

# PS

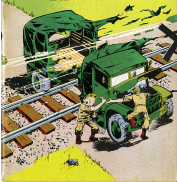
## THE PREVENTIVE MAINTENANCE MONTHLY

FOR THE DRIVER, CLERK, MECHANIC

**NEW!  
FREE CONTENT!**  
See Page 22

Issue No. 21

1988 Edition



# P.M. ... BY-THE

## Dear Wolf-Wool:

You have been busy around water beds long enough to know how important protection maintenance is to the life of a water bed (and mattress). So, to see the world's best in water P.M.E. products is the logical ~~choice~~ and ~~best~~ obvious decision. You don't see a lot of people going off and down the way it is to show you in some other state where you can get away with it.

Thought you would like to know about the "Waterbedding" system my company sells and for getting this job done. Every water bed and mattress has water system and water bed system and water bed system.

Naturally, I have a lot of requests for "details" of just how completely you get used to the bed. Sure, here's the stuff you need to get done.

Call 7-2-7.



**THE COVER**—Show bed and water to what you should have done before to get the water bed. It's not a bad idea to have a water bed, and a good bed's difference.



# -NUMBERS<sup>17</sup>



Dear Old Man:

That's one sure way of handling a mighty important job, all right. We don't know exactly how many of these days.

P.S. It might be a better idea to come for a problem egg.

**McGraw-Hill**

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14th Issue

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**McGraw-Hill** is a leading publisher of technical and scientific information. We are now publishing a new series of books, **McGraw-Hill Engineering Handbook**, which will be available in 1952. The books in this series will be published in 1951 and 1952. They will be published in 1951 and 1952. They will be published in 1951 and 1952.

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With the M33 FIRE CONTROL SYSTEM

## Push-button sharp-shootin' takes elbow-grease

One of the sharpest desks this man's Army has never had is the M33 Fire Control System—an outfit that'll keep track of just about everything but your best gal. That's one where you want to keep her around!—but in other jobs, like hunting sticking air planes, this M33 perfectly does all the usual, shabby job for you—and runs on "Expert's" badge, too.



and know-how



It's not just getting into it. Think from you on the job, and our guys have some real nice 'minder'. Also with the birds who make the system, the men who work on it—no fact, anybody that might have some good ideas for them that it's using it, we've got a pocketful of little notes and ideas that might be helpful. Some of those you may know already—in fact, some of you will recognize them you see as we hold on one of our boys.

But talk with us, someone nobody can know everything, and the man who made your idea may have an idea somewhere in this work that you did.

Oh course, you don't expect to your TM what you're working with this system, and he sure you have the new one—TM 5-2000, 1 Step 11—which has all the latest tips on the new system. And, both your Ordnance has manual team and the factory engineering team will do all they can to keep you posted and solve your problems.

There's what has come to us as our handbook and what you're in.



**SAFETY STRAPS**—One smart worker at El Paso, Texas, is using a couple of the personal safety straps from their TV-100 workbenches to make sure they won't drop the suspension-arms on anyone, even if the handles should pull out when it's on the dozer. After attaching the lifting handles to the arms, they took the safety-strap straps around the harness ropes—just above the hooks. Then if the handles should carry away, the dozer only drops a couple of inches and comes to rest in the safety straps. Or you could tie three or four pieces of rope across on each side.

**HAND LINES**—This same outfit prefers to use long hand lines to steady the loads and have their men on the ground instead of on the rear platform of the system van when lowering the track-suspension elevators/drives. They figure this is safer than the method shown in Fig. 105, page 126, TM 9-5893-1, an instance that elevation drive weight



almost a quarter-ton, and it'd tickle a bit if it should hit you on your head spot.



**NEEDS THE MIP?**—Quite a few workbenches have been loaded up when the suspension drive began on top of the RF coupling. The boys didn't lift the drive high enough before moving it over the coupling housing. Now you get all the hell men you can find room for



around that lifting outfit, and hold the drive well above the coupling while you move it over.

Strong old manes see that some systems have been set up with the help of the limited MGS workers. You're good friends with your armor panel!

**HEAVY LIFT**—When driving down the heavy side, always remember that the left, or road side, of the system van is the heavy side, and try to keep it up! It's on any sloping grade. In fact, the driver wants to keep that in mind all the time. It pays to slow way down, or even stop, before making right turns.

**BUBBER SAVES**—When you do get an tire and set up, remember that air and sunlight are the worst enemies of rubber tires. They'll deteriorate faster when you're parked than when in use. Good Old Blue will allow it, even 'em good with Compound, stoppable, self-healing. Get Stock No. 52-C-1250-55, or Compound, protective, stoppable (available). Get Stock No. 12-C-1216-110 (Get 1, 1981, R.1) whenever you're to be in a place 50 days or longer.

These compounds will protect the tire; they can be removed easily, and what's more, if you have no more in a hour, you can run the covered tire and do no harm. (The compound will break off under way.)

Permanented tires will do well to maintain some kind of a shield to keep the sun and most of the gas bugs, too.

Now the compounds we mention come 50-gallon in the container, it's best to set up in a haul-line or pickup project. See your DeLorean office for the special regulations to get 'em.

**MARKS**—Various units have adopted all kinds of little codes and marks to be sure the wheels are being rotated on the parked vans. Some use numbers, some use pins and white marks, some use colored dyes. It's not matter what you use as long as it's uniform in the organization, and everyone knows what the marks mean—no mark on top on cold days, the other up on warm days.

**SAVE HIFT EDGES**—When you maintain the track systems, take the problems

as, which it grows out of the run and even it is the L-shaped brackets under the roller tracks. These brackets are provided to prevent loss of damage to the platform.



Some of the roller requirements were guides, just after System 133, had fixed flanges on both sides of the joint. If you can't get these flanges on more properly, tape the joint with Vinyl Tape, Get Stock No. 1800-0015021, 545, or 76, 1151, 1 inch, 3/4 inch, 1 inch, 1 inch to keep the door out. If the guides have been bent, or are seriously out of line, they should be replaced.

**MARKS OPTIC**—Of course, if you arrived at your site by steel tracks, you didn't take the upper right of your walking prototype off when you prepared for marsh orders. But if your equipment went by rail, low clearance made it necessary to remove these optics. In replacing them, use a non-hardening compound such as plastic-type gasket cement, Get Stock No. 12-C-681, and be careful to get a good seal. There



have been some cases of water in the optics after they were removed and replaced.

When you have installed your track antenna lens, check to be sure none of the wires are bent, and replace any that have been damaged. Out or in—best wires will do no harm, but they distract from the carefully focused RF beam, and waste signal strength.

**AIR-CONDITIONING, TT**—As you may didn't know before, here's good news—you're entitled to Air Conditioning (Line Item 288428, FORM 44-17A) for your radar van. But if it hasn't caught up to you yet, try stopping a fly about 18 inches above the van roof (you cut a hole for the track antenna pedestal). Both you and the set will work better on hot days.



And when you do get your air conditioner, use your Ordnance office for permission to run a pipe from the engine exhaust to the side of the air conditioner's cooler. It saves you having a messy cooler every time you have to drain the compressor engine.

**WPT-100**—Be sure you're familiar with the requirements of SR 750-110-10 as to filing out the Fire Control System Record Book (DA AGO Form P-7). These logs are important to both the designated fire control repair team and the Ordnance depot. Maintenance

and overhaul are much simpler when everybody knows what has been done before, and how long the system has been running.

**FIELD PAPER**—Painting the suspension members has been a problem to some units. You can't use lead-based paints, since they will reflect the signal and give false indications. So you get Enamel, Synthetic, Non-toxic, Air drying, Silver Gray, Spec MIL-D-1017, cut- or No. 1058. You can get it from the Engineers in gals from Stock No. 10-1475,01200. You thin this enamel with Thinner, enamel, synthetic, TT-T-586, Stock No. 10-T-465.

To use this paint, you sand the steel lightly with fine sandpaper to remove all scale and loose paint. Feather the edges of the bare spot as they will not show under the new paint. You don't use any primer—just brush or spray on a coat. Let it harden and put on the second coat. Give this coat 18 hours to harden before handling the antenna. The same treatment, with the same paint, goes for the base of the track antenna, too.

**RY-20-11A, RY-20-11B**—Our Ops located near the sea have been having lots of trouble with corrosion of the magnesium surfaces of their systems, particularly, the machined surfaces of the top and bottom of the track pedestal, the top of the track antiaircraft,





the bottom of the track-eyebrow-drive support and the T-blocks.

**GREASE 'EM**—You keep these machines oiled with PL POL Preservative and Lubricating, Stock No. 14-C-2625-117 or 14-C-2625-12. This is easy to use. It's 5-575. But don't wait six months to re-oil 'em—keep an eye on 'em for the first signs of corrosion that less than six or three months is without lubricant.

If you still have corrosion problems after that, you can substitute PL (Grease, Alloys and Insecticides, Stock No. 14-C-411-20) for the oil.



When you find corrosion around rivets, it's with Epoxy Cloth, 180-grit, Stock No. 41-C-2620-11 or 100, if available.

And wherever you have lots of salt in the air, wash the outside of the system frequently with fresh water.

**PRIME AND PAINT**—Any of your painted magnesium surfaces which are peeling mean to be scrubbed and primed with one coat of Zinc Chromate Primer (Eng. Stock No. 52-6881-7084-040) and painted with one coat of Enamel, rust inhibiting, olive drab (Eng. Stock No. 52-6431-7084-000). Both these paints can be drawn from the Ord 7, or Ord 10, list from the Engineer.

Whenever you have exposed threads on the system, like the handholes holding the track tension bars, or those on the eye, antenna legs, etc., you must 'em

with GAA (Grease, Automotive and Airline's).

And, of course, mean men always have ground the wheel lug-bolts when changing tires.



**MAGNETONS**—The new 5191 magnetons are coming through with the real deal, which means that they are capable of producing one megawatt of power over the entire frequency range. However, you can't use 'em at full power unless your system has had all those Field Change modes: 100, 105, 210, 215, 245, 260, 290, 315, and 345. So check with your Guidance team or your WCO field engineer before you crank 'em up. (Particularly, you gotta use half power unless you've had Field Change 210 and 245. Be careful.)

**OIL—KEEP YOUR POT FUL**—The oil filled potentiometers, track antennas and range computers—need to be drained and filled regularly or every other day operating in heavy dust conditions. You keep draining 'em till the oil comes out clean. And another thing, in hot weather, and before draining or adding



ed so that you, he says, to open the electrical valves. One guy attempted to fill one on a real hot day, and found he had less of pressure built up inside the jug of oil all over the maintenance all over the summer. In fact, you can bleed those air vents at least once a week, and daily in summer. 8 page.

Be careful about having dust get in through the headlights case—it may cause a "hot" or less consistency.

**KEEP YOUR CHARGE!**—The charging rate on your 24-volt batteries varies according to the season and according to the condition of your batteries. Generally, having them at about 75% in the summer will result in overcharging, whether of electrolyte, and a lack of a mass of corrosion in the battery compartments.

To adjust the rate on the five control valves, take off the lower cabinet upper panel. Loosen the three screws on the base of the water panel, and pull the panel forward. Now, look at terminal board B, on the back of the panel.



In the maintenance van, the same adjustment is made by loosening the two Test Function on the battery.

charger never passed and bringing it forward. On the maintenance van panel, the white lead goes to terminal 18. For summer operation, and for winter, use terminal 19.

But don't make arbitrary changes for the seasons and then neglect to check the battery. Make a check with the hydrometer once a week, and keep an eye on the amount of water the battery's using. A correctly adjusted charge will maintain the battery in a fully-charged condition, and will not require more mixtures of water a week for each cell.

If the gravity does not stay up, increase the charge. If the water drops, pour too fast, reduce the charge. If it is impossible to keep the battery charged without adding water almost constantly, replace the battery and return the old one to a battery shop for a complete check.

Wash the battery racks in the system and maintenance trailers.





**SAVE CUBES**—Some soil graders in the planting bands of the early spring have been falling by leaving a way from the band (Aero, BX-04711, 7611714, BX-04715, 7611726 and BX-04716, 7611727). You won't find these areas lined at spare parts, but your local WECO representative can get 'em for you, or you can write Frankford General Stores, Box 7089, Philadelphia 1, Pa., Area 1584-20.

**FRUITS**—Dust has been causing fatigue of the filters, Z3, Z3, Z4, and Z5 in the working balance chamber. Clean the edges of the polytron rod and the plastic insulating discs every so often.



**LIFTING HANDLES**—Field Change 260 strengthens the lifting handles of your soybean vacuum. This change is in the mold for automatic distribution. But it means that if the handles have already pulled loose, generally the rivet holes have been enlarged, and this die will not work with enlarged rivet holes. If the holes are larger than 1/4-inch, additional repair is necessary.



So, if your vacuum lifting handles have pulled out, contact your WECO field engineer or nearby Frankford General Stores, Box 7089, Philadelphia 1, Pa., Area 1584-18.

**SWEEP-UP**—There's a suggestion being handed around that a tank-type vacuum cleaner with a 400-cycle motor be made standard equipment with the M11's. In the meantime, you'll find a standard household model will be



might hardly be true. But, for sure, to run it from a deep well from the camp bicycle generator—the 800 cycle won't work.

**GAS SUPPLY**—There's no idea you'll have to get approval on from your local commission, but if they'll let you do it, it saves lots of grief. You can rig the gasoline supply for your generators and an auxiliary engine and the camp lighting generator if you have one, so that it all comes from one set of 33-gallon drums.



The drums are set up at a safe distance from the equipment and feed to the engine through a pipe running underground. If the site is sloping, you may be able to get the drums below ground. Otherwise, you build a concrete mound around 'em.

Safety is obtained by having a shut-off valve at each drum and one at each engine. Also, it is wise to have a readily five-gallon can of gas at each engine. An old military attached fuel line, if you can find one, can be used to protect the engine from dirt and water. Otherwise, build a nesting board of pipe fittings and clean it daily.



**MARK-UP**—Some smart maintenance men are using green pencils (the kind you use to mark on a survey map, etc.) to keep a running inventory of their spare parts. They mark the number of pieces they have on hand right on the metric plastic door covers—and change it each time they use a part.

**WAX WORKS**—This sounds like varying apparatuses to extreme, but if you'll wax the walls, cabinets and ceilings of your tent with a hard glass wax, just once, you'll find the wax fills the joints of the joints, and then the walls'll come clean with an easy wipe of a damp cloth over them.



**DRY GAS.**Be wary to change the oil. Its job is your optical system when the cone goes to pink. If you can't get a new dominant, take the one you've got in the next half year, run over 120° F, until it goes blue again, and replace. Be careful to get a right seal.



**PARKING.**When you park your van, be sure the breakaway brake switches are left in the OFF position—particularly on the maintenance van.



**SECOND IT.**Some vans are using WEI 8000 BT1 stock cards for constant inventory of the parts in the maintenance van. This works great, together with the cards on the doors mentioned before.

**AIR FILTER.**The air filter in the suspension vacuum drive is sometimes overlooked. You get at the filter by removing the long narrow door (761-5025) located directly under the "Driver" panel on the drive assembly. Look at Oel 8 266, P142, Vol 2, page 126, Fig 16. You'll see that the filter fits between the air duct and the top drive assembly. Service with the other filter (filter, air duct top, 18 x 18 x 1, Part No. P44-760179).



**CHANNEL.**100% parts, which fail after a short period of use due to defect in manufacture, are to be returned to the Western Electric Company through Customer channels. Such parts (especially oil-filled parts) must not be removed, altered and resoldly packaged by Customer field personnel. The package are to be marked "MIL-Latest Defect Material" and shipped to the proper distribution depot.



And because you don't want him down to see why they don't work. The company is running tests to see why the most frequent failures occur, and some-up parts are no help to them.



**SWITCH-ON**—Remember to turn off the safety switch before getting up on the air antenna or in close to the track antenna to work on 'em. You'll look funny if someone else turns on the drive, but you won't fall or hit.



**REAL SAFETY**—Ft. Rile Ordnance has approved removing the four component-mount hoods from the range air indicator panel and installing a 1/16-inch phlegmat safety cover about 1 1/2 to 1 3/4 inches over the entire cover glass to prevent accidental breakage.

The same Ft. Rile men are replacing four of the secondary mounting screws on the plate lead resistor panel of the DC amplifier with longer screws and fiber tube spacers to support a 1/16-inch phlegmat cover over the entire bank. This prevents accidental destruction of the expensive precision resistors.

**LUB**—In lubricating the system, don't neglect the track antenna anti-mechanical ring. And if you remove the inside cover from this ring, remember that it is light, brittle, plastic-bonded paper-board. Soak it soap. Watch for excess grease on bearings and keep it removed. It may work into the friction drive roll and cause slip-page.



**LENS**—When preparing for search coils, you remove the spring bridging lens from the FARR position and store in their normal slumps before the center weights of the van is lowered over the wheels, or they'll bend and perhaps break.



**TUNE CHECK**—You may be having trouble with the 5000 Series Carbox Diode tubes in your truck and acquisition radar circuits. Before replacing these tubes, check all the leads, and particularly the one from the grid to R11 in the ray circuit, for tightness and condition of insulation. This grid lead, in particular, has been known to fall in installation, and arc to ground.



If the trouble is not in the leads, try interchanging the tubes, at one which will not work in the ray circuit may work in the truck, and vice versa.

**WATTI BEAGAN**—There once was a chucklehead who looked up a gear:



and drove off without valuing the rubber. He's still buying the new front doors for a sports trailer. Now, of course, are always careful about this, 'cause you've got other plans for your dough.

Remember that you have no screens on the air vents of the system van. So if you don't close them when you are not running the system, it could be that you'll spend a perfectly good three-day pass taking a kid's man out of some clouds (or a "Waa, waa's, say, some plane whangy waag").



If you are plagued by loose control knobs, try putting a little ribbon cut out of brass shim stock over the shaft to tighten them. And be sure you keep the universal joints on the range control shaft and lightly lubricated. Clean cleaning helps to keep these knobs from sticking, too.

If you are receiving any components in Ordinance depot as unserviceable, check them carefully first. If you find one that says "Good" but doesn't work properly in the system, be sure to mark the UTR. (Form 461) on my so.

## Connie Rodd's "SHORT 'N' SWEET TIPS"



### Battery cables

Here are the stock numbers of the cable and lugs you need to make up longer battery cables from the older Wilford and Buick 6TM batteries with the Delco-Remy type.

Cable, Aluminum, low resistance, insulated, American Wire Gage No. 120, Stock No. 18005-000-2171.

Terminal cable, solder, lug, round end, 115-Ampere, No. 120 cable, for 51.6 inch stud, Stock No. 18004-0001128.

As you know, you need a little longer jumper cable to use these batteries. You make it up out of a length of this cable and two of the lugs. You strip about half an inch of insulation on each end of the cable, clean and tin it and then solder on the lugs. (Remember, for clean, good work, use rosin core solder for fine details, neutral soldering paste for general, and add care only to a hot iron.) If you must use old cans, wash the completed job in hot of fresh water to get rid of any remaining acid. Then you take the terminal clamps from the old cable and bolt 'em on the new.

### Take a brake ...

Ever get your M17's hand brake adjusted as per TM data and found y'will needed a check block on pack it?

Remove the current manual, TM 9-840 (Jan 41), call for 1/16" clearance between the lining and the drum. But, from what Connie hears, at this writing it'll usually hold the truck about like fly paper holds a housefly.

There is the lower measurement adjusting to a clearance of from .008 to .009. Try this, and use the check-blocking for real emergencies. You'll see it in a TM change.

### Swirl wheel under from Camp Roberts



Swirls are the proper technique to handle a mounting "swamp" pad and



## Check and double-check

Yeah, it's a little job considering the double screws on those that have 'em, but unless you take the M38AA's battery cover off, how're you gonna check your batteries?

When they had their '41's, some guys were checking the battery under the M38's engine hood and checking the

one in the oval because of the extra work. Now they're neglecting both batteries in the oval.

Let's face it. Those screws were put there to keep the box water-tight. If you were proud (the starbatteries have to be up to snuff if you wanna keep blinkin' the road). Whether you've got the latest type with the over-voltage catch or not with the screws, get under the cover regularly.

## Open door to trouble



IF YOU HAD TALKING AND OPERATIONAL, YOU'D BE BORN. YOU'D KNOW AN OPEN DOOR BEHIND THE DOOR THAT LEAD TO AN OPERATIONAL TROUBLE.

## HERE'S WHAT TO DO



IF YOU HAD AN OPEN DOOR TO THE DOOR TO TROUBLE ...



Always, check, whenever the operation begins, all of the time, and check.

IF THE DOOR WAS OPEN, YOU'D BE BORN TO TROUBLE. IF YOU HAD AN OPEN DOOR TO THE DOOR TO TROUBLE, YOU'D BE BORN TO THE DOOR TO TROUBLE.



Always, check, whenever the operation begins, all of the time, and check.

IF YOU HAD AN OPEN DOOR TO THE DOOR TO TROUBLE, YOU'D BE BORN TO THE DOOR TO TROUBLE. IF YOU HAD AN OPEN DOOR TO THE DOOR TO TROUBLE, YOU'D BE BORN TO THE DOOR TO TROUBLE.

IF YOU HAD AN OPEN DOOR TO THE DOOR TO TROUBLE, YOU'D BE BORN TO THE DOOR TO TROUBLE. IF YOU HAD AN OPEN DOOR TO THE DOOR TO TROUBLE, YOU'D BE BORN TO THE DOOR TO TROUBLE.



Always, check, whenever the operation begins, all of the time, and check.

## Balls going black?

If your tanks are popping their light bulbs right and left, take a quick reading on your generator output voltage. And quick, please, before some of the more expensive equipment burns out. Service-line maintenance or Orlonics will be happy to help you. Call 'em if there's an indication of excess voltage.



## ETX X battery lighter

Lifting an MIT or MIT's JEN II will hammerly their pouch come staid affairs. And, since both pouch are on the same side, pulling a battery from the center with a battery-strap puts extra strain on the pouch—you could slip 'em from their moorings.

But here's an idea that'll give your battery a rest, and still keep it in hand.

Use this one-man handle for unstrapping batteries. Bitchdays have been using one like it for a long time for carrying loads. Pick up and use your battery with one you can make of steel rod and strap. And if you've got the stuff in

tanks, aluminum pipe would be the light answer to this loaded job.

## Sandy feet

It may not be your MIRA's fuel pump. A loose Donalson valve in the crankcase vent-system may be why your engine smokes like a smudge pot and fouls up its spark plugs.

What's a loose Donalson valve? Well, it's one that is not right—but that's not the full story. A loose valve is also a dirty valve.

This is a spring-loaded valve that's operated by the manifold vacuum. The valve closes at high vacuum (engine idle) and opens to let in clean air when engine speed increases and manifold vacuum is low. When this valve gets gunked up and sluggish, it doesn't seat properly. It doesn't close right like it should, and you've got a loose Donalson valve.

Regularly, and you'll keep it working. Clean the valve and valve seat with some solvent every 10,000 miles or so. Check the spring to see that it works freely. And clean and tighten all the valve's connecting lines or tubes.

While you're at it, how about the control cables on those loading valves? Are they leaving the valves open fully and close completely like they should?



## TANK ROUND-UP.



### CRUMBLE STORAGE

If you've looked at M1 (T10E1), M1A1 (T10E2), or the M42 (T14E) carriage, Panther, you may have some trouble storing a very important tool—namely, the crowbar. That crane has a way of stashing them from its front on to the rear hull plate and getting lost just when you're likely to need it most.

Stanley's not helped much, either, when the bar locking-champ gets itself banged up by the rear transmission-accumulator. Which can happen if the door's not handled properly.

But, a little bit of welding can take care of all this.

First, to make sure the crowbar will stay put, an extra bracket can be made. Use a piece of steel (1/2 inch is OK) 1/2 to about 3/4 inches by 1 inch, squared

to fit the slope of the crowbar, and tack-welded to the hull plate some 4 inches to the right of the left-side bracket, as you see in Fig. 1.

Then, to protect the clamp assembly from that screw-down, a chunk of metal can be welded to the hull to form a shear stop—about where X marks the spot in the illustration (Fig. 1). Course it's gonna stick out far enough to stop the door before it hits the clamp. You can use some scrubbing for this that looks right for the job. Some bright yellow oil using an end cut of an old drive sprocket. Worked fine.

One thing you gotta watch in getting a done snap-welded on. Regardless of what's used, don't let it get past in the way of the crowbar. Wouldn't want that no end up in somebody's neck, would you?



### TRACK (AND PUMP) TIPS

Fan, Bud . . . Cheers. You've a couple more things on the '88 (M&H suspension system, that is):



For snapping wedge bolts and cones back in place, your best bet is that new ground ball-peen hammer. Sledge and other rough steel don't pay off. And make sure the wedge is completely removed from the cone before y'do any tapping. They last long.

Try to get by with merely loosening the wedge nut, and y'lose out in the wreck. Take 'em out.

Have y'ever wondered why these cones shouldn't be greased. It's because the nuts above have a right fit. Grease would help prevent nut and cone from, but would cut down on the gripping quality of the cone nut.

Now—if y'want today—their's some dope on replacing that plug in the road-wheel hub-cap. Always think to make sure that the new one's got the same size and type of threads as the old one, a plug of the wrong type will sometimes

give the same diameter and tends to have the same tightness as the right-size plug when usually will be snapping the hub-cap threads.

Then you're "satisfied" for now. Another thing to remember is to slip some graphite grease on the replacement plug before it goes in. Then, next time, you can take it out as easy as falling off a log board.

### M&H LUBE OILS

The M&H tank's lube order (LQ 5-7012) has been out for some time. There's no shortage of them—should be out in every tank where it's handy at all times. Get your requisition in to your publications office now and fall down gas-happy, impatient.

### M&H WIND BOB

If you've needed the hand-operated pump and will find the valve shut in a time when you're driving the 204, 207 or 208 tank gas—accumulation pressure's down. Have Delmar regulate the accumulation pressure. And then have them check the pressure about once a month or keep things on the up-and-up.



## DECAL DEAL FOR M47'S

If your M47 tank speedometer-instrument has a top reading of 70-MPH, location, etc.'s way off the beam. When the indicator points to 30-MPH, you'll actually be doing 50.

High speeds can be death to your tank. So if that engine's covered up high and you're rolling mighty fast for the M47 on the dial, don't believe the speedometer—you might be travelling along twice as fast as you think you are.

There's a fix for this, so see if your Ordnance support can get it for you.

It's a deal (Ord Book No. G261-848212) that makes those off-beam speedometer-instruments (Ord Book No. G261-772168) read right when it's passed on the dial (Fig. 2). It's covered in MWD G263-877.

Till you get parts, cut a strip of cardboard to cover several of the low-speed figures. Tape it on and write on it figures which are double those directly beneath, so it looks like the right hand dial in Fig. 1.

Meanwhile, watch your speed. Leave the records for the files in the job.



## M46 AND M47 SHIFT POINTERS

Dear Half-Meat,

Do you have any idea for a gimmick or fix that'll keep your green M47 tank driver from accidentally shifting into reverse when the tank's going forward at a good clip? We're tired of having our heads bashed against steel every time the tanks in ship's power line in high but wind's up in reverse.

Sgt O. R. G.

Dear Sgt O. R. G.,

How can . . . cut out those snap shots and paste them on your driver's eye-lens.



When tank is moving fast back as far when moving and driving.



Let's camera in 14 tank gear when the tank is in that snap.

If he keeps those two hand positions in mind when driving, he'll never accidentally shift into reverse.

*Half-Meat*

## MAN AND MAN TWISTED RODS

Between garden engine pulls and big law, some task demands rods are living a dog's life. Trouble is, your wheels won't run like a dog if their rods aren't right.



On all your MTD 750 series engines the left crank rod has to be straight, while the right crank rod must be slightly bent. The right hand rod runs straight from the front for 11.74 inches. (A hair less than 11/32.) And then it takes an easy bend so that the eye is 2.49 inches from the straight line. (Call it 1-11/32, or 1-5/16, near enough.)



LEFT CRANK ROD, NOT BENT



RIGHT CRANK ROD, BENT

Easiest way to check a bent rod is to compare it with a known good one.

And when your rods are right, remember the old check for domestic linkage. Does the carburetor throttle open fully when the pedal is pushed down? Does it close fully (so the idle adjustment) when the pedal is released? If you've got it where it does, you've got it made.



## SCM, NO SUM

You smart task men avoid altering your MTD packages directly from the box. The outside tubes in your scope aren't made to take the height test.

As a reminder—check to see if there's a decal just above the hoodcut which reads: Caution—Do not expose this instrument to direct sunlight. If it's not there, better get your Delco's replacement and to apply it in accordance with MFD's Qd. E211-512 (24 Sept 67).



**JOE  
DOPE**

**OIL**  
AND ITS

**DIRTY  
WORK**

BY  
**MACKY SPITTOON**



**I**T LAY THERE ... SCARED  
AND USELESS LIKE A DEAD  
THING OF BEAUTY AND ALL AT  
ONCE I KNEW IT COULD BE  
RESAPED UP IN TWO DIRTY WORKS  
... P-O-O-N-E—L-U-B-R-I-C-A-T-I-O-N.  
OH SAE, HOW I HATE LACK  
OF LUBRICATION.... BUT LET  
ME TELL YOU WHAT OIL'S  
SCOTTA DO.....



... IT'S AN EXPERT  
AT DIRTY WORK, BUT  
WHO WOULD THE  
ENGINE LIKE  
I RESPECT THEM ALL





# HOW IT LUBRICATES

THE ENGINE IN AN OVERLOAD  
CAN THRUSTLE 2000 FOOT  
A MINUTE... EXHAUSTS THE  
SEALS AT 2000 A MINUTE.  
EXHAUSTS THE SEALS AT 2000  
A MINUTE... SLAM... SLAM...  
SLAM... SLAM... SLAM...

... PLAN...  
THAT'S LIKE A  
MACHINE THAT  
TRIP TO A TRIP



METAL  
ADDITION  
METAL  
YOU EXHAUST  
THE OIL IN  
TO GO  
ANY  
MACHINE

RIGHT  
TO GO  
PRESENT  
WEAP, A  
THIN FILM OF  
OIL  
GLIDES  
BETWEEN  
THESE



WELL, THAT  
WOULD  
SOLVE  
IT, IN  
COMING?

YOU DON'T  
KNOW, WELL  
DON'T KNOW  
I THINK YOU  
ARE... YOU  
SAY... HAVE  
I GOT THE  
RIGHT OIL  
FOR THE JOB?



LIKE I  
SAYED  
"IN OIL  
BLENDED  
WITH LITTLE  
BALLS...  
NOW  
MACHINE'S  
WORKING"

**OIL  
TOO  
LIGHT?**

LITTLE  
BALLS  
CAN'T  
KEEP  
METAL  
APART

**OIL  
TOO  
HEAVY?**

GOES TO  
SOURCE  
IN AND  
KEEP  
METAL  
APART

**RIGHT OIL**

BALLS  
RIGHT  
SIZE  
TO  
KEEP  
METAL  
FROM  
TOUCHING



... WHILE YOU'RE CHECKING  
THE MATH ON OIL, DON'T  
LET THE POWER



BEHIND THE OPERATOR.



# Dope Sheet



**WE HAVE THE WORLD'S BEST EQ**

PRODUCED UNDER SPECIAL LICENSE TO THE E. QUINN BROTHERS CO. BY THE QUINN BROTHERS CO. AND THE QUINN BROTHERS CO.

**T**he right oil performs  
four main tricks:  
It cleans, seals and cools  
...while it slicks.  
With right lubes and clean filter  
Shall work like they built 'er  
Clean engines have low kyoody or kiddy.



**EQUIPMENT... Take care of it**

# HOW IT COOLS

MEANWHILE... AT 1500 TEMPS - 3 - MINUTE, SPARK-ARRESTING TRAP PLACED IN THE EXHAUSTING SYSTEM MUST BE KEPT HEAT TO MELT STEEL.



HOW ABOUT THE COOLANT... IF IT'S SUPPOSED TO TAKE CARE OF IT... WHY?



NOT BY THEMSELVES... IN IT THE HEAVY OILS DO A BIG PART OF THE COOLING LINE! ...



ADVANCED AND COMPLEX DESIGNS DEMAND OTHER

## WRONG OILS



ICE LIGHT	ICE HEAVY	OILY
SLAY OILS	ICE BILLS	OUT
COOLANT	ICE BILLS	NEEDS
FOR... BUT	ON THE ICE	HEAT
THEY'LL GET	COOLANT	FROM
ICE OIL	HEAT PART	OIL SPILLS

WASH... A HEAVY THIN FILM OF OIL AND A COOLANT?



WASH... IT'S ONE OF THE MOST IMPORTANT JOBS IT DOES.

WASH... YOU'VE BEEN ON YOUR OWN... IF OIL AND WATER ARE WORKING RIGHT, IT SHOULD STAY NORMAL.



## HOW OIL SEALS

... TO KEEP POWER FROM LEAKING DOWN THE GAPS BETWEEN CYLINDERS WALL AND PISTON--OIL--THE RIGHT OIL LOOKS IT IN!

TWO METAL SURFACES ARE KEPT TOGETHER BY OIL FILLS IN THE GAPS AND SEALS IN POWER.

**OIL TOO LIGHT**

NOT STRONG ENOUGH TO HOLD SLOWLY

**OIL TOO HEAVY**

NOT "TIGHT" ENOUGH

**OIL TOO DIRTY**

WORKS UNTIL THE SUSPENSION WEARS AWAY WALLS

## HOW OIL CLEANS

HOW DO YOU KNOW THE SLUDGE COMES FREELY--AND HOW DOES OIL GET RID OF IT?

SLUDGE, WHICH STAYS ON VALVE BUSINESS PARTS, IS A RESULT OF MUCH DIRT AND SOOTY AND SMOKEY STUFF LEFT AFTER OIL GETS "COOKED" BY ENGINE HEAT.

**OIL TOO LIGHT**

NOT GOOD FOR EMULSION

**OIL TOO HEAVY**

WORKS SLOW BUT GETS INTO TIGHT SPOTS

**DIRTY OIL**

WONT ADD MORE DIRT

**THE RIGHT OIL**

ACTS AS A BARRIER, ISOLATES PARTICLES OF DIRT, CARRIES THEM OFF TO THE FILTER

SHE PASSED FOR BREATH...  
SHE WAS TOO BEAUTIFUL TO  
BE THE ONLY ONE...



NEVER TO LET  
IT ALL UP. THE  
CONTROL OF ALL  
THIS OIL WORK IS  
THE MAN BEHIND  
THE WHEEL.

...WOLF WERE BLIND TO  
WARM UP BEFORE TRIPPING  
OFF AFTER A LONG HALT?



START IN PROPER GEAR,  
KEEP YOUR LOOMS  
RIGHT FOR THE VEHICLE  
— AND TAKE FOLLOWING  
IN PROPER GEAR.



I WOULD  
FOR ME...  
LATER  
FOR ME...

CHECK YOUR OIL AND  
ENTER GEAR. YOUR  
LOOMS OFFEND WE  
TELL YOU THE RIGHT  
OIL.



LET  
BY GEAR

STOP STOP  
I DID IT...  
I RUINED  
THAT  
ENGINE  
BY A MISTAKE  
AND GOT  
OFF  
OFF



THE FOOT WAS ASLEEP. THE  
MOON LIT THE ROAD LIKE A  
LONG LIGHT ON AN EMPTY  
STAGE. I LEFT HER THERE,  
BRINKER, HOLDING THE  
STICK DANGLED FROM  
HER LEFT WEAK HAND  
AND WALKED SLOWLY  
BACK TO THE  
BARRACKS.  
A FAD BOTTLED  
MATHIAS  
I HAD  
EVER  
SEEN  
BEFORE.



NO SWITCHEE  
PLEASE!



## Honorable Plugs Please to Replace in Correct Honorable Holes

From that somebody was doing a complete change of transmission and differential lubricant in an M15 truck. He must have had all the plugs out to



clean the bearings.

This was OK, if messy, but when he put the plugs back, his troubles began. Happened that he got one of the magnetic drive-plugs from the differential bearings into the transmission/drive-plug hole.

Unfortunately, the magnet sucked out of the plug, so for five days to work. The

first time the truck was moved, the gears in the transmission hit the magnet and broke it off the plug. With the magnet loose inside the transmission case, and probably sticking to one of the gears or shafts, you can see why he had a new transmission to put in real soon, can't you?

So leave us be real careful to see that those magnetic drive-plugs, with the little magnet sticking out the end, go back in the differential shaft-holes, where they belong. Their magnets attract iron shavings or dirt from the others. Saves thousands of dollars.

### WRECK CLUTCH

Have your M15 clutch double-check your differential. Manufacturer adjusted clutch will if yours slipping or when spring loose for it between the right cross-shaft things inside the barrels. Don't think to stop back or else if its wrong, you'll find that that the wrong (1979M).

## FIVE-TON FLASHES



### TAKE A BREAKER FOR YOUR SPOKES

Let's face it. After galloping along in your 1951 and 1952 four-track 1900 (level) for awhile, pressure's sure to build up in its differential. And unless the hole in that case's kept clear of the vent hole, it'll separate and spin right out.

But the spider doesn't have to happen. The gasket on the differential's drive-side acts as a buffer to keep the hole inside. Just set it in place with the usual 100 on the gasket on the top (concha), and it should keep well contained.

But even so, some lubes could pile up behind the gasket. Which is why a 1/2" hole was added near the bottom of all new ones, starting back in late 1952, as a helper to drain the lubes back into the axle again. That new gasket's got the same stock number (Cord Stock No. C744-7-548099) as the old one, so if there's no extra hole in the one you get from supply, cut one . . . any, like in Fig. 1.

Sometimes the gasket would lodge against the vent hole itself and suck

like that. Next thing you know, it breaks up and pushes that oil over the breakers. Well, that's really kind. There's a wire tab welded to the differential's inside cover which, when you load it inwardly, will hold the gasket away from the breaker hole and give it plenty of breaker space.

Try it on your existing differential and see if it works.

### SHIFTER KEPT PEGGED

If you want to run you'll know when the 1952 wrecker's beam shifter is on the loose, paint a white pencil strip down the side of each right-hand hole, and monitor it with the mouse. That way, when the lines on the ball-and-socket change more, you'll know the lubes are slipping. But since lubes aren't much, you'll have to paint new lines every time they're right-hand the lubes won't more.

Orlowski has the answer. He'll tighten the beam shifter ring and its spring pins. The torque for its 7/8" hole is 500-550 ft lbs— that's a lot of spawing! Get the Orlowski man to do the job for you.

### FEARLE CABLE

Dear Editor,

We have no end of troubles with the handbrake cables on our 1951 1-ton



Just cut the 1/2" hole in it and insert a 1/4" x 1/8" . . .





connect. They get lost up where they don't see the frame and the gas-tank fasteners.

I suggest drilling a hole through the frame side-member and the use of a grommet to carry the cable through. (The hole should be just ahead of the

left gas-tank and behind the axle. By drilling this hole, you could feed the cable through with one easy shove instead of the several sharp bends now required.

**GFC Freeman**  
Ft. Smith, Virginia

*(Ed Note—If you're glad to get your idea, Kenneth good. You also might try putting a length of hose over the cable and taping it down so that the rail and frame are wearing on the hose and not on the drain cable.)*

### TRUCK-TRAILER TIPS

Dear Editor,

While using the ABC trailer to pull H-10 JH on tracks, it's best to hook the tow-bar to the coupled vehicle's front axle. If you hook it up the lifting shackles (sometimes called "straps"), your tow-bar may rub and chafe against the trailer photo-book's top—and that's not good.

It's better to raise the second vehicle's front end with the boom. Then attach the tow-bar to its front axle. (By the boom hold it up so that the trailer is parallel to the ground. And—you're off!)

This puts the main weight of the load on the boom and back, takes the strain off the photo-book's upper assembly, and makes the tow-bar a front-end-only bar. And with its front end off the ground, the second vehicle won't develop a wind of its own while holding along.

**Col Donald D. Buss**  
APO 344, New York



*(Ed Note—The tow bar's made to be used on either the lifting shackles or the front axle of the second vehicle. Which you do and it depends on the set circumstances which you're working.)*



### WATERED LIGHTS

Dear Half-Mast,

What's the jump on the water inside the plastic-lensed headlights? I've got a few trucks with these lights, and there's condensation in some. After a few days later, some get almost half-full of water. Is drilling a drain hole in it OK?

FRANK D. G.

Dear Mr. D. G.,

Thompson Industries's water-cooled beams, though they should be airtight, unlike the sealed beams, those have holes in them and cold water may seep those holes when they're lit. It's OK to drill a small hole at the bottom for the water to get out, and then cover it with putty (or 3, for the auto-absorbing variety if you like). Glass production has been changed to take care of this.

**Half-Mast**

### CABLE LABEL

Dear Half-Mast,

My problem is how to get an inter-continental electrical cable for the latest type of Home, Parted Tractor, M700.

The cable listed in the ENL will work on some tractors but won't replace the cable on the later type.

LESLIE E.

Dear Mr. E. E.,

The Oshkosh stock number for that cable is 0710-000000. The date of those cables were used to supply before the stock number was assigned. But you'll find the correct number, 001-20-115-000-0000 on the label. If your supply store has any with only the stock number on it, have them add the Oshkosh stock number, too.

**Half-Mast**

### A ONE'S NO ONE

Dear Half-Mast,

We had an OC in here a short time back, and he gave us a nice gig on our having TM 20-400 and tube valves in the front compartments of our semi-tractor-type vehicles.

I can't find anything that states what item should be used. Please enlighten me.

LESLIE W. B.

Dear Mr. W. B.,

Here's what you'll find of TM 20-400 14pg 804 says:

"Lubrication systems and the vehicle mechanical manual will be available for multi-type vehicles used for administrative purposes. Manufacturers' operators' manuals will be carried in all non-multi-type vehicles whenever possible."

So if the manufacturer's manual wasn't available, and you had a dash-and-clip from AG to prove it—you should not be "groggled."

First, about that TM 41-864. Every driver gets one (or should get one) when he gets his driver's permit. From then on out he has to have it with him whenever he drives a vehicle. The it says on page 1 of that manual. So—if a driver was assigned to the vehicle, then he should have had his TM with him.

Looks like they've got you covered from every angle.

*Half-Mast*

**TOOTMAN**

Dear Half-Mast,

What's with those MIT hand-brake-lever catches? I've noticed lately that they're slipping or being extended off and on—they stay put when the brake's on. It's kind of irritating on some roads and then that it so make sure both. But they don't last long.

What do you suggest?

1/2 P. 4.



Dear Sgt P. 4.

The usual way the MCO's center's work get mixed is with a rough right hand. The driver who puts on or releases the brake without pressing down its push-button far enough is dragging the pawl. This would make it too tight.

Next that it'll wear early—On vehicle's parts and action too hardened to last. But when they go, a new brake, hand brake lever Part No. 1241-737-3711, or a new Pawl, lever Part No. 1214-835-0000, should be installed. You should be able to get them through regular supply channels. If you can't—what you're doing is OK as a temporary fix until you can—order and let new work. And when you want, hand a hand manual like Hercules, welding, Bush 796, 66.8-11209-75.

Remember though, no one sees the trouble's begin with gears the lever all the way when you handle the brake.

*Half-Mast*

**THE HEAVY ON**

Dear Half-Mast,

I'm having all kinds of trouble with several Railway cars in my MIB and M113 tracks. In fact I've had no trouble with my MIT tracks.

I've had the guys clean with soda, dry and paint with acid treatment paint, and still the corrosion comes through. It's not even scratched them with a steel wire brush and still no good.

I might add that we're not overfilling the batteries, and they're not overcharging my and boiling me. But what else is?

1/2 J. McE.

Dear Sgt. J. McC...  
1

These batteries under the hood in the M10 and M11 will warm up more from the engine's heat than those in the M17 that are away from the engine and under the right-side seat in the cab. Electrolyte in all batteries evaporates through the caps' vents and creates some corrosion at the metal parts nearby. But the added heat from the engine in the '10 and '11 results in greater evaporation and there's less corrosion. The batteries could explode if the gas didn't escape.

If your batteries overcharge more than they should, have someone check your regulator. M11's often average too high a voltage—30 volts when they should average about 27½. Batteries may overcharge without boiling and excess electrolyte gets out through the vents, doing damage to your car's wiring.

*Half-Beat*

**BLACK DOWN**

Dear Half-Beat,

A buddy of mine says you can't see an M17 wrecker in anything below third gear, low-range. Is that a trick down a ditch. Is this true?

Cpl B. B. B.

Dear Cpl B. B. B.,

Sorry, but your buddy's all out of his mind. The M17 can tow in any gear. And the lower the gear the more braking power you get.

As a matter of fact, you can even brake a heavy load downhill, in low-low. But you gotta remember a couple of things. For one, always go down in no higher gear than you can go up the



hill with the same load. And, never use the clutch to pick up speed.

By that I mean slowing in low-low to clear and pick up speed, then leaving it out suddenly to surge into fourth. You can wear the gears out of any truck's engine or clutch doing this.

Just stop in the same gear, keep your foot off the clutch, use the foot brake—as required to avoid excessive engine speeds—all the way down, and you'll be OK. This method'll bring you down safely in any conventional drive truck.

*Half-Beat*

#### **ADVICE, WISDOM**

There's a heavy volume to read of the Air Force who have just joined with the Army and Marine in number of my magazine.



When you have a problem in a top position in Ordnance or Engineer equipment, just let Sgt Paul Hoot have about 10 pages from somebody's folder ... unless it's better than your chapter.

# SUPPLY & DIRECTIVES



## LIKE 'TWAS SAID BEFORE

Critic's not going to improve your tools, discipline, or hard your desired knockout.

Didn't you know you can send a LBS on tools, same's anything else!

You might be able to substitute one wrench for another.

You might be able to make something to use in its place.

Think of the poor Joe who doesn't have substitute tools.

You can help him.

How?

By sending a LBS (Team 404) to Chief of Ordnance (Ordnance issue) and to Chief of Engineers (Engineer issue).

Tell them what tool's taking you. Let them know what's wrong with a tool.

If it slips off when you're using it, tell them why. Was it design? Was it construction? Was it production?

If it doesn't fit like it should, let them know.

Your idea of the kind of tool that would do the job might help.

Here's your chance to put in your requests work.



# IT'S YOUR JOB



Do you ever need a certain tool for a job only to find your work doesn't have it? Do you know when the guys over done and then suddenly in that work hour you wait until he can get it back from you. Add a few more tools and a few more cables and things get to be a pain. And usually they're tools you could use get and should have.

Now, maybe someone's in charge of materials you use and its proper way. But if he slips details like maintenance and requisitioning, then gaps that cause the following will never be plugged.

You can order anything from one order to the whole tool set. So plug the gaps in your own, will ya? You'll save yourself and your unit a lot of pain in the end.

## ONE OF OURS for the best work powder

### FOOL KIT

#### Good Material

- Get Order No. 1 - Hammer
- Get Order No. 2 - Sprocket
- Get Order No. 3 - Hammer
- Get Order No. 4 - Sprocket



If you should need an order tool set, you'll find the work number at the beginning of the EOL listing. Check your local ground rules to see if your supply unit want you to list each item and its work number on the requisition or if you use the more widely accepted procedure of giving only the set's work number.

What with shortages, you may not get the whole set. Take inventory as

IN ONE HOUR  
YOU CAN LEARN  
TOUGH TOOLS  
YOU SHOULD  
HAVE!



OPEN THE DOOR... AND YOU'LL SEE  
YOU'RE BEING LAUGHED AT YOUR TOOLS!

That's why you'll find it  
INSIDE YOUR TOOL  
KIT... AND YOU'LL  
SEE... YOU'RE BEING  
LAUGHED AT YOUR  
TOOLS!



## INVENTORY'S NOT THAT BAD.



and sets for organizational maintenance.

### Q&A

#### Q14

- 12. Net 5, 30, 60 Days 1%
- 13. Net 5, 30, 60 Days 2%
- 14. Net 5, 30, 60 Days 3%
- 15. Net 5, 30, 60 Days 4%
- 16. Net 5, 30, 60 Days 5%



come as it arrives, using the packing list that comes with it. It lists everything in the set with the missing items marked.

While the return advantage is a considerable one in your supply away. Then check your general rules again to see if you should re-order after a certain number of days, or if your supply will keep replenishing itself as long as there's no item to be filled.

In any case, if a re-order list is fine,

you can control how you're still able and kicking by filling your reorder request. For the original item slip number (or on a, give stock numbers of missing items and amounts. "This is complete shrapnel to—" whatever you'd like to call it. An indicator to you goes keep your packing list up-to-date—it's supposed to be anyway since your property book should show the same items missing in each tool set to get marked missing on the packing list.

There may be work in your area, new or old, that you don't want because you never use them. If so, you'll be in line with the three to save an money and equipment if you re-ordered through our C.O. that they be turned in. That authority is Ed Givens 10/15/81.



When you've got everything under control, keep it that way. When you check tools out on final receipt each day, be sure you get them back. Take inventory as often as your best judgment tells you it should be done. That's supposed to do it at least once every six months, but you probably need it more often. Use that packing list you've kept up-to-date for the job.

So, now there's no getting off because you don't know. That? You just take the time.

Lumber Liquidators... Add This To Your Inventory... In 1981, Lumber Liquidators... The Best Deal In Town... Call Today... 1-800-833-8333... LUMBER LIQUIDATORS





# ARMAMENT

MR. LEUTENANT, MR . . .  
(AND SERGEANT, TOO)



## LET'S CLEAN UP THOSE GAS CYLINDERS

Check that rifle, buddy. She may be loaded, but not for long. Somebody's doing the old M1 trick, and it's your rifle's rights. The same goes for the M1 and M1 machines, too.

Seems to have a mighty important piece of cleaning it being overlooked, so load it in. The trouble spot is the gas cylinder on that nasty piece of junk, which isn't so tricky with the gas cylinder loaded up like Hogan's gun.

Heavy carbon deposits, built up by continuous firing such as range work, gang up in that cylinder. Expensive to run, more, or blowing them likewise gets the work.

Now—turn the job in the dock. You don't usually rifle work on a single M1 to touch that gas cylinder, without somebody like old Sgt. Bull. How he'll be. The book says it takes qualified supervision—no less, Mr. Lieutenant, sir, (or Serge) is where you want it.

A change coming up for FM 23-1 will give you the official dope.

DeLancey says that loads of rifle clean days are being rejected as a result of poor care of the gas cylinder. Such cleaning can be done only under supervision of an officer, qualified non-com or DeLancey personnel. Here, then, to make it easy on all concerned and you get it done!

Try this—get the report, or platoon, or even the company together for a rifle rubdown—complete with the required supervision.

Remember—the soldier can't do it without that expert eye—and his rifle will feel it if it isn't cleaned.

Think it isn't needed? One week alone reported 30 M1's out of 280 declared unserviceable as one due—all because of uncleaned gas cylinders.

If you will, Mr. Lieutenant, or Sergeant, sir, or we can do it by the main-ten.

## Shooting with HALF-MAST



### IS FORM 478 MISSED?

Dear Half-Mast,

I just received an RFPD for the telescope and an M55 non-destructive Wave's my state of Nevada the RFPD says that necessary entries are to be made on Form 478 when the modification is completed.

Was there a change on this deal, and the information is to be entered in the Gun Book instead of 478? I don't think that Form 478 is required with such things as telescopes and sights. What's the deal?

CFO H. I. G.

Dear Mr. H. I. G.,

You're correct about Form 478. Fire control items, such as sighting equipment, do not require recording in Form 478. Form 478 is for recording modifications of major unit assembly in-

struments on vehicles. The Weapon Record Book DA 5-13 replaces Kentucky Gun Book 40 No. 5815 (which may still be used) and will be used in record modifications to fire control items which have been issued with the weapon. Book items of fire control do not require recording in the Weapon Record Book.

*Half-Mast*

### M79 GRENADE LAUNCHER SPRING

Dear Half-Mast,

Sometimes while giving instructions on the M79 right grenade launcher, we hit the return spring. It'd like to replace it but we can't find its stock number in our JNL.

Could you give us the stock number of that one-type return spring?

Sgt B. W.



Dear Sgt. E. W.,

Yes, sir... it's Oad Stock No. 8899-7004-01, and it's in the Oad (S&S) 8-29. But your Ordnance support unit can let you have/see to do this easy job.

You see, the stock number is not going to be listed in the new Oad T, but you'll be able to find it in the new Oad B.

We have had a lot of praise for this new type spring-rod's a handfinger.

*Happy-Meat*

#### RECORDED ENTRY SYSTEM

Dear Wolf-Man,

We've been having trouble with the safety levers breaking on the M16, roundless rifle, M16A1.

#### SHORT STOP TURN IN

The opening at the point where the bullet nose comes to rest in the short-stopped stop for your M16 cal. machine gun could be undersized. If it is, the lower lip of the stop'll dig into the bullet nose and the S'll break off.

You don't want a short stop that'll feed up your piece, so take heed and have it checked.

Get all of your short-stopped stops

Can you give us some advice on this problem?

Cpl M. H.

Dear Cpl M. H.,

Fallout of the safety lever on the M16A1 roundless rifle has been reported to the Chief of Ordnance, and the specialists are coming up with a list to take care of your problem.



There's not much you can do right at the moment for that safety lever. You'll get the new design through an MWO, a maintenance service letter or PG Magazine.

When your rifle's safety-lever quits on you, fill out an Ordnance Equipment Report (Form 400) and mail it to the Chief of Ordnance, Washington 25, D.C.

*Happy-Meat*

(Oad) Stock No. 8899-7004-01 and have your Ordnance maintenance gage that opening in case it's .300 plus .002 inch in diameter. They'll do this by nicking a piece of steel .500 inch in diameter in the stop opening where the bullet nose comes to rest.

If the "gage" won't go in the hole, run the stop in for one that the "gage" will go in. The carrier will go back in the arsenal for reworking.

## ENGINEERS



### SAME OIL, TWO NAMES

Dear Sgt. Davis:

What's the name on the can of oil for the Dill Caterpillar? The manufacturer's manual says to use a multipurpose oil that won't thicken, and recommends LAE 90, LAE 90, or LAE 100, depending on the temperature. LO 3-KV0-B (4 Dec 51) says GO 90, T3, or GDF, according to the temperature.

What do you get the D.E. in maintenance oil neither thickens nor thins like typical oil. It was more like heavy motor oil. So—what gives?

I've used GO 90 like the LO says, but we'd be using most common lubricants these instructions for us, so please answer real soon, if you can.

Cpl J. M. P.  
Cpl C. B. K.

Dear Cpl J. M. P. and Cpl C. B. K.:

The Army's GO 90 is the equivalent of the manufacturer's LAE 90, so you're

OK following the Dill's latest GO to the letter.

*Small Paper*

### ONE TALK

Dear Sgt. Davis:

My pet gripe against heavy equipment instructors is the needless blabbing they put the equipment through. If you use for hours at a time when power's not necessary, makes an instructor's habit of the wasted fuel, the over-heating, possible warping, and the carbonizing oil from valves.

Good some instructors think and talk better with an engine idling in the background, but I can't go along with the practice—I'm the guy responsible for the maintenance.

Cpl G. W. L.

Dear Cpl G. W. L.:

Let's you and me lower the boom on such bores if they don't raise up.

*Small Paper*

## SOME DIRT ON EARTHMOVER TIRES

On soft earth, there's nothing like a tractor to stick over the rough spots. But when it comes to double-deep-treads' the dirt and churning down a gravel highway—it takes special machines on rubber doughnuts.



### At Pressure

Although Tractorpals, scrapers and that kind of earthmoving equipment have treads instead of tracks, lots of tractors is still a must for work in water, nature's tracks and ruts.



## The Arrow Points

Another thing that could make or break your tire's traction is the way it's mounted on the rim. Many mountain bikes have a lug or two eggs mounted with the lugs sticking out at an angle from either side toward the center. These lugs will give you good traction only if the rim runs in the right direction.

That's why there's an arrow on its sidewall (Fig. 1). Shows the tire isn't to turn in the direction the arrow points.



With the lugs mounted in the right angle, any mud or dirt that seeps between the tread should fall out as it rolls. But if the arrow points the other way, mud will tend to build up between the lugs and rot your traction.

The only time your tire's arrow may point the other way is if it's mounted on a non-driving wheel. There is much little traction and'll have lots of little dirt...making a load off your engine's back.

## THIS PANE

The job of carrying a window, unless part out of a bigger, better piece of safety-tempered glass, won't be as much of a job as some may make it.

This kind of window is made of two pieces of glass, glued together with a sheet of transparent resin. If the glass cracks or splinters, this resin holds the shattered pieces right and keeps them from flying.

To cut the glass, lay it on a flat, smooth surface, and put a straight ruler along the path you want to slice. With an ordinary glass-cutter, Hagmann Model No. 41-2118, 700,480 (Delaware) you get one track No. 41-010000, place it deep, drag, push down the ruler edge twice length.



Then, score the glass over—easy done. Put your ruler's edge over the same path you cut before—which you can see through the glass. And, place another

## WONT HURT

Stop and clamp out where you want it. With this, you've attached your mask so both sheets stay under up the entire glass.



Next, take a 1/8" welding rod that's longer than the cut, heat it with an acetylene torch, and lay it on a piece of heavy metal. Lightly, place the glass on the rod so that it's about 1/8" from the rod and under that part of the glass you won't touch.



The rod's heat will soften the cement layer between the glass. And, it'll provide a small wedge on which to make the split.



After the rod heats the glass along the cut's entire length, put enough hand pressure on the part you want loose. Crack the cut, and lay open the entire binding.



If you're into action, Engstrom Book No. 95-1112-200-500 (Chevrolet Book No. 95-6-117) around, pour a little down the opening. It'll make the binding easier to do. But with or without the acetone, take a razor blade and cut through the cement to end the surgery.

With a little practice, you'll find you can curve curved edges, as well as straight ones, the same way—and still be safe.



# CONTRIBUTIONS



## MSD CLUTCH ADJUSTMENT

Dear Editor,

Here's an additional clutch adjustment needed on the MSD wrecker, and you won't find it in TM 5-857 or the manufacturer's manual.

Now we make the adjustment, a lot of our clutch troubles flow out the window.

First, we get the clutch pedal free-play adjusted on the left side of the flywheel bell housing (Fig 1). Then, we

ing and did a little job that's mighty important to the life of the clutch.

There you'll find an air decentering-cylinder. On the linkage going from the decentering-cylinder to the clutch-release stud, you'll see a bolt that is damaged when the linkage and bolt by a lock nut (Fig 2). This bolt properly adjusted will help to keep down clutch trouble.

You loosen the lock nut and back off on the bolt until there's about 1/2" clearance between the head of the bolt and the air-clutch release lever.



Fig 1



Fig 2—1/2" clearance between the head of the bolt and the lever—center pin is



If the head of that bolt's right up against (especially if you don't know how far up against) that lower, it'll give you clutch trouble. It's just the same as riding the clutch up in the cab and keeping it partially engaged.

**W.C. C. Lewis**  
Camp Rocker, Arkansas

**Old Man**—There's not many folks that know about that adjustment. You're really on the ball. Ken, the come guys who know there was an adjustment somewhere on the right side of the dash housing. But they were doing the wrong spot. They were moving the yoke on the air cylinder shaft in and out to do the job. All they were doing was changing the seals of the air cylinder piston which might throw something out of whack. Adjust the dash and then the yoke should be good. By the way, that clutch pedal (no-play) has moved to 1/4 to 2 inches with the adjustment on the left side of the two inches. I TD will indicate the new steps, and the TD is being revised. I

### SAFETY SPRING, OIL-DRAIN VALVE

Dear Editor,

We have rigged a safety spring on the oil-drain valves on Wisconsin auxiliary generators in our 344 and 347 tanks.

This spring prevents the valves from releasing open or from being opened by accident. It also shows you at a glance that the valve may be in the "OFF" position except when actually draining the oil.

These springs are easy to make. A standard screw door spring (not a found in QM1) makes three springs. They are wired to a hole in the end of the valve handle and cover keyed to the engine cooling stand (Fig. 1).

**344 Tank Co.**  
St. Louis, Kentucky

**Old Man**—Good idea, and if your tanks have the older 347 just as which the oil drain valve does place was OFF and ON instead of the new one showing the DRAIN position, why not paint "Drain" at the ON position and "Run" at the OFF position?

### WISCONSIN AUXILIARY GENERATOR



Fig. 3

## LOCKPIN CHAINS

Dear Editor,

In many cases on the TIG and Oxy, M104, and on the M105, castles, we find that the chains holding the lock-pin to the handling wheel bracket is not long enough to let us move the pin from the position of "handling wheel down" to the position "handling wheel up."

To correct this, we cut the chain loose from the welded spot on the bracket and attach it to the right lifting handle on the target with a wire loop big enough to slide back and forth along

the handle. A cast hanger of soft wire will do the job. But we have found that a hard ground safety pin pull ring makes the set up perfect (Fig. 4).

The diagram with the letter may help explain the situation.

W.C. Boyd III, Cox  
Camp Workes, Arkansas

(Ed Note—Your idea of locking the lock pin chain around the handle leads good as a quick fix, but better yet—have Oshkosh replace the chain when a link breaks.)

## NO MORE TA TROUBLE

Dear Editor,

To get help from a manual, we mechanics have had to stop the job and go find one. This got to be a nuisance.

We solved the problem by placing the Tm with a strong wire and making a hook in the end of the wire. Now we can hang it wherever we're working. It is a great time-saver (Fig. 5).

Ign. Richard Bogart  
H. Elm, Texas

(Ed Note—Good work if you have enough TAs to get around.)

### WIDE TO GO A GOOD ONE



Fig. 5—Using one manual is a hook will get them if on the job.

## *Carrie Reed's* TIPS



### *Stripped nuts*

The plate nut in your 30-cd, on-line gas-cylinder group is asked to keep it tight. If you try to take it out, you'll not only lose the threads but you'll ruin the bearing legs on the nut. If that nut's got to be taken out for cleaning, let your Orlonova support unit do the job for you.

### *No battery cell-voltage*

You can't get accurate cell-voltage readings on the new water-proof batteries 'tween they're sealed. So, when you're jacking down the battery voltage on EA Form 661 and 662, put down the read- ing for each battery instead of each cell. And if you see anyone slipping into a battery to get cell readings—bar their hands. You only take individual cell readings on batteries that have exposed cell strips.

### *Contract*

Almost cracked on eyeball trying to spot the rising mark on the MDR's poly- lay. That suggestion to paint it white for easier look-see is still good.

### *Leave it alone*

That bent black ductile you see on the gear surfaces of your Myronmag is an outside file which needs not and you- rinate. Shows on you, if you're thinking of taking it off.

### *Stymieages*

#### *Brush interlock*

There's good news for you if you've been having trouble with the brush in- terlock on your Myronmag. A new man- piece inter-lock is on its way into the sup- ply system. It's carry stock No. 644- 720796. For an immediate fix, better see Orlonova support.

### *Carrie slipped me*

Looks like I don't know my left from a hole in the ground. There's the *left*, on page 760 of FS 6-14, should have said, odd weld to the MDR's left foot wheel-axle and its right wheel mount sub against the frame, when making those sharp left turns on bumpy roads. Also, better make a note about it in your TR 9- 604-12 which is being changed, too.

*Don't just sit there...*

**WITH YOUR  
FINGER  
IN  
YOUR MOUTH**



THERE'S A WHOLE CROWD OF GUYS WHO'D LIKE TO KNOW YOUR BETTER WAY OF DOING IT... IF YOU'VE GOT A NEW IDEA... A BETTER GADGET, A SHORT CUT, OR A NASTY COMMENT... GO ON! TRY TO WIN A LIBRARY PRIZE... JUST WRITE IT DOWN AND...

*Mail it to...*

SGT HALF-MAST • PS MAGAZINE, ABERDEEN PROVING GROUND, MD.