

mine and depth - charge

THE TROUBLESHOOTER

31 *ckk*

311 *WBC*

▶ Ballasting the Mk 27

▶ Soluble washers

▶ Test-pot fix

8 *W*

32

324 *W*

See page 6, run
down test for CD's
WBC
WBC/B2



AN OFFICIAL BUWEPS PUBLICATION

in this issue . . .

mine and depth - charge

THE TROUBLESHOOTER

Published by the Naval Mine Engineering Facility, Yorktown, Virginia

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REGULAR FEATURES

<i>Rudminde Report to the Fleet</i>	1
<i>Aviation Section</i>	3
<i>Hot Stuff</i>	6
<i>Job Right</i>	9

ARTICLES

<i>One Soluble Washer for One Job</i>	2
<i>Ballasting the Mk 27 Not a Cut-and-Dried Operation</i> . . .	4

COVER PHOTO: Some Mark 6 Mod 15 mines get final check before launching from the deck of YF 411 off Key West. Operation was one of recent NMEF tests. Members of Naval Ordnance Unit at Key West supplied facilities and assistance.

1 OCTOBER 1965

The Troubleshooter, an official BUWEPS 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 NAVWEPS 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 BUWEPSINST 8500.8.

ALLEN M. SHINN
Rear Admiral U.S. Navy
Chief, Bureau of Naval Weapons

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THE OFFICIAL JOURNAL OF THE RUDMINDE PROGRAM

RUDMINDE REPORT TO THE FLEET

You can please all of the people...

To paraphrase a colossal mouthful from the great P. T. Barnum of circus and show-biz fame, wherein he quoted a speech by no less an authority on life's vicissitudes than Abe Lincoln, you can please some of the people all of the time and you can please all of the people some of the time, but you can't please all of the people all of the time.

In this business of mine publications, though, you can't honestly conclude that we've blithely accepted this philosophy as inevitable and let the matter rest there. Some of the people (mine people, that is) think a technical digest is the answer to mine-biz communications ills: for them we produce ye Troubleshooter, four scheduled issues per year. Some think technical bulletins are better because they can come out as needed: for them there are T-Shooter Bulletins, 58 released since the first of the year.

Then there are those who say that Troubleshooters and Bulletins are okay but what's really needed are OP and OD changes: and we agree, to the tune of 3 to 10 being pumped into the distribution mill at Philadelphia each month. Yet even to this there are those who say phooey. You should stop everything else, they argue, and put out new revisions to all the OPs . . . with up-to-date dope, and standardized covers and binding so later changes will fit without rework by the users, and . . . , and . . . , and . . .

And we agree with these people too, pointing to 16 new revisions released since last January and quite a few more hopefully scheduled for release before the end of the year . . . in addition to 9 long-needed new OPs on mine subjects never covered before. We've also released a fair number of Ordalts to keep ordalters happy, Overhaul Specifications (OVSs) for the overhaulers, and even two films in thrilling color for those who insist that seeing is believing!

...but not all of the time

If you've been long in the mine force we won't have to remind you that, for mines, the variety, quality, and quantity of communications we've just outlined is absolutely unprecedented. To paraphrase another handy man with the words (Winston Churchill) never have so many had so much from so few.

But with what result? "Your last Troubleshooter (2-65) appeared a little on the thin side," writes LT A. R. Boreen from MOMAT 0305. So he sent us a group photo "to aid the staff in preparing a larger edition." Thin indeed, Al. And we thank you for noticing. We hope you also noticed that you got 2-65 only a month after Issue 1-65 (catching up some lost time) and that a lot of the scoop that might have made it fatter was already long in your shop in the form of Bulletins, or in your OPs in the form of Interim Changes. Thanks for the MOMAT photo, too. It'll appear in Issue 4-65, which will be a lean issue too, for the same reasons. We think we can serve you better that way.

Doyle Glaze at Sanfran 96612, though, is more concerned with quality than with quantity. Citing conflicts

between a new OP, a less-new Troubleshooter, an even older Troubleshooter, a very old Troubleshooter, a BUWEPSINST dated 1959, a BUORD Speedletter vintage 1958, and drawing revisions processed at various times in between, he finds certain inconsistencies to be incredible and makes some salty (but valid) suggestions for a cure.

We can't argue with Glaze. But we can state without hesitation that the situation is getting better rather than worse. The unpardonable practice of repeating information in multiple sources is rapidly being eased out, and that means fewer people can keep more sources up-to-date and consistent. These sources are now largely in the control of a single activity (NMEF) and that will help too.

Better yet, administrative streamlining, which has made possible the above-cited increase in variety, quantity, etc., all with what to the best of our knowledge is still the smallest publications staff of its kind in the Department of Defense, is now being applied to a less fallible system of "data housekeeping" which should ultimately preclude blunders attributable to constant personnel turnover, a late 20th century epidemic which is the real cause of inconsistencies such as reported by Glaze.

Best of all though, is the fact that there are men in the mine force who care . . . men like Al Boreen and Doyle Glaze who believe the job is worth doing right, sending you a shot in the arm when they think you're stuck and a shot somewhere else when they think you're all wet.

P.T. and Abe were right

So Lincoln and Barnum were right and we're glad. You can't please all of the people all of the time. And that's precisely why, year after year, we find it so much fun to try!

On 13 December 1965 CDR George A. Harper relieved CDR Frederick F. JEWETT, II, as NMEF's OIC. CDR Harper has attended Cornell University, the University of Rochester and the U.S. Navy General Line School at Monterey, California. CDR Harper has served in the Destroyers BENNER, JOHNSTON, PERRY, and WALKER; Destroyer Escort ROMBACH; Landing Ship Tank USS POLK COUNTY (as CO); Mine Sweeper ESTEEM (as CO); Schools Command, Treasure Island (as OIC Electronics School); Fleet Gunnery School, San Diego; U.S. Naval Advisory Group, ROK, Seoul, Korea.

Commander and Mrs. Harper, George A., Jr. 16, M. Christine 14, and Julia A. 9, have moved to Yorktown from California where Commander Harper was Commander, Mine Division 92, home-ported in Long Beach.



ONE SOLUBLE WASHER FOR ONE JOB

ch from
TS 4-65

THE DAY is at last in sight when you will no longer have to speculate about which soluble washer to use where. A recent standardization study has canceled out all but one soluble washer for each approved application. The exception: washers for the K4 mechanisms used in Mine Mark 6 Mods 0, 4, 7, 8, 10, and 11.

Soluble washers, of course, function primarily as auxiliary safety devices, with any delay arming (timing) feature incidental and not a requirement. These Mk 6 Mods, however, do not use clock delays, so depend on their soluble washers as both safety and delay-arming devices. Three soluble washers will therefore be kept active in the supply system to provide the Mk 6s with delay arming

times of 30 minutes, 1½ hours, and 4½ hours. As for the washers' applications on mines, here is the latest scoop (elsewhere on this page is a table which shows the status of all soluble-washer applications): **52655**

► For mines Mk 25, 36, and 39, soluble washers are no longer approved for use except when the mines are to be planted by surface craft.

► Soluble washers are still required on Extenders Mk 16 in Mines Mk 50 that are to be air-laid. When surface-laid, Mines Mk 50 require soluble washers in both Extender Mk 16 and Hydrostatic Switch Mk 22.

► A soluble washer is always required with Firing Mechanism Mk 24 in Mine Mk 53.

SOLUBLE-WASHER STATUS

ACTIVE - PREFERRED

Drawing	FSN	Time, Color	Application	Mines (Mark - Mod)
486807	1350-038-7670	10 min, blue	Float Mk 16 Mod 0	57-0 (Drill only)
1779683	1350-707-0649	30 min, pink	Firing Mechanism K4-1, 2	6-0, 4, 7, 8, 10, 11
1779684	1350-707-0646	1½ hrs, yellow		
486809	1350-038-7671	4½ hrs, green		
486818	1350-701-5288	10 min, white		
1389172	1350-038-7687	5-25 min, white	H-6 Device	52/55-1, 2, 3, 4, 5, 6
1190390	1350-038-7688	30 min, white	Arming Device Mk 5 Mod 1	
1176510	1350-038-7686	3-30 min, white	Extender Mk 16 Mod 0	53-0
			Hydrostatic Switch Mk 22	
403296	1350-038-7684	15 min, green	Extender Mk 14 Mod 1, 2	6-0, 4, 7, 8, 10, 11; 18-0; 25-0, 1, 2; 36-1, 2, 3; 39-0
402633	1350-038-7665	45 min, white	Extender Mk 12 Mod 10, 11, 12	6-14, 15
			Clock Starter Mk 1 Mod 3	
				18-0

OBSOLETE - OBSOLESCENT

239346-4*	1350-038-7666	10 min, green	Extender Mk 12 Clock Starter Mk 1 Mod 3	6-14, 15 18-0
369146-1*	1350-038-7681	1 day, pink		
369146-2*	1350-038-7682	2 days, yellow		
369146-3*	1350-038-7683	3 days, blue		
362745-4*	1350-038-7667	45 min, white	Extender Mk 14 Mod 1, 2	6-0, 4, 7, 8, 10, 11; 18-0; 25-0, 1, 2; 36-1, 2, 3; 39-0
443622*	1350-038-7680	3 hrs, white		
486811#	1350-038-7673	2 hrs, white	Firing Mechanism K3#	6-0, 4, 7, 8, 10, 11
1779682#	1350-707-0647	1 hr, white	Extender Mk 6 Mod 2#	

*Can be used until stocks exhausted; then will be declared obsolete.
#K3 firing mech and Mk 6-2 extender obsolete; washer stocks being scrapped.

ONE MORE TIME... NO TWIST

EVERY TIME a retaining or lock nut is designed hex-sided it invites use of a wrench regardless of instructions which may direct that they be run on only hand-tight. The result: permanently damaged cable plugs and contact pins.

In Troubleshooter 1-65 on page 16, P-3 plugs of the 1800-series instrument cables for Mines 52/55 were the victims of over-tightening of the retaining nut where it connects to the explosive fitting. More recently this damage, related to the installation of Explosive Fittings Mk 1, has begun cropping up in Rudmines. MOMAT 0321, for example, reports that using a wrench on the locking nut of the explosive fitting itself is damaging the contact pins.

Now in the Mk 52/55 mines' Mk 5 arming device, Explosive Fitting Mk 18, which has a hex-shaped locking nut, has replaced Explosive Fitting Mk 1 Mod 0 which has a knurled locking ring. The installation instructions in OPs 2608 and 2974 for these mines state that the Mk 1's ring need only be turned up handtight. But the Mk 18 is another story. One look at its hex nut and out comes the wrench, and there go the contact pins.

Hex nut or no, installation of Explosive Fitting Mk 18 requires no more torque than you can put on with your fingers. As written now the instructions do not specify that the Mk 18's nut should be tightened only hand tight, but revisions to OP 2608 and 2974 most certainly will.

Meanwhile, when you install an Explosive Fitting Mk 18, don't use that wrench.



Aviation Section

Safety First

When loading mines into P2H and P2E aircraft bomb bays get that Mark 2 bomb trailer out of the way as soon as you can. That's the warning from Ron Williams, MN2 with MOMAT 0305, who points out that by raising the mine just enough to clear the trailer, then removing it from the area before completing the lift, you scotch the possibility that if the mine should break loose and drop, it could strike the trailer and send it flying in an unpredictable direction. This would cause serious injury to personnel, damage to the aircraft, or both.

Not only that . . . the trailer will be out from under-foot, giving all hands more room to work.

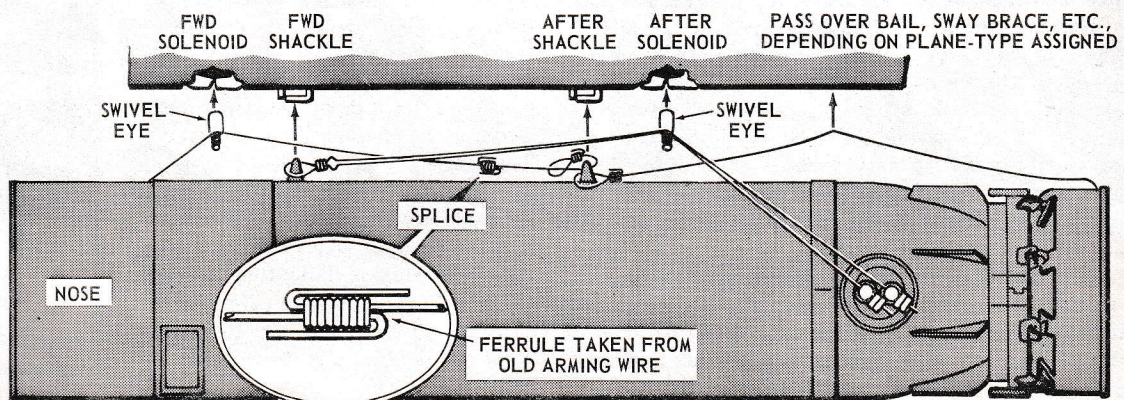
When unloading — for the same reasons — Williams feels it's best to lower the mine until it is about trailer level before you get the trailer under it. Here, too, he undoubtedly has a point.

A Splice that's Nice

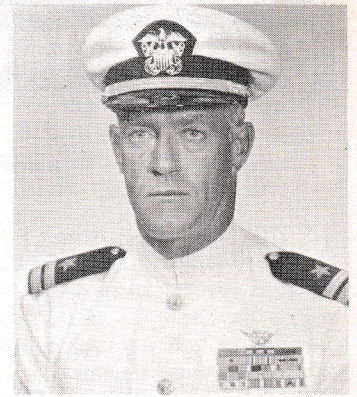
LTJG Maurice Horn, Mineprep Officer at KWESTEVDET, has pointed out a problem of which we were not aware when we wrote this column for Issue 1-65.

Therein we gave some Goldberg-type instructions for attachment of the new Mk 56 mine's anchor (nose) arming wire, which included a necessary tailoring (shortening) operation made necessary by the fact that the bitter ends of these wires are already installed in the mines internally when they arrive at the flight line, and their standing parts must therefore not be pulled out of the mines to gain extra working length.

What we didn't know was that at least one mine-assembly crew has installed 57-inch Mk 1 arming wires in these anchors, which for loading in some bomb racks will turn out to be too short. (All the 56s we had seen had 96-inch Mk 4 wires — the ones that should be used in anchor assembly.)



Lieutenant Wallace B. Richards, whose work has been reflected in Mine Loading Check Lists for aircraft (supplements to OP 3232), and in the Aviation pages of the Troubleshooter, received the Navy Commendation Medal on August 5, 1965. As head of NMEF's Fleet Liaison Department, he had personally supervised the numerous fit and flight separation tests, working out the many hairy problems of incompatibility on the spot, and assisting in getting several modern aircraft types cleared to plant mines.



Rich, who put in plenty of aircrew time in the Mariannas, Philippines, China, and Korea in the course of World War II, left NMEF on August 22 to join FAIRWING 14. So men of "14" take warning: this is one guy who, when he says "I wrote the book," isn't kidding!

TYPO CORRECTION

In the Bibliography changes on page 8 of Troubleshooter 2-65, "Test Set Mk 133 Mod 2" should read Test Set Mk 113 Mod 2 — the remainder of the line unchanged.

One thing's for sure though: because these wires are attached to the mines internally, AOs loading planes can't be expected to replace them when they're too short. What you can do, instead, is splice on an extra length of wire using the technique Brother Horn suggests, using a ferrule cannibalized from an extra wire as shown here. Just be sure you locate the splice between the rack's solenoid and mine's after suspension lug, then go ahead with your installation exactly as we showed for the longer wires in No. 1-65.

MN rates should note that Air Force M13 and M16 arming wires will, like the Mk 4, provide adequate length in this installation for all mine-laying aircraft. So will the forthcoming 80-inch Mk 8, which is now in the procurement process.

BALLASTING THE MK 27

not a cut-and-dried operation

IN THE COURSE of NMEF's evaluation of the reliability of the vehicles for Mk 27 Mines, reported in T-Shooter 1-64, it was determined that erratic vehicle performance, where it occurred, was due not so much to design deficiencies as to errors made in the course of assembling and testing these weapons.

No small part of this problem lay in ancient discrepancies in the published instructions themselves. Since then, however, NMEF has published new editions (revisions) of OP 1935 Volume 1 (Mine Mk 27 Mods 2 and 3 vehicle preparation), OP 1935 Volume 2 (Mine Mk 27 Mod 2 assembly and tests), OP 1935 Volume 3 (27 Mod 3 assembly and tests), OP 2363 Volume 1 (27 Mods 4 and 5 vehicle preparation), and OP 2363 Volume 2 (27 Mod 4 assembly and tests). Soon to be released is a new OP 2363 Volume 3 (27 Mod 5 assembly and tests).

Meantime we have also published a number of new ballasting tables, distributed via Change 2 to OD 10577, which contains the ballasting instructions for the four Mods of the Mine Mk 27. All of this, we think, will help. Yet in the business of ballasting — so important to acceptable performance in terms of depth, course, speed, and distance — we still have some ground to be covered before we can make OD 10577 the document we would like it to be.

We know, for example, that there are variations in the weights of the components that make up the Mk 27 system which have never been accounted for in the ballasting tables. Some examples:

▶ There are apparently considerable differences in the poured explosive loads from one lot of explosive sections to another. Some sections thus have total weights, after installation of components, that exceed the limits specified in the OD. In others the weight may be within limits, yet is distributed in such a way that the section's center of gravity is not.

▶ There are unaccounted-for variations in the weights of nominally interchangeable mine components. SC-20 Mod 1 search coils (the preferred coil) for example, can be as much as 20 pounds heavier than some lots of SC-20 Mod 0's, the approved alternate. The lightweight 20-0s are recognizable by the fact that they are covered with wood and a black thermo-setting plastic. Some Mod 0s, covered with light-colored fiberglass cloth, weigh the same as the Mod 1s, and NMEF is taking steps now to redesignate all such zeros as Mod 1s.

▶ The weight distribution in the afterbodies produced by at least one manufacturer has resulted in $W_A - W_B$ weights before ballast-weight installation that exceed OD 10577's weight limitations. Attaining righting moment for these

sections (addition of ballast weights) moves the section's fore-aft center of gravity about an inch forward of the 42.2 inches specified by the OD as maximum acceptable.

What makes the fish swim

From the foregoing you may already have concluded that over the years the supply system has become plagued with a lot of Mk 27 hardware that should be scrapped. But this is not necessarily so. To understand why, consider for a moment the nature of the Mk 27.

As those who work with them well know, the steps that lead to a properly ballasted 27 are many. First, the individual sections — nose, war-battery and/or explosive sections, and afterbody — have to be checked and adjusted for righting moment (to locate each section's center of gravity a specified distance off the vertical center line), for pull-around (to locate each section's CG some distance below the horizontal centerline), and for longitudinal CG (to verify each section's fore-aft weight distribution). In the end, though, what really counts is the way these sections behave when they are married to form the complete weapon. When they are, righting moment and pull around should pose no problems because they will remain about as correct for the whole as they were for each section.

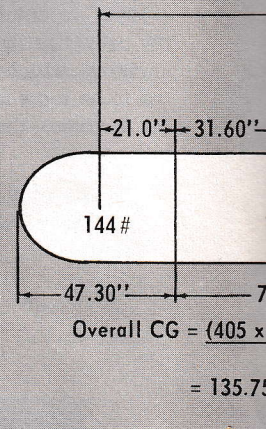
But not so for the overall fore-aft CG. This becomes another matter altogether in the complete weapon, and must be computed for the whole from the measured weights and CGs of the specific sections that are to be (or have been) married.

What's bad can be good

So how can we reconcile these ballast requirements with those variations in weight and weight distribution? As we said, one solution would be to give all the oddball components the heave-ho and buy new gear that would meet rigid uniform tolerances. That, though, is out. Not only would it cost a fortune, the fact is that it's simply not warranted.

A far cheaper way would be to further revise those ballasting instructions in OD 10577, thus providing criteria and procedures that would make it feasible to build reliable

FOR MODS 2 AND 3



Overall CG = (405 x
= 135.75

NOTES: Weights and Posi
see tables in App
ditions. 1754# -

Position of CG m

ines with the hardware we've get. And this is exactly what NMEF plans to do. As soon as possible, we're going to replace OD 10577 with a much better book. The trouble is, neither NMEF nor anyone else has yet been able to accumulate enough data on the nature and extent of the problems that the new procedures must take into account.

The answer, then, has got to be Rudmindes. If every depot and assembly activity handling Mk 27 mines will make it a point to Rudminde us on every problem they encounter in the coming months, we should soon have exactly the data we need. When you do, though, be sure you send complete ballasting data for each section of the mine concerned. Meanwhile, here's some advice that may put an end to some of those Mk 27 problems right now:

- ▶ Don't be too concerned when ballasting the nose and battery sections of Mine Vehicle Mk 1 Mod 1; so far no one has reported any problems with these.
- ▶ When checking the individual sections, make sure your ballasting equipment is assembled properly, and that all mine sections get placed on their respective CG frames so the forward ends of each are buttoned snugly against the frames' locating brackets.
- ▶ Don't reject afterbodies upon discovering that their $W_A - W_B$ weights measure out of limits before installation of the ballast weights. Even those sections whose individual fore-aft CG has shifted an inch too far forward in the course of ballasting for righting moment may turn out to be well within limits on overall fore-aft CG (for the complete weapon) when such afterbodies are married to the other mine sections.

Don't bother repeating the loading depot's ballasting

procedure when you handle the explosive-loaded sections at assembly activities. True, you'll want to know their condition, but it doesn't mean too much before installation of the mine components or propulsion batteries. Even after they're installed, a section that could not be ballasted to the OD tolerances can turn out to be acceptable when combined with the other sections. (The opposite, though, can happen too: we've seen some explosive sections which met all specifications before installation of components, yet exceeded the limits with components installed!)

▶ Add a tolerance of ± 0.5 -inch to the currently-specified 135.75 inches for computed fore-aft CG for all completely-assembled Mk 27 mines; this will introduce no sacrifice in performance, and will make many otherwise rejectable mines acceptable for service use.

From the above you can see that, in assembling a 27 whose afterbody and explosive section could not be ballasted within the OD limits, you could nevertheless end up with an overall fore-aft CG that would even be within the $135.75 \pm .5$ -inches we have specified here. This makes it especially important to compute the overall fore-aft CG for each mine as an assembly of sections before you turn thumbs down on any seemingly oddball individual section. To make this easier you can use the data in the illustrations we've provided here.

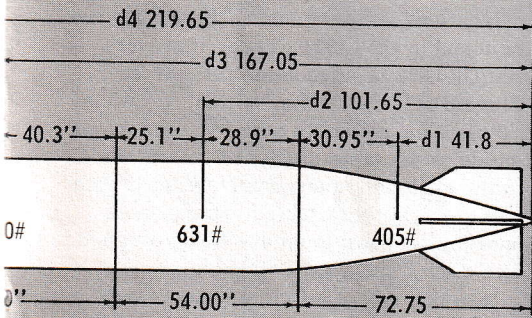
Sometimes, of course, you'll have no recourse but to reject. When you do . . . or when you have problems to report . . . make it a point to notify NMEF in detail of any problems you encounter. That way, together, we can eventually make your 10577 a better OD!

FORMULAS-DATA FOR COMPUTING MINE MARK 27 CENTERS OF GRAVITY

FOR ALL MODS

$$CG \text{ for section} = \frac{WA \times A-B \text{ spacing}}{WA + WB}$$

VEHICLE MK 1 MOD 1)

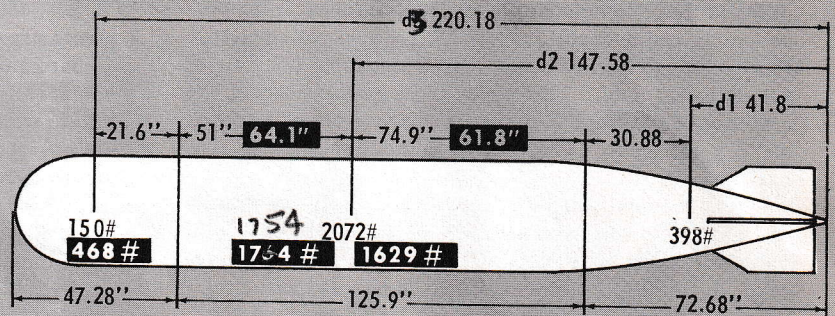


$$\frac{0 + (631 \times d2) + (1520 \times d3) + (144 \times d4)}{\text{Total Weight}}$$

5 inches

ch from
T/S 4-65

FOR MODS 4 AND 5 (VEHICLE MK 1 MOD 2)



$$\frac{\text{Overall CG} = (398 \times d1) + (2072 \times d2) + (105 \times d3)}{\text{Total Weight}}$$

= 135.75 \pm .5 inches

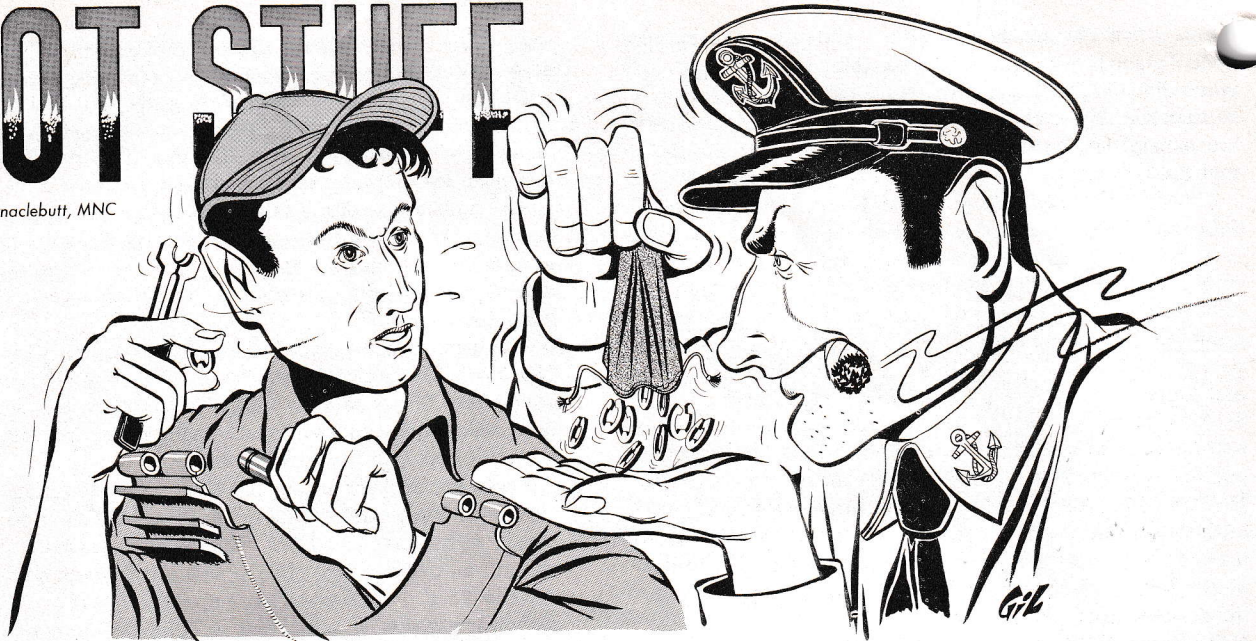
is of Section CGs are given without regard for tolerances for which fixes B and C OD 10577. WHITE numbers represent Exercise Conounds negative buoyancy, 1629# - 75 pounds positive buoyancy.

A-B spacing is distance between forward and after knife edges of CG frame.
WA is net weight at forward knife edge.
WB is net weight at aft knife edge.

ured from after joint line or after face of propeller nut.

HOT STUFF

by B. Arnaclebutt, MNC



One time only

Dear B. Arnacle:

Release Mechanisms Mark 15 Mod 0, used on the Mine Mark 50, are being received assembled. As no contrary instructions exist we're disassembling mechanisms and installing them on the mines. Now to settle a local argument.

Is there anything that requires us to heave-ho those E-rings and use new ones when we install?

JMJ MN2

Dear MJM

While there is no specific instruction concerning disassembly and assembly of the Mk 15-0 do not re-use those E-rings regardless. The warnings on page 30 of OP 1811 still hold. That's why those bags of extras are attached to the mechanisms . . . extras for both hinge and clevis pins. Always you should use them, and discard the others.

This wipes out your clevis pin spares. In the future, though, if and when there is new procurement of Mk 15 release mechanisms, they will not be shipped assembled. Instead, you'll get them packaged in halves, with hinge pins, clevis pins, and E-rings (including spares), all in the cloth bags.

B. Arnaclebutt

Rundown on rundowns

Dear B.

We are informed that Test Set Mark 384 Mod 0 is not available for performing re-

quired rundown tests on spring-driven clock delays. To me this means we scuttle the Class B requirements for such tests. You too?

J.V.H., MNC

Dear J.V.H.,

You have hit the nail on the head: Class B clock criteria as of now require only that your hand-wound short-time clocks start and stop in response to operation of their starting bars (a Class C test) together with such Class B switch-resistance, continuity, and current-drain tests as are imposed by the Mk 95 test set for hand-wound clocks, and by Test Sets Mk 75 and 254 for your electric jobs.

But, you say, instructions for performing those rundown tests are still to be found in OP 1452. True. But you must remember that OP 1452 is intended to tell how to perform various Class B tests, not who, which, or when. As to which Class B tests an assembly activity is expected to perform, your guide is the table of Class B and Class C tests to be found in the assembly manual for the mine with which you are concerned. In these tables you will note that all requirements for rundown tests are being dropped. And the reasons, we think, are good:

Over the years, less than 1% of all clock defects revealed through the World-Wide-Surveillance or Rudminde Programs have been detected by 3-day rundown tests.

The major cause of clock stoppage is lubricant deterioration with age, and NMEF is establishing maintenance cycles that will counteract its effect on weapon reliability.

By dropping the Class B rundown requirement we can save the considerable cost of procuring the number of Mk 384 test sets that would otherwise be needed to support it.

So is the 384 obsolete? Not at all. Those now on hand will be allocated to quality evaluation laboratories for use in rundown tests pertinent to the surveillance program

any assembly-level activities designated to perform on-site surveillance in specified areas, and to major depots for use in confirming the results of rework or overhaul.

Because of these needs, the 384's operating instructions will be retained in OP 1452.

B. Aruadebut

Pressure detector life

Dear Barney,

Table 11-1, OP 2567 Part 1 Vol 1, Length of Storage for Various Temperatures, which applies to Pressure Detector Mark 1 Mod 1, doesn't say whether the data applies to detectors stored in nitrogen-filled Mk 23 component containers or in an atmospheric environment. I assume it applies to storage in nitrogen-filled containers.

If so here are some questions: 1) If the container leaks during shelf storage or shipment how is remaining life determined? 2) How is detector life determined for detectors used in drill mines, in which case they are used repeatedly without benefit of storage in nitrogen-filled containers? 3) Most of the new readiness conditions now require installation of pressure detectors in stored mines; how is detector life determined under these conditions?

M. R. E., MNC

Dear M. R. E.,

You are right in assuming that Table 11-1 is meant for use with detectors in their nitrogen-charged storage containers. Storage life at the same temperature in air

would be much shorter. As for your questions . . . First you should understand that Component Container Mark 23-0 is exhausted by a vacuum pump, and then charged with nitrogen to a positive pressure of 3 to 3.5 psig. Thereafter leaky containers are not likely to expose detectors to atmosphere because failure of the prescribed pressure test occurs when pressure has leaked to 1 to 1.5 psig, but it takes much longer for the pressure to drop from 1.5 to 0 than from 3.5 to 1.5. And until positive pressure reaches about .35 there can be no "breathing" from atmospheric pressure.

Therefore in instances where a container is refilled and has its closure checked when the quarterly pressure test shows failure, table 11-1 continues to apply uninterruptedly.

As for detectors in drill mines, the use of containers for recovered units is out. Under this condition the sole criterion to apply is the detector's capability of passing Class B tests. Generally, this is also the case with detectors in assembled mines. In such cases there is no formula to help in determining the detector's life. Generally a detector exposed to cold air or water becomes overly sensitive (and thus useless) in about one year. This same point is reached in as little as six months in warm air or water.

Another condition you should be aware of is a tendency for these detectors to show some oil seepage around the diaphragm screws when you take them out of their containers. This seepage occurs when the container is evacuated, as a result of there having been no torque specified for the diaphragm in the original detector design drawings. It is not critical, so if the detector tests okay, wipe off the oil stain and use it.

For newer procurements, the drawings now call for a torque of 7 to 10 inch-pounds, which should put an end to this seepage.

B. Aruadebut

H. L. Coker, TMCM (then MNCM) gets his Plank Owners Certificate from the O-in-C of MOMAT 0321, LT Donald A. DeCrona, at presentation exercises held earlier this year. Chief Coker was the first man to be assigned to the team, commissioned 15 August 1963, and left it in April 1965 to assume duties at NAF Sigonella. Others to receive Plank Owners Certificates, with grades and rates held at the time, are: LTJG D.A. DeCrona; ENS E.C. Oyer; R.B. Walker, MNCS; M. L. McCune, MNC; D. W. Priest, MNCA; P. L. Reagan, MN1; A. W. Niederbaumer, MN1; J. R. Coffman, MN1; F. E. Cole, MN1; F. Trestrail, MN2; H. L. Jeeran, MN2; J.L. Ellis, MN2; F.D. Fullen, MN2; J. A. Manning, MN2; W. C. Sechman, MN2; E. F. Hall, Jr., MN3; C. L. Booth, MN3; N. J. Lalley, MN3; T. W. Phillips, MN3; S. L. Sherwell, MN3; J. A. Nearhood, MN3; J. J. Manzolli, MN3; G. R. Gracey, MNSN; S. R. Helms, MNSN; D. G. Curtis, MNSN; H. D. Harper, Jr., MNSN; R. D. Van Wey, MNSN; R. B. Pricer, Jr., MNSN; E. G. Matern, Jr., MNSN; R. R. Wilkins, MNSN; R. H. Reblin, MNSN; W.R. Foster, MNSN.



Don't pull, cut

Dear Chief Butt:

The sealing tape used to protect the amphenol receptacles on paper-covered batteries can pull the cover apart when you pull it off. Can't they use stronger glue to hold the covers together, or else a tape that's easier to peel?

C. B. N.

Dear C. B. N.,

The pressure sensitive tape used to protect the socket-type terminals does get a little tough to remove as it ages. Even when it doesn't tear up the battery jacket it frequently strips off the terminal markings. The solution, since the tape is transparent, is to cut away that part of the tape that covers the connector socket and forget the rest.

B. Armaclabett

More space needed

Dear Barnacles,

The "through" legs of some cables CA-949 are too fat to fit into the slot in Spacer

21 used in Mods 2 and 3 of Mines Mark 52 and 55. What are the design men trying to prove?

M. A. S., MN1

Dear M. A. S.:

It's not the design engineers but the Fates, demonstrating once again the inevitability of change. In this case, per Rev A to DWG 1358424, CA-949s were manufactured to a .312" thickness. Then, to provide adequate space for leads within the cable, Rev B added material that increased the thickness to .375". That, naturally, is identical to the dimension of that slot in Spacer 21, with the result that a new CA-949 will be a tight squeeze if it fits at all.

The fix is to widen the spacer's slot by about 1/16". A wood rasp or a table saw will do it. Cut to a depth of 15/16". You don't need to varnish the raw area.

When new spacers are procured, their slots will be wide enough for the cables. Then, if no one changes the cables again in the meantime, your troubles will be over.

B. Armaclabett



A new Mobile Mine Assembly Team, MOMAT 0327, stationed at NWS Yorktown, poses for its picture. This group was Mine Project Four until this year when it was redesignated. Personnel assigned are, front row, left to right: LT J. W. Koerber, O in C; J. L. Moore, MNSN; C. E. Bartyzal, MNC LCPO; S. E. Hazen, MNSN; W. R. Thompson, MNSN; T. D. Kiser, MNSN; K. L. Knapp, MNSN; D. R. Olson, MNSA; M. E. Strandberg, MN3; R. E. Griffin, MN2; B. D. Hamrick, MN3; D. J. Walsh, MN3; D. R. Todd, MNSN; P. K. Beckwith, MN2; J. K. Nix, MN2; R. J. McKinnon, MN2; J. F. Steedly, MN2; J. R. Cobis, MNC. In the back row are: J. S. Elmore, MN1; J. M. Henderliter, MN2; R. C. Carden, MN1; S. L. Sherwell, MN3; J. J. Digiacommo, MN1; G. F. Sevier, MN3; O. G. Smith, MN1; E. C. Bennett, MN3. Not present for photo: D. T. Pressey, MN2; W. T. Kibe, MN2; R. R. Carpenter, MN3; W. C. Briggs, MN3; B. W. McKinnon, MNSN; H. G. Case, MNSN.

Do You do this Job Right?

RUDMINDERS D. R. Jones, MNI at DRILLMINE-PREPFAC Long Beach, and John Everett at NAD Hawthorne, have discovered that the bellows of Test Pot Mark 6 Mod 0 and the Mk 1-0 pressure detectors' diaphragms are interfering with each other during Class C tests of Mines Mark 52 and 55, Mods 3, 4, and 6, using Test Set Mk 263 Mod 1. There are four of these pots in each Accessory Set Mk 10 Mod 0 used to actuate the Pressure Detector Mk 1 Mod 0.

The cause: the detector's covers bulge too much, and the bellows' extending rods are too long. The trouble is signaled, they say, when you cannot freely swing the cam lever from "signal" (retracted) position to "hold" (extended) position.

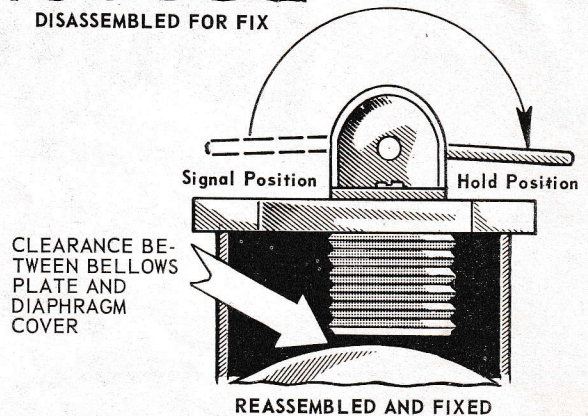
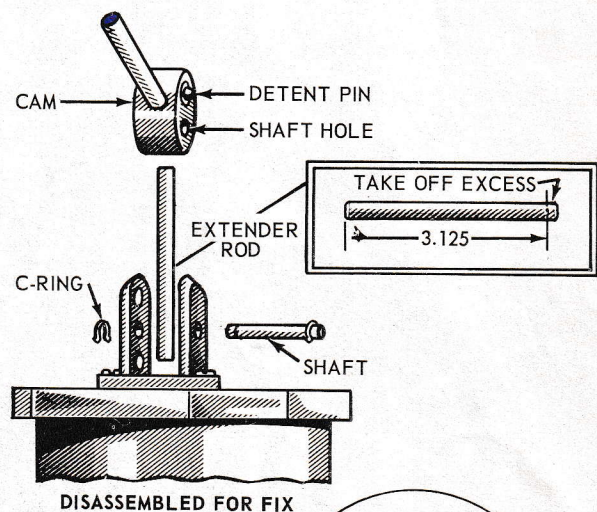
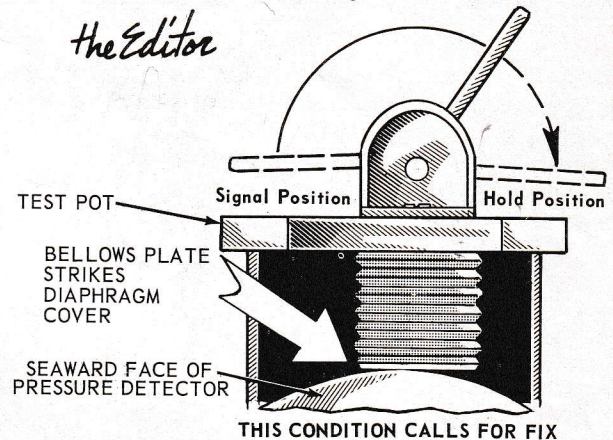
The story is that the manufacturer of the detectors was allowed by the "left hand" to re-form their diaphragm cover plates to accommodate the specified amount of silicone fluid, with the result that some detectors' cover plates are domed more than others. That might have been all right, but it turns out that some of those Mk 6 test pots were manufactured with slightly shorter barrels and longer bellows-extender rods, with the blessing of the "right hand". And it's when you find yourself with this combination that you have this bellows-diaphragm interference.

Following one simple rule, though, will take care of part of the problem: Always make sure the cam lever is turned to its "signal" (retracted) position when you go to mount a test pot over the detector. If you don't, when you tighten down for that airtight seal you'll likely damage the diaphragm cover. For this there is no field fix, so correction will have to await a depot overhaul per OVS 070.

With some pots, though, you'll find that you cannot easily swing the test pot cam lever from "signal" to "hold." These are easy to identify by the stampings on the pots' barrels. Those stamped NGF P.O. 68801 or 68802 will give you no problem. But those stamped GMR N600-19-58156 will, unless you perform a field fix like this:

- ▶ Remove the C-ring from the gauge end of the pot's shaft, about which the cam revolves.
- ▶ Push the shaft out and withdraw.
- ▶ Lift out cam. (Watch that spring-loaded detent pin—it falls out easily!)
- ▶ Shake out the bellows-extender rod.
- ▶ Shorten the rod to 3.125 inches by filing or grinding its square end, remove burrs (a slight chamfer won't hurt), then put it all back together.

Now, back on the tail cover, that test pot should work like a charm . . . as long as you remember that rule: always turn the cam lever to signal before mounting the pot over the pressure detector.



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JAN 1970
FEB 1970
MAR 1970
APR 1970
MAY 1970
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AUG 1970
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OCT 1970
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DEC 1970

STUCK?



RUDMINDE!

Reiner