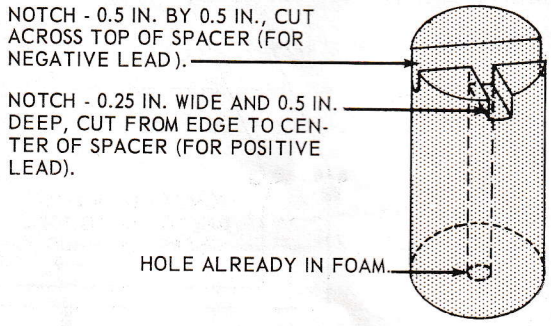
Meantime all mines receiving supplemental batteries must be identified. This is very important. The way to do it is to add an X to the mod number. This should be in the stenciling on the case if the case is stenciled, and on local records in any case.

The X should also be added to the mod number when reporting inventories. No special reports of accomplishment are required but that X will be the sole means of keeping everyone straight on which mines have the supplemental batteries. Do not overlook it.

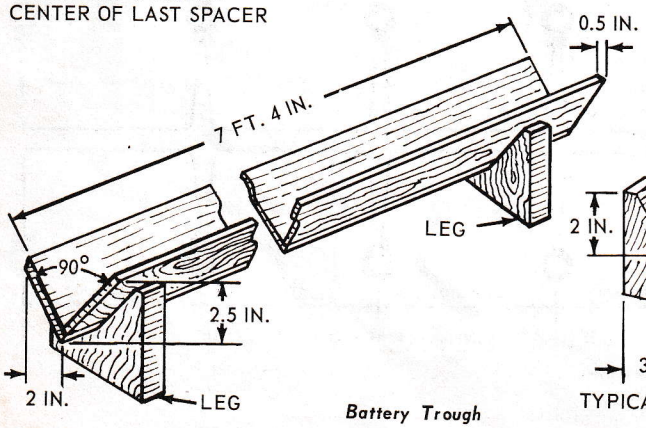


Battery Assembly for Mines Mk 36 – 2 and Mk 49 – 1

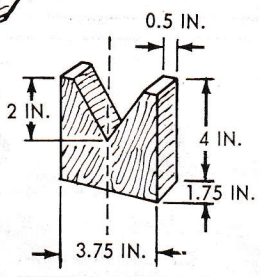




Polyurethane Foam Spacer Detail



Battery Trough



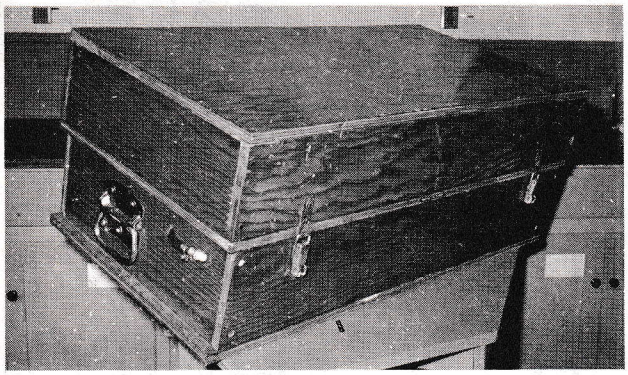
TYPICAL LEG DETAIL

MATERIALS:

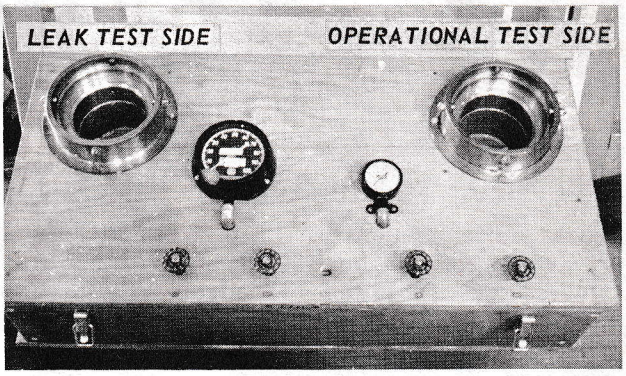
SUPPORTS - WOOD

TROUGH - WOOD OR ALUMINUM ANGLE

TEST POTS IN BOX SAVE TIME AND EFFORT



Portable Unit Buttoned up for Travel

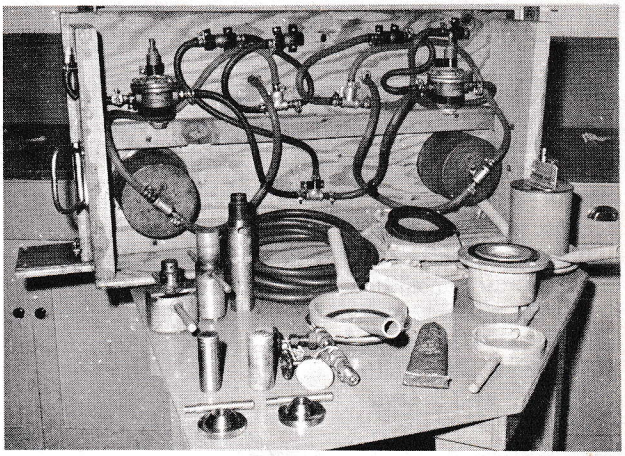


View with Cover Removed Shows Gages and Valves

FOR USERS of the Test Pot Mk 3 Mod 1 here is a handy arrangement put together by MN1 A.W. Neiderbaumer of MOMAT 0305 (see front cover). What he did was use two test pots and their associated gear to build a test panel with which the user can perform leak tests and operational tests of clock starters, extenders, etc. with minimum effort and optimum speed. How he did it is best shown by photos of his rig which, thanks to TMCS G. A. Chipman who sent them to us, we are able to reproduce here.

Al made his rig portable, an advantage for a MOMAT which has to pick up and go. All the user needs to do is take off the cover, break out the fixtures stowed in the base, connect the air supply, and be in business. The same arrangement could be rigged on a bench top for a mine shop where the work load warrants.

Half-inch plywood with 3/4-inch end pieces is rugged enough for construction of a box that will hold the test gear, all of which weighs about 100 pounds, though Al's use of solid (vs ply) end pieces eliminates need for corner braces. Fastenings should be flat-head screws. The base is 40 inches long, 20 inches deep, and 9 inches high with bail and plate handles, and luggage latches. The cover need only be deep enough to cover projecting tops of test pots, valves, and gages. Design may be varied

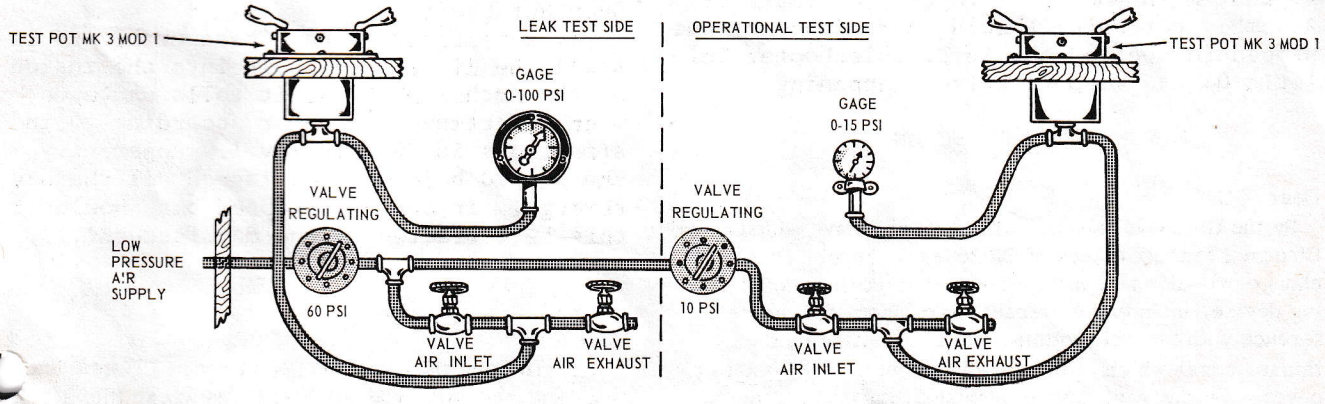


Fixtures and Equipment Can Be Stowed in Cabinet

to meet special needs as long as the general arrangement of the diagram shown is followed.

Parts used by Al but not included with the pots are;

Adapter, pipe-to-hose	9C4730-200-0531
Tee, pipe, steel 1/4 inch	9C4730-257-2117
Reducer, pipe, 1/2-to-1/4 inch	9C4730-196-0933
Clamp, hose, 5/8 inch	9C4730-278-2546
Threaded end fitting (hex nipple)	9C4730-193-2709
Low pressure hose	9C4720-540-2465



by B. Arnaclebutt, MNC

HOT STUFF

Oversized screw-heads

Dear Barnacles

Screws called out for the Mk 13 lug in accordance with Troubleshooter Bulletin No. 140 do not always fit. With some 0S00076 cap screws the heads bind or do not seat properly in the counterbore. This could give a false torque or snap off heads. What is the answer.

CST MN2

Dear CST

The answer is that stocks of screws used with the Mk 13 suspension lug have become contaminated. Therefore when replacement screws are ordered specify FSN 9Z5305-800-5698, MS 35457-50, and indicate on your request DO NOT SUBSTITUTE.

If your present stock of screws cannot be positively identified they should be screened. Mike the diameter of the screw head and if it is greater than 0.437" do not use the screw for suspension lugs. Also remove and mike any screws now installed, to be sure they're right. This could be a real hazard.

B. arnaclebutt

New covers for old

Dear Chief Butt

When inspecting assembled Mk 52–1 mines in preparation for a recent exercise a plastic cover on the hydrostatic switch assembly of the Arming Device Mk 5–1 was found shattered. This is the old problem of the shallow arming device well. The cover bottoms so that when you apply torque you smash it. Assembly personnel should be reminded of the procedure spelled out in Troubleshooter Bulletin 045 to keep this from happening.

BSC MN

Dear BSC

By the time you read this all hands will have added Change 2 to their copies of OP 2608, we hope. That change provides new instructions on installing the arming device, including a precautionary check for interference with the well bottom, and information on the thinner cover which alleviates the problem. The smaller covers, by the way, have been manufactured with the drawing number, 1250506-D, moulded into the plastic. The FSN is 1350-982-1314, and the MMC is 0A20048.

Depots have been supplied with quantities sufficient to retrofit all arming devices in stock. Other activities should check their material when they perform scheduled maintenance, and install the new covers as necessary.

Later procurements may bear a revision later than Revision D to DWG 1250506, but the critical dimension will not be affected. Bulletin 045 has been cancelled.

B. Arnaclebutt

Works both ways

Dear Hot Stuff

In some cases we have been unable to install the lifting eye bolt into the inside of the Anchor Mk 57 as it tells us to do when inverting the anchor according to instructions in OP 2718 Rev 1. Apparently the 3/4–10 hole was not tapped all the way through. It can be retapped but shouldn't this be corrected by the manufacturer?

EBH

Dear EBH

It is true that the condition you describe exists. Bas on experience with production samples where this discre

MOMAT MOVE COMPLETE

THE two mobile mine assembly teams formerly stationed at the Naval Weapons Station, Yorktown, Va., have moved to new quarters at Charleston, S. C.

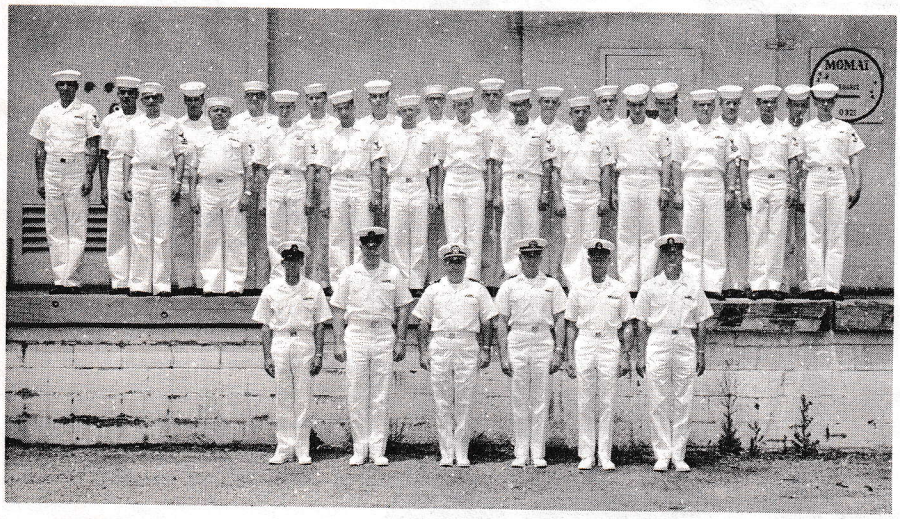
MOMAT 0321 was established in August 1963, at Yorktown with Lt. D. A. DeCrona as its OIC. Lt. DeCrona was transferred from duties with NMEF to fill the job, then was relieved by Lt. Lyal Stryker who, as OIC, took the MOMAT south in June. Lt. Stryker is due aboard NMEF early in 1968, in the Fleet Liaison Department.

MOMAT 0327 was created in January 1965 by redesignation of Mine Project Four which had been on the Weapons Station at Yorktown since March 1951 when two officers and thirty enlisted men were detached from other station duties to form the new unit, one of whom was the erstwhile Lt. Windy Roberts who has now retired to an ordnance position with the Chrysler Corporation. Lt. John Koerber moved the unit to Charleston on 15 September 1967, then on 27 November was relieved as OIC by Lt. Richard Billings. Lt. Koerber returned to Yorktown as Mine Production Officer at the Weapons Station, and will become Lieutenant Commander in January 1968.

It took a lot of huffing and puffing to get the gear of MOMAT 0327 aboard the vans on moving day.

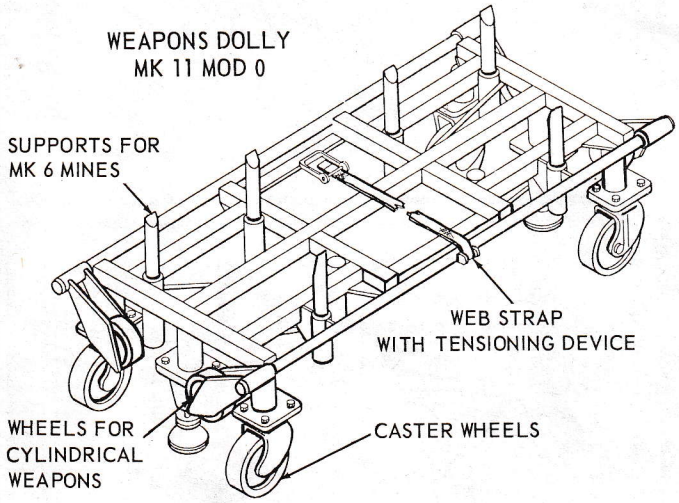
Above MN2 Barry D. Hamrick and MN1 John J. Degiacomo apply muscle to a box with an assist from a fork lift.

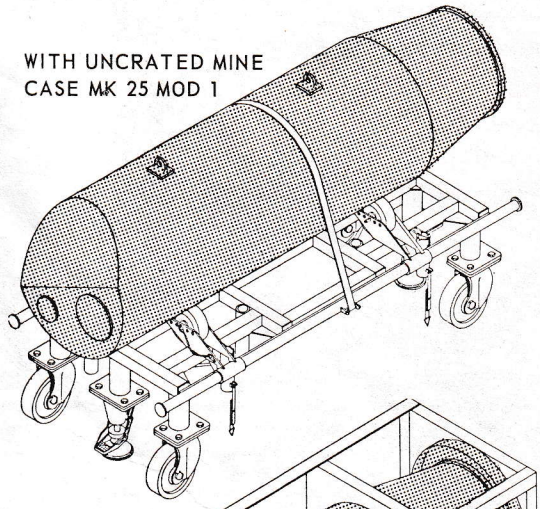
Right MN1 Nix and MNC Billy C. Owen do some tugging on another case of gear.



MOMAT 0321 poses for its picture against the background of its former quarters in Building 476 on the occasion of its last personnel inspection at Yorktown prior to the move to Charleston. They are, left to right: Top row: MN1 R.F.Rome, MN2 H.L.Keeran, MN2 R.R. Wilkins, MN3 J.R.Tiller, MN2 D. L. Collins, MN1 R.F.Stancik, MN3 W.R.Foster, MN3 J.G. Blyth, MN3 J.B. Nagy, MN3 E.J. Smith, MN3 W.D.Street, MN2 W.W.Peters, MN3 M.K.Meade, MN3 K.A.Oxendine, MN2 J.A.Balderrama, MN3 L.G.Smith, MN3 H.C.Spangler, MN3 C.H.Hall, MN3 G.J. Thompson, MN3 R.L.Hughes, MN1 J.A.Manning, MN2 H.B.Steen, MN3 R.W.Golob, MNSN D.R.Morse, MN3 D.F.Elswick. Bottom row: MNC D.W. Priest, TMCS M.J. Mahoney, Lt. L.M.Stryker (O-in-C), Lt. JG M.D.Horn,Jr. (Asst. O-in-C), MNC W.L.Johnson, MNC A.J. Sikorski. MN3 Z.B. Morgan was not present for the photo. Additions since photo are MNC W. L. Carlsen, MN1 R. F. Waldemarsen, MN3 J.L.Carroll, MN3 G.C.Troutman, MNSN W.E. Holden, MNSN J.R.Bingham.

Do You do this Job Right?





NEW DOLLY FOR OLD JOB

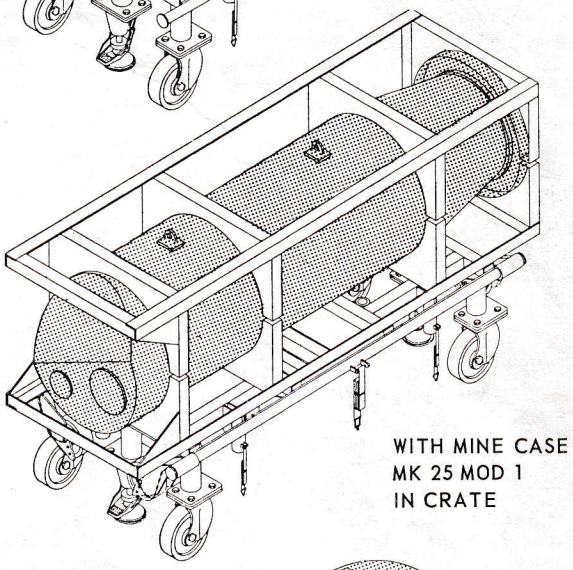
FOR A LONG TIME minemen have been balancing mines on dollies that are far from satisfactory. A wrong move and you were as apt to have a mine on the deck as on the dolly. It is good news, then, to learn that mine shops will soon be able to get the long awaited Weapons Dolly Mk 11 Mod 0, 7D00026.

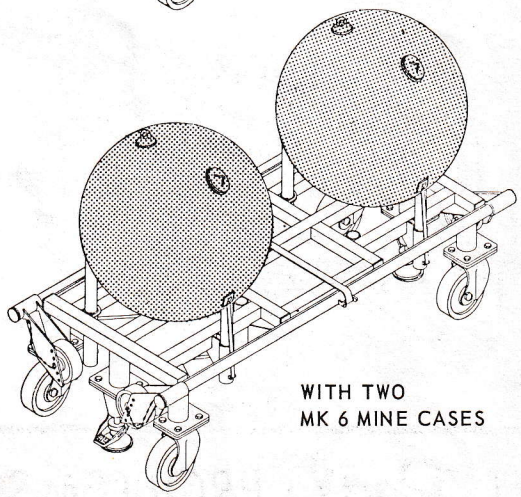
The new dolly has many new features for handling cylindrical and spherical mines. It has a low bed and is designed to carry a 2500-pound load. Swivel wheels make it maneuverable but it also includes position locks at each end to convert the vehicle into a stationary work platform. It is 72-3/4 inches long, 32-3/8 inches wide, stands 18-3/4 inches off the deck, and weighs 365 pounds.

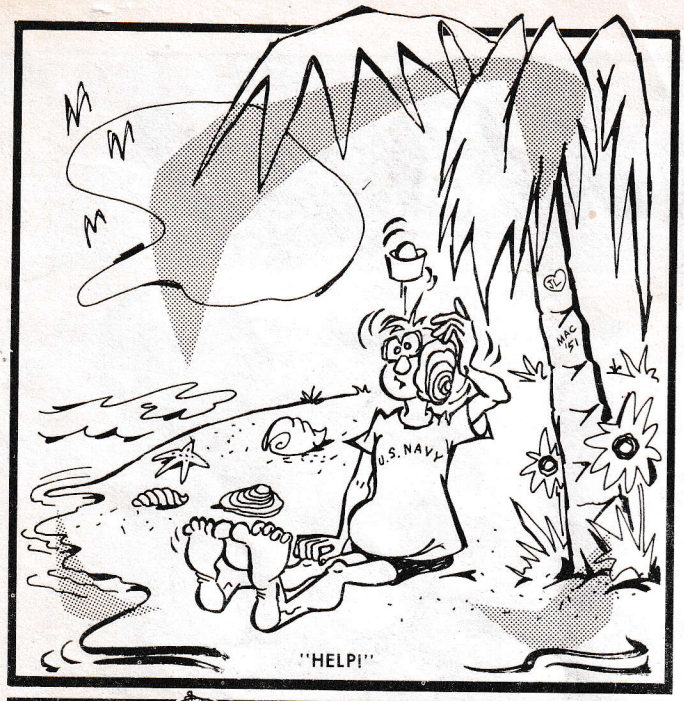
Topside the dolly is equipped with adjustable rollers which permit rotation of cylindrical weapons about their longitudinal axis. These rollers are adjustable to accomodate weapons from 9 inches to 22-1/2 inches in diameter. When not in use they can be swung below the level of the bed so the dolly can carry a crated mines. A hold-down strap is provided to secure cylindrical weapons. Auxiliary three-point supports can be inserted into sockets to carry two Mk 6 mines.

For the mines Mk 27, Mk 56, and Mk 57 the dolly can be used for sections before or after marriage. For the marriage of sections the adjustable-height Universal (Torpedo) Dolly, 7D00521, capacity 1600 pounds, can be put to good use whether alone or in conjunction with the Mk 11 dolly.

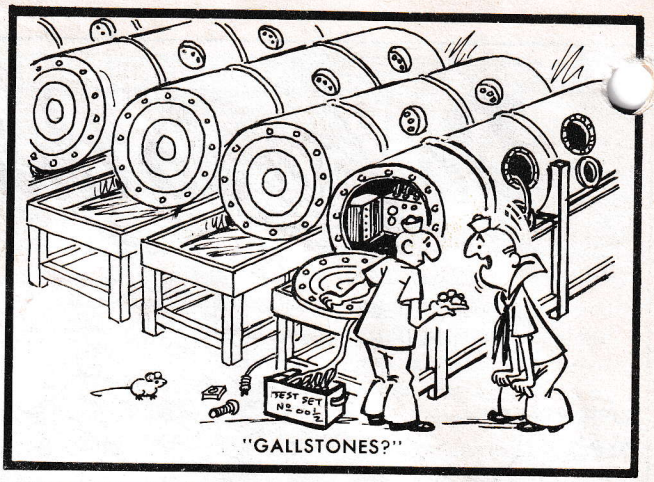
the Editor





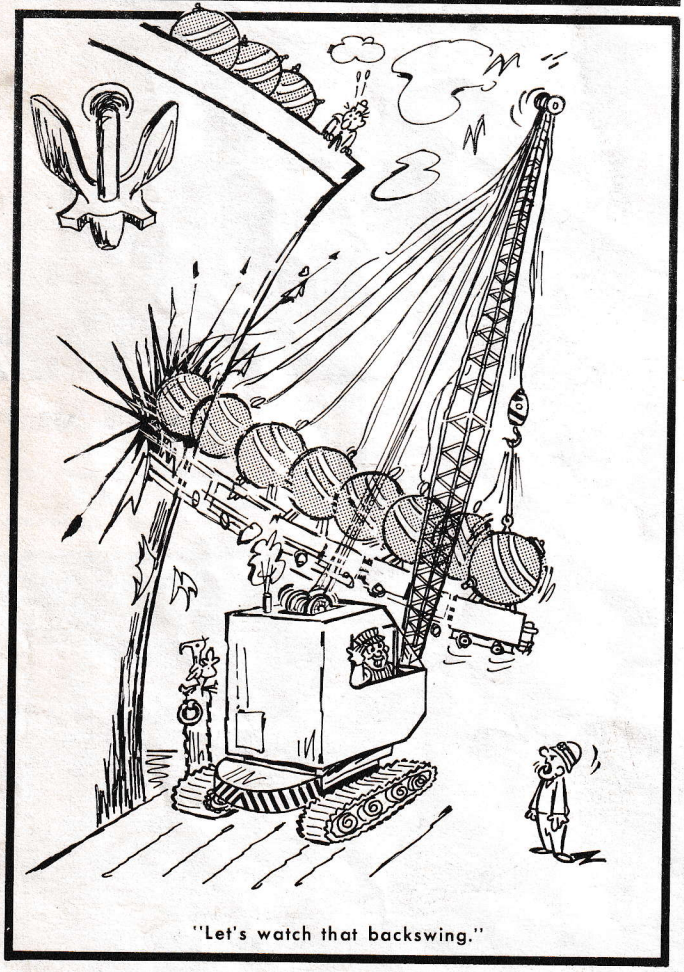


"HELP!"



"GALLSTONES?"

"But Martha, You asked me to get some pictures ..."



"Let's watch that backswing."

"Lester, You must give up this silly feud with the Air Force!"

BUT *Real* PROBLEMS ARE NO JOKING MATTER ..

USE RUDMINDE!