Issue 66

PS

1958 Series

THE PREVENTIVE MAINTENANCE MONTHLY

When your company or battery gets its 15 or so copies of PS each month, what happens to them?

That's a good question that a lotta soldiers have been asking, and nobody gives a good answer. Seems like some guys point a finger and say the other guys are hiding 'em. Maybe. Maybe not.

How do you get the copies of PS to the right people so they'll do the most good?

Well, here's an example of how one Infantry Company does it—

C.O.	1 copy
SUPPLY SERGEANT	1 copy
ARMORER	1 copy
JEEP DRIVERS	1 each
WEAPONS PLATOON	2 copies
RIFLE PLATOONS	2 each

And here's how one Artillery Battery spreads 'em around—

C.O.	1 copy
BATTERY HQ	1 copy
FIRING BATTERY HQ	1 copy
MAINTENANCE SECTION	4 copies
GUN SECTIONS	2 each

Try it—and maybe your maintenance pains will ease.

P.S THE PREVENTIVE MAINTENANCE MONTHLY

Issue No. 66 1958 Series

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IN THIS ISSUE

PS wants your ideas and contributions, and is glad to answer your questions. Just write to: **Sgt Half-Mast, PS, Raritan Arsenal, Metuchen, New Jersey.** Names and addresses are kept in confidence.

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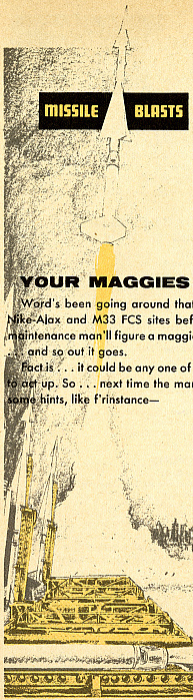


What about your outfit? When the last red tag is pulled and the final button is pushed . . . will the missile get off the ground and seek out and destroy the enemy bomber? Or will the bomber get through and destroy the area you're protecting?

When it comes down to a "them-or-us deal," it's not worth goofing off on Preventive Maintenance. A minute's goof on PM could mean destruction of things that took centuries to build.

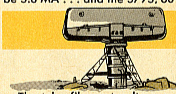
So . . . read on. The city you save may be your own.

YOUR MAGGIES MAY NOT BE WRECKS

Word's been going around that a lotta 5780 and 5795 magnetrons are leaving Nike-Ajax and M33 FCS sites before they're due for "discharge." Sometimes a maintenance man'll figure a maggie's had it because it's not making a good showing . . . and so out it goes.

Fact is . . . it could be any one of a lotta other things that're causing the magnetron to act up. So . . . next time the man comes around to check your equipment, drop some hints, like f'rinstance—

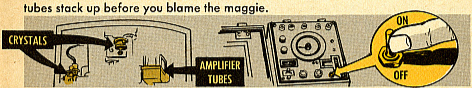
If the magnetron doesn't have the recommended current level, the maggie won't operate at full power . . . and it'll probably wear out twice as fast as it should. The 5780 maggie current oughta be 5.8 MA . . . and the 5795, 60 MA.



The tube filament voltage and current oughta be at the right operating values or you'll have a cold cathode . . . and that'll get you excessive arcing.

The reverse diode current wants to be in the right range or the tube'll be damaged. The current oughta be 7 MA (plus or minus 4 MA) for the 5780 . . . and between 50 and 60 MA for the full power 5795.

Done-in crystals or weak IF amplifier tubes make for a weak video. So a receiver sensitivity check wants to be made at least once a week to see how the crystals and tubes stack up before you blame the maggie.

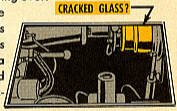


The average power output of the magnetron tells about the condition of the tube . . . and also needs to be measured at least once a week.

When the average power drops below the minimum power limits (32 watts for the 5780 and 1000 watts for the 5795) the maggie wants to be removed (depending on your local SOP). But, it should be put in another radar system for a check-out before anyone says it's shot. The maggie might work in the second system which'll show it wasn't shot after all. And, at a thousand bills a throw for a magnetron, it's worth double checking.

Another thing that wants to be done now and again is to compare meters and other things used to test power measurements. If the meters don't show pretty much the same readings, they should be turned in for a going over.

There're other things which oughta be checked before anyone says a tube has reached the end of the trail 'cause there's arcing in the hotbox. An open heater, a loose three-ball connector, a cracked cathode glass or a cracked vacuum capacitor—any of these could cause arcing.



Arcing can also be caused by a pileup of dirt and moisture in the hotbox. You can call a halt to this by using electrical insulating compound (if your Ordnance officer says OK) on the cables, high voltage leads and the glass cathode. The compound also prevents corona discharge—that halo-like glow which leads to high voltage arcing.

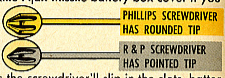
You wanna go easy with the compound 'cause it's a dust collector. And, that's a tipoff that you don't wanna use the stuff in a dry, dusty area.

If everything checks out and the maggie still shows up weak, it is. It needs replacing.

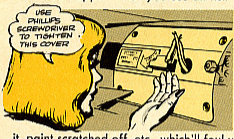
IT'S WORTH A FIN

Ever try to open a can of sardines with a monkey wrench? It won't work, 'cause it's the wrong tool.

You run into the same trouble on your Nike-Ajax missile battery box cover if you try to use an R&P screwdriver to tighten it. The cover is held by Phillips-head screws, and you use a No. 2 Phillips screwdriver on 'em. Nothin' else'll do the job.



What'll happen when you use an R&P is the screwdriver'll slip in the slots, batter up the screws, and the battery cover won't fit snug on the missile like it should. And maybe you'll tighten one corner of the cover more'n another.



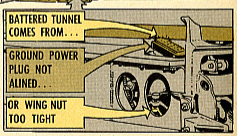
Then the guidance fin on your missile is liable to get caught on the partially open battery box cover. Before long, the fin really gets battered—dents and marks on it, paint scratched off, etc., which'll foul up the missile ballistics.

So use a Phillips screwdriver next time you secure that cover.

EASY TIGHT

A bent or crushed tunnel isn't gonna help things if you ever have to pop-off a Nike-Ajax missile or four.

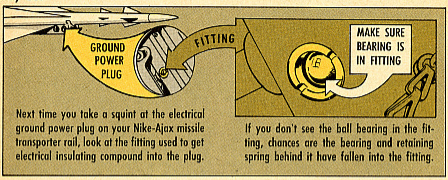
And it sure enough is easy to wind up with a battered section of Tunnel No. 3 at about station 118.00 on the missile. All you gotta do is get to feeling strong when tightening the wing nut at the launcher-rail electrical ground-power break-away assembly . . . or forget about alining the ground power plug.



So go easy when you tighten the wing nut. And don't forget to aline the plug first.

WHERE'D IT GO?

Sometimes it pays to believe what you see... or what you don't see, as the case may be.



Next time you take a squint at the electrical ground power plug on your Nike-Ajax missile transporter rail, look at the fitting used to get electrical insulating compound into the plug.

If you don't see the ball bearing in the fitting, chances are the bearing and retaining spring behind it have fallen into the fitting.

This could mean troubles 'cause the loose bearing might short out the terminals. So, if you can't see the bearing, best call Ordnance quick 'cause they'll have to fish out the bearing and spring before new ones can be installed.

JOT 'EM DOWN

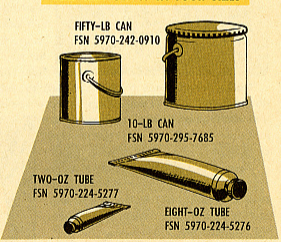
Been havin' trouble trying to match up stock numbers for insulating compound? Instead of looking for DC-4, try Insulating Compound, electrical: paste (Spec MIL-I-8660).

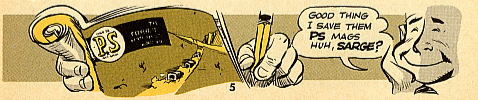
And here're the latest FSN's for the different size containers you can get from Ordnance:

10-lb can—FSN 5970-295-7685
50-lb can—FSN 5970-242-0910
8-oz tube—FSN 5970-224-5276
2-oz tube—FSN 5970-224-5277

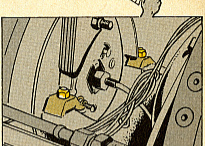
Better grab your copy of PS 58, turn to page 7 and make these FSN and nomenclature changes.

YOU CAN GET IT IN FOUR SIZES





RETAIN YOUR RETAINERS



Next time you go to assemble your Nike-Ajax missile and you find your warhead retaining lug bolts are missing, you'll really be up a creek.

Best way to keep that from happening is to make sure you keep the bolts installed in their brackets all the time. That way they'll be there, right handy, when you need 'em.

There're a couple o' good reasons for keeping 'em right with your equipment, too.

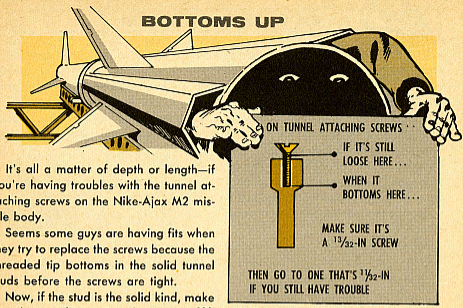
First, two of the retaining lug bolts for the center warhead are longer than the other two. If you happen to get 'em mixed up and try to install the long ones in the holes meant for the short ones, you'll bend the return line when you go to screw 'em in.

If you go to put the short bolts in where the long ones should be, you won't get the self-locking deal they were designed for, 'cause the short bolt won't quite reach all the way through the brackets into the red fiber in the nut.

'Nother thing to keep in mind, and that's to make sure you install the bolts upside down—that is, with the nuts on top, so's you'll be able to torque the nut. If you install 'em with the bolt head on top, you're apt to torque the bolt and won't get the right amount of torque.

If you're in a pinch and don't have time to put all the bolts in the brackets, you can at least keep 'em all together in their original issue sack, and tie 'em real good to the warhead lug attach holes.

BOTTOMS UP



It's all a matter of depth or length—if you're having troubles with the tunnel attaching screws on the Nike-Ajax M2 missile body.

Seems some guys are having fits when they try to replace the screws because the threaded tip bottoms in the solid tunnel studs before the screws are tight.

Now, if the stud is the solid kind, make sure the tunnel screw is no longer than $^{13}/_{32}$-inch. Otherwise... it'll bottom before it's tight. The $^{13}/_{32}$-in screw is listed under FSN 5305-273-541.

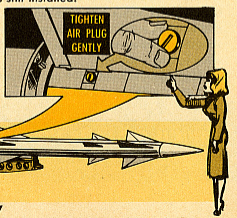
Maybe the $^{13}/_{32}$-in screw will bottom before it's tight. You still have an out. Get yourself a screw that's $^{1}/_{32}$-in long. FSN 1420-342-4622 will get you the shorter screw.

LIGHT TOUCH

When you're working around the Nike-Ajax missile, you gotta have a light touch when it comes to tightening up the air-fill plug.

Chances are, when the missile came to you, you also got a special socket wrench to do the job. But that was for use only so long as the O-ring gasket between the plug flange and the air-fill valve body was still installed.

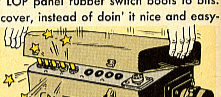
Once that O-ring is removed, you gotta take it easy. Instead of usin' the wrench to tighten the plug, use a coin—or better yet —use your fingers. Since the plug's got a right-hand thread, you turn it clockwise . . . real gentle-like.



BOOTING AROUND

Sturdy boots are worth their weight in gold—whether they're on your feet or on your Nike-Ajax missile control panel. All boots are for protection—some keep your feet dry, others do the same for the toggle switches on your panels, by providing a moisture-proof seal.

But some Joes have been tearing their LOP panel rubber switch boots to bits. Seems every time they replace the panel cover, instead of doin' it nice and easy-like by lifting the cover up, over and down, they've been slammin' it. And, on the way down, the cover's been nicking the tips of the switch boots. Result? Cracked, broken boots that can't do the job they were designed for.



So, next time you button up your panel, take it easy when you replace the cover.

And when the boots wear out, FSN 5975-099-5747 is the number to remember for new ones.

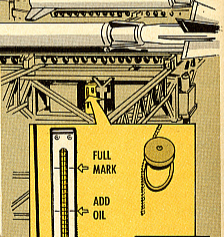
OIL FOR THE ARM

Pull up a Nike-Ajax launcher and listen a minute.

That launcher wants its hydraulic oil level checked with the erecting arm down.

And, if the sight glass shows the level is more'n five inches below the full mark, add some oil until it's full up. Don't fill beyond the mark or the reservoir'll spit oil when you raise the arm.

The right oil is MIL-O-5606 . . . and the right time to check the level is every day.

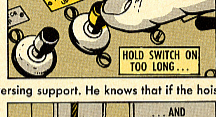


THIS IS FOR LATER MODELS

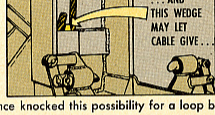
KEEP THE CABLES ABLE

It's a smart operator—the guy who watches what he's doing after the Corporal missile has been fueled.

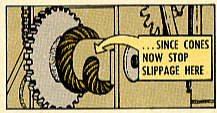
That's sure no time to be dreaming about the night before 'cause he's just liable to forget to take his finger off the control switch as the missile is being raised by the handling-ring clamp-assembly on the XM2 erector.



The guy who's on-the-ball knows his finger comes off the switch soon's the four clamp-assembly locks snap on to the traversing support. He knows that if the hoist motor keeps running something's got to give. And it'll more'n likely be the cable—at the spot where it's held by the metal wedge at the aft end of the clamp assembly.



Used to be, the cable could also pull out of the hoist drum or cable tightener when the motor kept running. But Ordnance knocked this possibility for a loop by putting some cone-shaped chunks of zinc on the ends of the cable—where they go into the drum and the tightener.

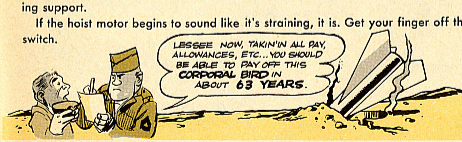


Something else to think about—if the cable breaks at the metal wedge because you have a heavy finger, that's bad enough. At least the clamp assembly locks will hold the missile and the clamp assembly in the air like a set of sky hooks. But, let somebody release the locks and Bl-o-o-e-y...because the cable is busted, a missile digs itself a final resting place.

So—next time you raise the missile after fueling:

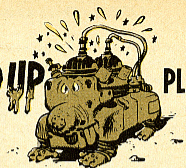
Release the control switch soon's the clamp-assembly locks hook on to the traversing support.

If the hoist motor begins to sound like it's straining, it is. Get your finger off the switch.



The Right Gas & Oil
In Two-Cycle Engines Means

NO MORE FOULED UP PLUGS



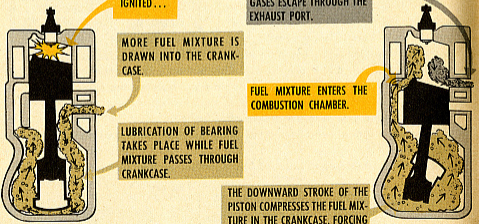
Dear Sgt Dozer,

We're up against it with spark plug fouling on the two-cycle engines on our 1½-KW generators, outboard motors, lawn mowers, etc. We know that oil has to be added to the gasoline to lubricate the bearings and cylinder walls. But it sure fouls the plugs.

Sgt M. V.

Dear Sgt M. V.,

You're right—a little oil has to be mixed with the gasoline in two-cycle engines to lubricate the bearing and cylinder walls. Since fuel for a two-cycle engine runs through the crankcase into the combustion chamber, the lubricant has to be mixed with the fuel. Don't run a two-cycle job on gasoline alone. The bearing and piston will take a beating—and after a while the engine'll seize.



Some TM's on two-cycle engines—like TM 5-5382 on the Homelite Model 1½-KW generator—give you a Spec number for a detergent oil to mix with the gasoline. But you'll get cleaner, better burning with a non-detergent oil. You'll also get cleaner burning with a non-leaded gasoline. Requisition this oil and gas for your two-cycle engines:

Lubricating Oil, General Purpose. FSN 9150-231-6639 (QM) 5-gal drum (30-wt).

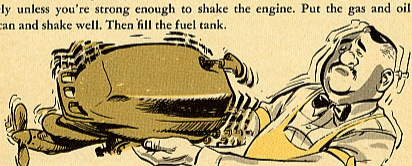
Gasoline, unleaded, 62-octane. FSN 9130-160-1838 (QM) 5-gal can.

Detergent oil not only doesn't burn as well as "straight" oil, it wasn't made for two-cycle engines. The one thing detergent oil does that non-detergent oil doesn't do is keep dirt and stuff suspended—instead of letting it settle to the bottom of the crankcase. It doesn't lubricate better than non-detergent oil.

Since the mixture of gasoline and lubricant is always moving through the crankcase and into the combustion chamber of a two-cycle engine, you don't need detergent oil to keep dirt suspended. It gets carried out of the crankcase and burned no matter what kind of oil you're using. So requisition non-detergent oil—it burns better and doesn't leave as much carbon.

You get the same advantage with white (non-leaded) gasoline over regular (leaded) gasoline. Leaded gasoline leaves carbon and stuff called "residue" in the combustion chamber—and fouls the plug. But just about 100 percent of white gasoline burns—leaving less residue to foul the plug. Besides, you don't need leaded gasoline's higher octane in a two-cycle engine.

Now, about mixing the gasoline and oil. Don't pour 'em in the gas tank separately unless you're strong enough to shake the engine. Put the gas and oil in a can and shake well. Then fill the fuel tank.



How much oil to put in a gallon of gas depends on what engine you have. A good general rule is to use half-pint of oil to every gallon of gas. But it's best to check the TM on each engine and do what it says.

One last thing: If you run out of non-detergent oil—or can't get it right away—go ahead and use a detergent oil like OE 30. When it comes to lubricating any type of engine—

NO Oil = NO Engine

Sgt Dozer

Charging the 12-volt Waterproof-type Battery with . . .

YOUR ENGINE-DRIVEN BATTERY CHARGERS

You men in the TOE units know you have the gasoline-driven battery charger as part of your organizational 2nd echelon kit.

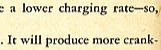
You'll find you have either Model 2BH-212E, Model OTC 33 or Model OTC 33B or similar Onan chargers,or Model BC-20-L Pioneer, Model 60 AM Atlantic or Model JHGV2A or JHGV2B Hol-Gar (Hollingsworth).

These chargers were designed for a charging rate of up to 20 amps per battery. But the new waterproof military batteries require a lower charging rate—so, come now the fine points.

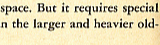
The new battery is a higher performance battery. It will produce more cranking effort per pound of weight and cubic foot of space. But it requires special handling. It has to be treated with greater care than the larger and heavier old-fashioned battery.

Nevertheless, that charger will serve you to keep your batteries up to charge as long as the battery is in top-flight condition when you begin charging.

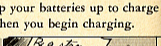
In certain cases of extremely dead batteries or badly sulfated batteries, you may have to return them to your support unit. You'll not be able to give them the proper treatment with this charger.



You can charge good, healthy batteries which fall below a specific gravity of 1.225 in use or in storage.

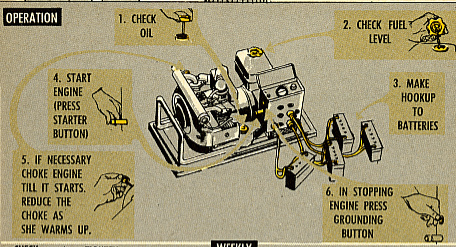


You never charge sulfated batteries or those which have such a low internal resistance that they take 10 or more amperes from this charger.



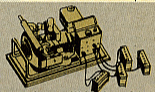
You'll probably find that batteries with a specific gravity below 1.100 will require attention by your support unit.

These chargers are gasoline engine-driven. And, consequently, they require the same preventive maintenance and daily care that you would give any other engine you're operating.



WEEKLY

KEEP CHARGER CLEAN WITH NO TRASH TO INTERFERE WITH FLOW OF COOLING AIR AROUND THE ENGINE.



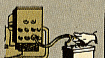
The details of these inspections and the monthly inspections will be found in TB 5-5368-1 and TM 5-5368 for the Model 2BH-212E charger, or TM 5-5085 for the Models OTC 33 and OTC 33B. And like with any equipment, big or small, you'll naturally find that the manual what goes with whichever charger you have is handy to have around.

You always keep the area around the charger as clean as possible. And be sure an adequate flow of cooling air can circulate around the engine. If inside, be sure you run the exhaust outside. Be sure to hook up your batteries in a well-ventilated place so that no hydrogen gas fumes will accumulate and cause a fire hazard. Your life could depend on it.

BEFORE CHARGING-

When batteries come to you for charging, clean them externally.

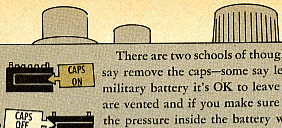
Check specific gravity If below 1.100, it may have to go back to your support unit.



But first install on charger and check for amperage draw.

Fill to correct electrolyte level with pure distilled water if available . . .

. . . or the best clean, soft drinking water you have, if you've got no distilled water. Of course, you fill them after checking the specific gravity.



There are two schools of thought on charging a battery. Some say remove the caps—some say leave the caps installed. On the military battery it's OK to leave the caps installed. These caps are vented and if you make sure the vents are not plugged up, the pressure inside the battery won't exceed safe limits. So be plumb sure you've got those vents open. You don't want a battery blowing up in your face. A few minutes extra time will sure pay off in preventing burns or loss of eyesight. Leaving the caps installed will prevent some electrolyte spatter and keep the general area a little bit cleaner.

You group your batteries by specific gravity for charging. In other words, you try to charge batteries which have approximately the same specific gravity at the same time.

If you have a bunch that are very close to 1.225 and only need a little charging, you put them off in one group. If you have a bunch that are much lower in gravity, try and group them together so that they'll have a reasonable chance of getting the same charge, at the same time.

Make your hook-up and start your charger. By use of the amperage charging rate control knob you adjust the amperage shown on the ammeter to as near as you can come to 5 amperes per battery on charge.

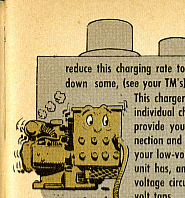
LIKE THIS—

IF CHARGING		IF CHARGING		
8 BATTERIES...	try and reduce amperage to not over 40 amperes.	4 BATTERIES...	reduce amperage to 20 amps.	Not over 5 amps per battery.

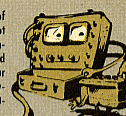
However, like was said, this charger was designed for batteries which accepted a charge up to 20 amperes, and you may find it difficult to reduce the amperage down to as low as 5 amps per battery.

However, the last word on batteries is TB Ord 463 (7 July 52). And this TB does call for a maximum charging rate of 5 amperes on the waterproof-type batteries. So you'll have to do the best you can to

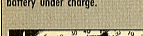
reduce this charging rate to 5 amperes per battery. Reducing the governor setting to slow the engine down some, (see your TM's) may help here.



This charger does not provide you any indication of individual charge in the batteries. In fact, it does not provide you any indication that a given cable connection and battery are charging at all. So you'll need your low-voltage circuit tester, whichever model your unit has, and you use the voltmeter from that low-voltage circuit tester, connecting its leads to the 50-volt taps.

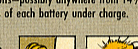


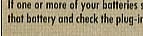
Bring the leads out and touch the positive and negative posts of each battery under charge.



You should see approximately 15 volts—possibly anywhere from 14½ to 16 volts—shown at the terminals of each battery under charge.

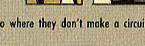
If one or more of your batteries shows low voltage, check the cables on that battery and check the plug-in where the cable goes into the charger.

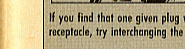




These plug-in's sometimes wear to where they don't make a circuit.

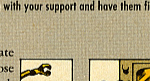
If you find that one given plug won't make a connection in one given receptacle, try interchanging the cables on the charger.

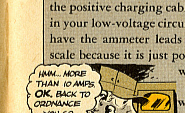




If you still can't get a connection thru that receptacle turn the charger in to your support or get in touch with your support and have them fix it for you.

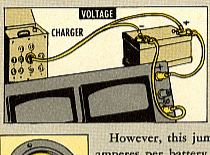
The only way you can tell the actual charging rate of each individual battery on your rack is to take loose the positive charging cable from that battery and hook in your low-voltage circuit tester ammeter. You should have the ammeter leads plugged into the 50-ampere scale because it is just possible that a shorted or badly worn battery will accept over 10 amperes.



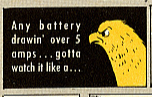


You check each battery and, in the case of a battery which is accepting over 10 amperes, from your charger, you should remove that battery from the charging line and turn it in to your support unit.

If you have no low-voltage circuit tester available you're in hard lines. But it's very possible to get a rough idea of the function of your battery charger by starting the charger and then plugging in the batteries one at a time, noticing the reading on the charger ammeter as each battery is plugged in. You should be able to see that it'll jump up to a higher amperage reading as you add additional batteries.



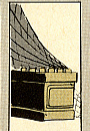
However, this jump should not exceed 10 amperes per battery at the most. Any more than that will indicate a battery receiving over 10 amperes charge—and that battery should be turned back to support. This method is definitely an **emergency only** deal.



Keep an eye on the electrolyte temperature. It should never go over 110°F. Use the thermometer in your issue hydrometer for this check.

If your battery temperature runs over 110°F. take it off and turn it over to your support unit.

If battery is so sulphated it doesn't accept any charge . . .



this is generally a battery that's been left discharged a long time.

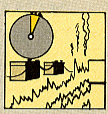
So, if you're in **severe straits** and **can't do anything else**—can't possibly turn in the battery—and have to get it charged, you may try this high-rate charge.

Give it a kick more or less in conformity with TB Ord 463. Like so . . .

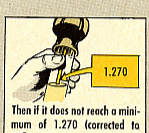
take two such sulphated batteries; hook 'em in parallel; then to charger.

Start up the charger. This'll shoot a direct and uncontrolled charge of 125 amperes, which exceeds by 12½ amperes the recommended maximum in TB Ord 463.

However, this charge is only to be kicked in there **for a maximum of 3 minutes,** and serves to break loose sulfation. Then return the battery to the charging line. It should accept somewhere between 5 and 10 amperes of charge after such treatment.

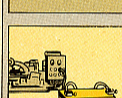


Charge your batteries until gravity checked every hour does not rise in three consecutive hours.



Then if it does not reach a minimum of 1.270 (corrected to 80°F)...

...TURN IT IN.



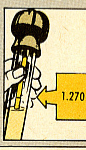
Remember, new batteries need a long, slow charge.

Recommended rate 3 to 5 amps for as long as 96 hours.

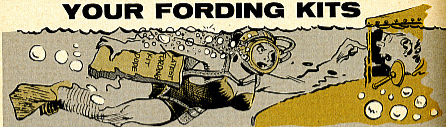
Badly sulphated ones take up to 144 hours.

But, a charger that's goin' for 144 hours is no bargain. So...

Ordnance people are working on this problem now and you may be supplied a different type charger in the future. However, in the meantime, with careful attention to detail and the use of your present charger you can keep your batteries in serviceable condition. Be sure to get the battery on charge as soon as possible after it falls to 1.225. And charge it adequately till it reaches at least 1.270, or return it to supply if it won't reach 1.270. You'll be miles ahead if you don't allow a discharged battery to remain either in the shop or in the vehicle a bit longer than you absolutely have to. These batteries will sulfate like crazy when allowed to remain in a discharged condition.



YOUR FORDING KITS



There are fording kits—and, then again, there are fording kits. In other words, it's up to you to know which fording kit goes on your truck or tracked vehicle, just in case you ever have to put one on.

There are two kinds of kits—a "short" used on earlier-model vehicles, the ones that had most fording gadgets put on in production; and a "long" kit used on later-production models, the ones that had the gadgets left off.

For your use, here's a deep-water fording kit guide. It lists the vehicle, its deep water-fording kit stock number, whether it takes a "short" kit or a "long" one and after or before which serial numbered truck you use the short kit or the long one.

SB 9-155 (23 OCT 57) AUTHORIZES THESE KITS.

TACTICAL WHEELED VEHICLES

Vehicle	Fording Kit Stock No.	Short Kit	Long Kit	Vehicle Serial Number Break-Point
TRUCK, UTILITY: ¼-ton, 4x4, M38 (SNL G740)	FSN 2540-039-8375	X		All models
TRUCK, UTILITY: ¼-ton, 4x4, M38A1 (SNL G758)	FSN 2540-039-8386	X		Use thru 29295
TRUCK, UTILITY: ¼-ton, 4x4, M38A1 (SNL G758)	FSN 2540-301-7274		X	Use after 29295
TRUCK, CARGO: ¾-ton, 4x4 (SNL G741)	FSN 2540-039-8374	X		Use thru 80039235
TRUCK, CARGO: ¾-ton, 4x4 (SNL G741)	FSN 2540-039-8380		X	Use after 80039235
TRUCK, 2½-ton, 6x6, all models (SNL G749)	FSN 2540-039-8383		X	All models
TRUCK, 2½-ton, 6x6, all models (SNL G742)	FSN 2540-039-8376	X		Use thru 118436
TRUCK, 2½-ton, 6x6, all models (SNL G742)	FSN 2540-039-8391		X	Use after 118436

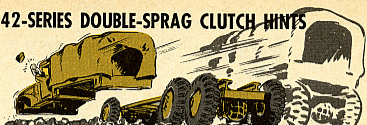
Vehicle	Fording Kit Stock No.	Short Kit	Long Kit	Vehicle Serial Number Break-Point
TRUCK, CARGO: 5-ton, 6x6, M54 (SNL G744)	FSN 2540-039-8380	X		Use thru IHC-001349; Dia T-M54-0209
TRUCK, CARGO: 5-ton, 6x6, M54 (SNL G744)	FSN 2540-039-8395		X	Use after IHC-001349; Dia T-M54-0209
TRUCK, CHASSIS: 5-ton, 6x6, M40 (SNL G744)	FSN 2540-039-8380	X		Use thru IHC-001349; Dia T-M54-0209
TRUCK, CHASSIS: 5-ton, 6x6, M40 (SNL G744)	FSN 2540-039-8395		X	Use after IHC-001349; Dia T-M54-0209
TRUCK, CHASSIS: 5-ton, 6x6, M63 (SNL G744)	FSN 2540-039-8380	X		Use thru IHC-001349; Dia T-M54-0209
TRUCK, CHASSIS: 5-ton, 6x6, M63 (SNL G744)	FSN 2540-039-8395		X	Use after IHC-001349; Dia T-M54-0209
TRUCK TRACTOR: 5-ton, 6x6, M52 (SNL G744)	FSN 2540-039-8379	X		Use thru Dia T-M52-4489
TRUCK TRACTOR: 5-ton, 6x6, M52 (SNL G744)	FSN 2540-039-8394		X	Use after Dia T-M52-4489
TRUCK, CARGO: 5-ton, 6x6, M41 (SNL G744)	FSN 2540-039-8377	X		Use thru IHC-002103
TRUCK, CARGO: 5-ton, 6x6, M41 (SNL G744)	FSN 2540-039-8392		X	Use after IHC-002103
TRUCK, WRECKER: medium, 5-ton, 6x6, M62 (SNL G744)	FSN 2540-039-8381	X		Use thru IHC-002079
TRUCK, WRECKER: medium, 5-ton, 6x6, M62 (SNL G744)	FSN 2540-039-8396		X	Use after IHC-002079; Dia T-M62-0001
TRUCK TRACTOR, WRECKER: 5-ton, 6x6, M246 (SNL G744)	FSN 2540-039-8381	X		Use thru IHC-002079
TRUCK TRACTOR, WRECKER: 5-ton, 6x6, M246 (SNL G744)	FSN 2540-039-8396		X	Use after IHC-002079; Dia T-M62-0001
TRUCK, DUMP: 5-ton, 6x6, M51 (SNL G744)	FSN 2540-039-8378	X		Use thru IHC-003474
TRUCK, DUMP: 5-ton, 6x6, M51 (SNL G744)	FSN 2540-039-8393		X	Use after IHC-003474; Dia T-M51-0001; Mack M51-1001
TRUCK, CHASSIS: 5-ton, 6x6, M139 (SNL G744)	FSN 2540-039-8382	X		Use thru IHC-001849; Dia T-M139-0594
TRUCK, CHASSIS: 5-ton, 6x6, M139 (SNL G744)	FSN 2540-039-8397		X	Use after IHC-001849; Dia T-M139-0594
TRUCK TRACTOR: 12-ton, 6x6, M26 and M26A1 (SNL G160)	FSN 2540-692-8891			All models

TRACKED VEHICLES

Vehicle	Fording Kit Stock No.
*GUN, SELF-PROPELLED, FULL TRACKED: 90-mm, M36 (SNL G210)	FSN 2540-570-0772; and Ord Stock No. 0250-5700800; and FSN 2540-692-8889
GUN, SELF-PROPELLED, FULL TRACKED: 155-mm, M40 (SNL G232)	FSN 2540-570-1668
HOWITZER, SELF-PROPELLED, FULL TRACKED: 105-mm, M52 (T98E1) (SNL G258)	FSN 2540-039-8384
HOWITZER, SELF-PROPELLED, FULL TRACKED: 105-mm, M37 (SNL G238)	FSN 2540-570-1669
GUN, SELF-PROPELLED, FULL TRACKED: 155-mm, M53 (T97) (SNL G259)	FSN 2540-039-8385
HOWITZER, SELF-PROPELLED, FULL TRACKED: 155-mm, M41 (SNL G236)	FSN 2540-570-1670
HOWITZER, SELF-PROPELLED, FULL TRACKED: 8-inch, M55 (T108) (SNL G259)	FSN 2540-039-8385
RIFLE, SELF-PROPELLED, FULL TRACKED: multiple, 106-mm, M50 (SNL G288)	FSN 2540-568-1153
TANK, COMBAT, FULL TRACKED: 76-mm gun, M41 and M41A1 (SNL G251)	FSN 2540-039-8387
TANK, COMBAT, FULL TRACKED: medium, 90-mm gun, M46 and M46A1 (SNL G244)	FSN 2540-570-1377
TANK, COMBAT, FULL TRACKED: 90-mm gun, M47 (SNL G262)	FSN 2540-039-8371
TANK, COMBAT, FULL TRACKED: 90-mm gun, M48 (SNL G254)	FSN 2540-039-8389
TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 (T43E1) (SNL G256)	FSN 2540-039-8388
*TANK, COMBAT, FULL TRACKED: medium, 105-mm howitzer, M4A3 (SNL G104)	FSN 2540-692-8889; and FSN 2540-570-0772; and FSN 2540-570-0778
*TANK, COMBAT, FULL TRACKED: light, 75-mm gun, M24 (SNL G200)	FSN 2540-692-8889; and FSN 2540-570-0772; and FSN 2540-570-0905
*TANK, COMBAT, FULL TRACKED: medium, 90-mm gun, M26 (SNL G226)	FSN 2540-570-0842; and FSN 2540-570-0772; and FSN 2540-570-0850
TANK RECOVERY VEHICLE: heavy, M51 (SNL G274)	FSN 2540-692-8892
TANK RECOVERY VEHICLE: medium, M74 (T74) (SNL G281)	FSN 2540-096-5016
TRACTOR, FULL TRACKED, HIGH SPEED: 13-ton, M5, M5A1, M5A2, M5A3, M5A4 (SNL G162)	FSN 2540-692-8890
TRACTOR, FULL TRACKED, HIGH SPEED: 18-ton, M4, M4A1, M4C, M4A1C, M4A2 (SNL G150)	FSN 2540-560-7537

*Needs all three kits.

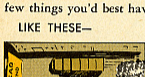
G742-SERIES DOUBLE-SPRAG CLUTCH HINTS



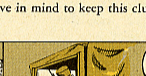
There're just some things you've got no control over—like the overrunning-clutch in your G742-series 2½-ton trucks. This is the gismo that automatically engages when there's any loss of traction in the intermediate and rear wheels—and you've got no say about it.

It's a good thing, tho—a thing that'll keep you going when you get bogged down in mud, snow and other forms of natural unmentionables. But, there're a few things you'd best have in mind to keep this clutch in operating shape.

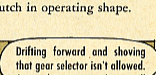
LIKE THESE—

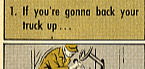


1. If you're gonna back your truck up . . .

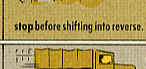


stop before shifting into reverse.

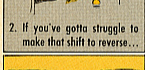




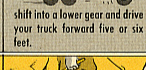
2. If you've gotta struggle to make that shift to reverse...



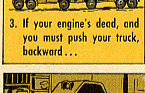
shift into a lower gear and drive your truck forward five or six feet.



3. If your engine's dead, and you must push your truck, backward . . .



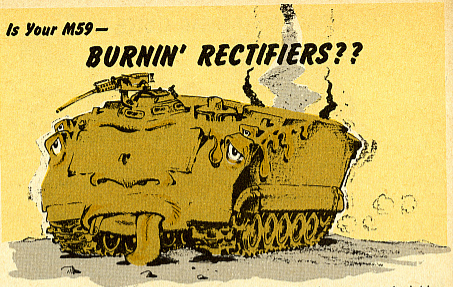
you must shift your transmission into reverse and put your transfer into neutral (midway between low and high range).



4. If troubles pop in the front axle drive and you have to take that front drive shaft off, p-u-l-e-e-z-e don't forget to jack a front wheel off the ground first. This'll release any wind-up that may have happened and possibly save the guy doing the job a trip to the hospital.

Is Your M59—

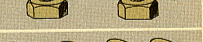
BURNIN' RECTIFIERS??



If you have had the misfortune to burn up a rectifier from reverse slavin' in a M59 personnel carrier serial number F7 through F2276, then MWO ORD G280-W7 (3 July 57) is the answer to your prayers.

The MWO calls for Kit, FSN 2590-509-9809 (G280), and provides you with a circuit breaker that takes the bite out of that burnin' up business. Should be able to get the kit through normal supply channels right now, so get your order in.

After you get it, check to see if you've got all the items you should have. You'll find these in the kit:

1 Circuit breaker, FSN 5925-775-1717 (G251)	
1 Jumper, cable assy (Ord Part No. 8704850)	
2 Nuts, self-locking, FSN 5310-050-3209 (H101)	
4 Washers, lock, FSN 5310-017-4916 (H001)	
2 Screws, machine, FSN 5305-013-2923 (H001)	

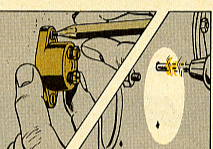
If any parts in the kit you get are missing, which can't be replaced locally, then the whole kit and caboodle'll have to be sent back to supply, and you ask for a new kit. And turn in a UER, too.

With this new breaker installed, you can't burn up a rectifier even if the polarity is reversed. This is 'cause there's a disc inside the breaker that breaks the electrical connection when there's a reverse polarity. This disc automatically resets itself when the polarity is corrected—you don't even have to press a button to do it.

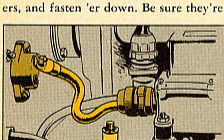
You can check the voltmeter to tell if the polarity has been reversed. The pointer on the voltmeter will move to the yellow or green spaces if the polarity is right. If it's wrong, the pointer'll sit as still as a praying mantis waitin' for a bug.

You put the kit on this way:

First, take off the left side cooling fan compartment panel, and place the circuit breaker on the panel to be used as a template with the holes of the breaker in an up-and-down position. Drill two $\frac{9}{32}$-in holes through the panel.

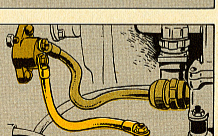


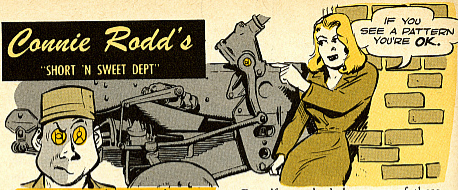
Mount the breaker on the panel, with the two screws and nuts, two lock washers, and fasten 'er down. Be sure they're drawn up good'n tight.



Now remove the existing regulator-to-ground cable from the ground pad and connect it into the upper terminal of the circuit breaker. To be sure it is hooked up so it'll stay, better use a lock washer from the kit.

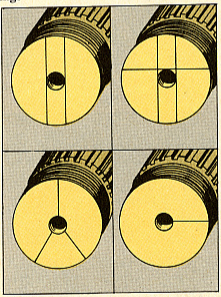
The last step is merely to hook up the jumper cable into the lower terminal of the circuit breaker and on down to the ground pad. Use the remaining kit lock washer and the one you left on the ground pad. Last—replace the compartment panel. Now she is set for any shock that comes her way.





Toe the mark

How 'bout taking a look at the end of the pitman arm shafts on your G749-series 2½-ton trucks, and see if you can spot one of these four markings—



If you have one of these markings, you're OK—you have one of those new, improved shafts and don't have to give it a daily inspection like TB 9-819A-17 says.

But, if you don't have one of these shaft markings, get that truck back to your support unit pronto. They have the word, under MWO Ord G749-W27 (7 Oct 57), to put a new shaft on now. This MWO's marked urgent.

Keep an eye on that shaft like the TB states until you get your new one. The old type has a habit of twisting and snapping in two when your front wheels get a hard, solid shock.

Order all

Radiator ordering for your G742-series 2½-ton trucks can be a bit tricky. The older radiator, FSN 2930-752-1972, is now in exhaust status. It's being replaced by radiator, FSN 2930-563-7235, and parts kit FSN 2510-097-2605.

You should go about ordering radiators for this truck like this—

If your truck needs another radiator and you have the old radiator on it,

order a replacement using the stock number for the old radiator, FSN 2930-752-1972. If you need the attaching parts, you should also requisition self-locking nut, FSN 5310-050-3323, and flat washer, FSN 5310-012-0396.

If your support unit's no longer stocking the older radiator, they'll give you the new one, FSN 2930-563-7235—and you're also supposed to get parts kit, FSN 2510-097-2605, which you'll need to make the switch from the old to the new radiator. This parts kit is a **must**, so make sure Ordnance gives it to you.

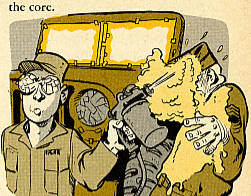
OK—that takes care of you guys who have the older radiators on your trucks. Now, if you're one of the ones who have the new radiator and you need another one, just order it using the stock number for the new radiator, FSN 2930-563-7235. If you need any attaching parts, order the same self-locking nut and flat washer given above for the older radiator. You **don't** need that parts kit, FSN 2510-097-2605.

The radiator's filler cap-and-chain comes with both the new and old radiator. If you should happen to lose it, tho, and need another one, just use FSN 2930-338-1005.

Tape and spray

Next time spray painting's needed on your vehicles, the plastic parts, like lenses in head and tail lights, gages, etc., have got to be covered up with masking tape or—you're headed for trouble.

If you get paint on 'em and then take it off with thinner or other paint cleaners, the plastic'll crack right down to the core.



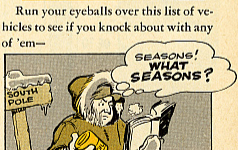
Do the job with Tape, pressure sensitive, adhesive, crepe paper backing, opaque, 60-yd roll. It's QM.

1-in wide FSN 7510-266-6712
2-in wide FSN 7510-266-6710

TM 9-2851 will give you all the dope you need on spray painting your vehicles. Check through it.

Hotsy, coldsy

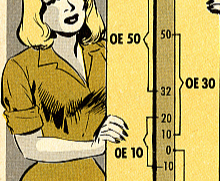
Run your eyeballs over this list of vehicles to see if you knock about with any of 'em—



M46 and M46A1 tanks; M47 tank; M41 and M41A1 tanks; M42 and M42A1 twin 40-mm self-propelled

gun; M44 155-mm self-propelled howitzer; M48-series tanks; M103 tank; M52 105-mm self-propelled howitzer; M53 155-mm self-propelled howitzer; M55 8-inch self-propelled howitzer; M75 armored personnel carrier; M8A1 high-speed tractor; M51 tank recovery vehicle; M76 amphibious cargo carrier; and the M249 and M250 heavy gun lifting trucks.

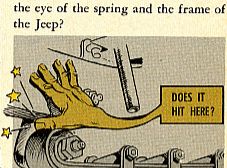
Find yours on the list? If so, TB Ord 694 (16 Aug 57) sez you're to supplement the information in your LO and TM with this chart. It tells what engine oil to use for what temperature—



Now, this means that you're to pick the seasonal temperature range that's probable in your area and use the oil called for. For example, if the winter temperature in your area is most always between +50 degrees F and +10 degrees F, you're to use OE 30. Got it?

Spring spurt

How about doing something for your M38A1 Jeeps and look at those front springs? Do the shackles at the rear of those springs go all the way back, so there's only a little clearance between the eye of the spring and the frame of the Jeep?



If not, you're OK—you won't have to worry about the end of the spring hitting against the frame when you have that Jeep on the road.

But, if there's not enough clearance, you've got problems—but they can be solved fast.

You'll need the new shortened front spring, and you can get it by using FSN 2510-318-1068 (G758).

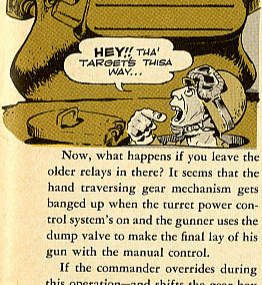
TB in for MWO

Till you hear different, lay off putting that MWO Ord G262-W23 (5 Jan 56) on your M47 tanks. Until you hear different, follow the poop given in TB 9-718A-7 (25 Aug 53).

The MWO, which is classified urgent, tells you to replace Relay, commander's override dump valve assembly (FSN

5945-351-9677, Ord Stock No. G262-7358611 or G262-7355956) with relay (FSN 5945-518-8805, Ord Stock No. G262-7996201). By doing this, the tank commander's supposed to be able to override at any time without clobbering the traversing gear.

Well, it seems that when you put this new relay in, you won't be able to operate the turret manually and all sorts of strange things happen.



Now, what happens if you leave the older relays in there? It seems that the hand traversing gear mechanism gets banged up when the turret power control system's on and the gunner uses the dump valve to make the final lay of his gun with the manual control.

If the commander overrides during this operation—and shifts the gear box back into power—then releases his override control switch while the turret is still moving, the gear box balks and tries to shift back into manual operation before the turret's stopped moving. Goo'by traversing gear.

To get around this, TB 9-718A-7 was put out. It tells you to disconnect circuit 623 and tape it to the harness to keep it from getting tangled up in the turret ring. With this wire disconnected, no one will be able to override when the gunner is using the manual traverse.

So, dig out this TB and put it into being, if you haven't already. And, lay off MWO Ord G262-W23 until you see its change 1.

Friendly ol' ejector valve

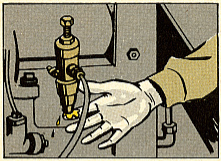
You say y'got an M8A1 (M8E2) tractor, Friend—and you're lookin' over your air brake system, and y'don't find any drain cock on it—and you know how moisture tends to condense and collect in air systems—and y'don't see how you're gonna be able to keep your system dry, without breakin' your back disconnectin' a tube all the time—or somethin'? Is that wot's botherin' you, Cousin? Huh . . . ?

Well, hold your head up high, and . . . take a look at the mounting side of your reservoir—and you'll see a little ol' valve.

Now, in your manual (TM 9-7420, Jan 55) that gidget is called the "air

ejector valve," FSN 2530-706-5167. One of its jobs is to eject moisture from the air reservoir.

Might be a good idea to check that valve at every C-service. It's workin' right if there's a little moisture under it.



Another way of checkin' is to have someone listen for air hissing out of the valve when the brakes are applied or released. If he can hear somethin', everything's OK.

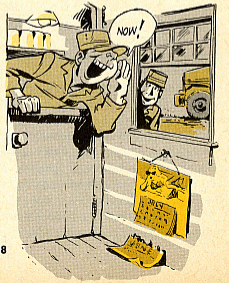
So unhand that wrench and take a worried eye off that tube connection. Your air system's not gonna drown in its own sweat so long as this ejector valve's ejecting.

Antifreeze antidote

The latest word for you tactical wheeled vehicle people is this—order your antifreeze early so your trucks will have a supply of fresh stuff on hand for the next cold snap.

Too many people have been waiting until October and November to order antifreeze. So, what happens. The supply people get a load of orders in, and by the time they can fill them—bingo, it's freeze time, and some trucks risk icicles coming out of their cooling system petcocks and engine blocks.

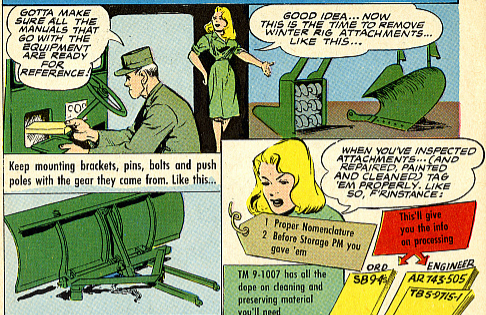
To safeguard those trucks, the best time to order antifreeze is early—like in May or June—so they'll have it on hand for your winter changeover.




JOE'S DOPE
A TEAM THAT CAN'T BE BEAT
HOW WERE YOU ABLE TO GET SUCH GOOD PERFORMANCE... WE'DA WON IF OUR BATS WERE SEASONED AND OUR SHOES WEREN'T STIFF, OUR GLOVE LACINGS WEREN'T LOOSE...
Like any shrewd manager, you knew that all your gear . . . baseball or army . . .mobile or stationary . . . big or small . . . needed a good "new season" check out:
COOLING SYSTEMS
TIRES AND TUBES
STEERING
TRACKS
ELECTRICAL CONNECTIONS
TOOLS AND EQUIPMENT
AND YOU LOOK FOR THESE.
Breaks, leaks, looseness, sheared-off bolts!

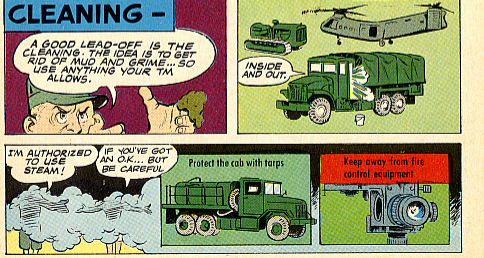
SEASONAL EQUIPMENT

(Coming out of winter storage or going into summer storage)



*Whether it's Ordnance, Engineer, Transportation, Quartermaster or Chemical stuff you're storing—check its TM for the right dope.

CLEANING –



DOWN UNDER

The road salt which helped you on icy surfaces all winter is now your worst enemy . . . Get rid of it!! Before it starts eating into the metal.

USE PLENTY OF WATER.

AH! HERE IT IS... LOOKS LIKE GREY POWDER AMID THE MUD.

CLEAN AROUND LUBE FITTINGS

WITH THE DIRT GONE, NOW I CAN SEE THE LUBE POINTS. AHA.

LUBING-

L.O.

FOLLOW YOUR L.O. RIGHT AROUND THE BABES. LET IT CALL THE SIGNALS... AND FOLLOW 'EM!

RIGHT!

CRANKCASE

DRAIN

FLUSH

REFILL

LUBE FITTINGS

RIGHT GREASE?

GEAR BOXES

RIGHT OIL?

HYDRAULIC SYSTEM

RIGHT LEVEL?

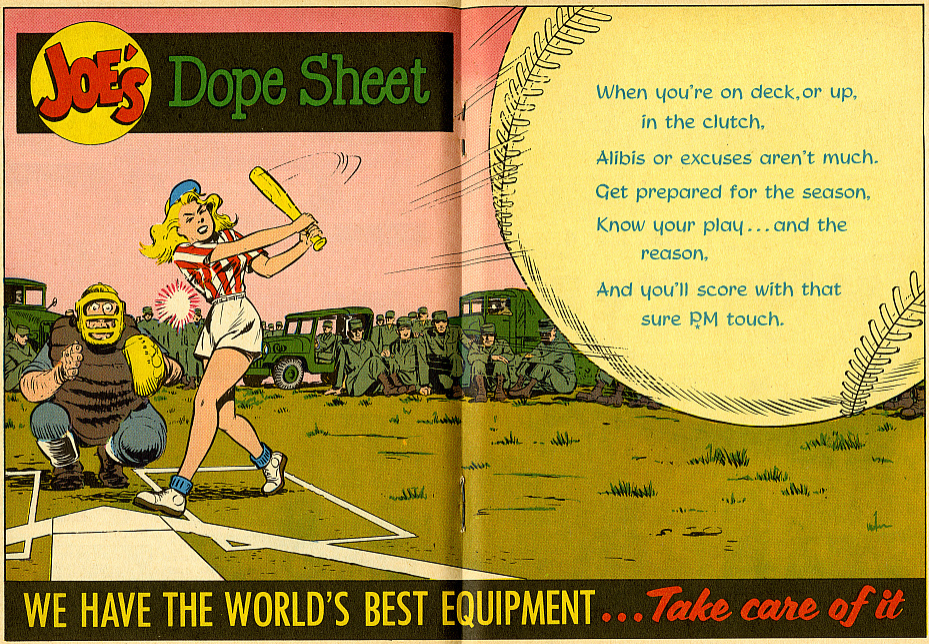
AND DON'T FORGET

WINCHES | PINTLES | CHAINS | TOWING CONNECTIONS | E T C.

ADJUSTING-

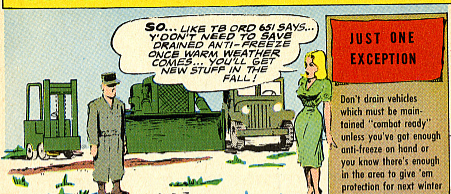
NOW... You can have your inning with the wrenches and screw drivers. Grab 'em and start tightening . . . BOLTS . . . CLAMPS . . . SCREWS . . . any of those things that shake loose. It doesn't matter whether you're a southpaw or if you switch from one hand to another. The big point is . . . DON'T MISS ANYTHING. (Never violate TORQUE SPECS, tho!)

And chip rust—flatten dents paint bare spots . . .


JOE'S Dope Sheet
When you're on deck, or up,
in the clutch,
Alibis or excuses aren't much.
Get prepared for the season,
Know your play... and the
reason,
And you'll score with that
sure RM touch.
WE HAVE THE WORLD'S BEST EQUIPMENT... Take care of it

COOLING SYSTEM

It works harder in summer



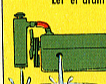
JUST ONE EXCEPTION

Don't drain vehicles which must be maintained "combat ready" unless you've got enough anti-freeze on hand or you know there's enough in the area to give 'em protection for next winter

NOW BY THE NUMBERS...

1. Open radiator cocks, engine block drains

2. Let 'er drain!



3. Close cocks

4. Fill 'er up with this dandy solution

5. Run engine for about ½ hour

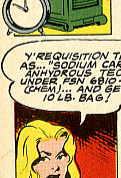
6. Drain

7. Refill with clean water

8. Run for 10 minutes

9. Drain

10. Refill again

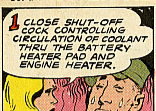


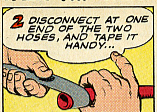
*If the rust and dirt still clings, then and **only** then try engine cooling system compound FSN 6850-272-9327 (ORD)

**If you only want rust inhibitor, order FSN 6850-281-1989. It's an Ordnance item, comes in a 5 ounce carton

INHIBITOR, CORROSION LIQUID, COOLING SYSTEM

Got a **WATER HEATER ?...** Do this (after your engine's been flushed).

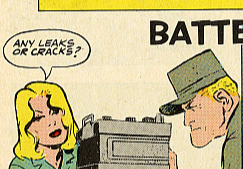




LEAKS AND SEEPS

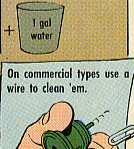
Look for leaks in radiators, hoses and connections, water pumps, etc. Find any... Fix 'em. Wrap up this inning with some seepage insurance. Add one pellet of compound, cooling system conditioning and anti-seepage, for every eight quarts of water in cooling system. FSN 6850-664-0491 (ORD) gets one pellet.

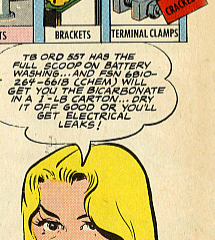
BATTERY

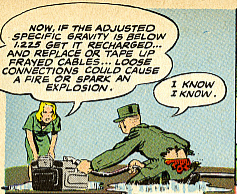


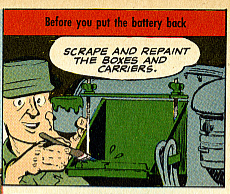
Wash 'er good with soap and water and keep the bicarb out of the cells, then, dry 'em.

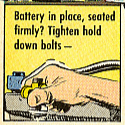
½ lb sodium bicarbonate + 1 gal water





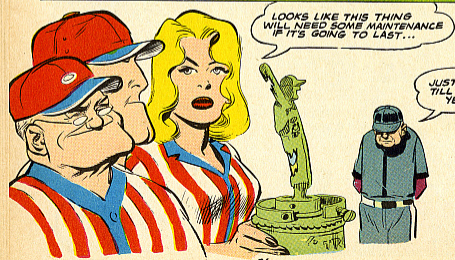




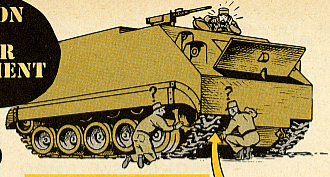


HOW'S YOUR SCORE CARD LOOK?

	HIT	ERROR		HIT	ERROR
COOLING SYSTEM	☐	☐	ELECTRICAL	☐	☐
WASHING	☐	☐	STEERING	☐	☐
LUBRICATION	☐	☐	BATTERY	☐	☐
RUST SPOTS	☐	☐	HEADLIGHTS	☐	☐
BRAKES	☐	☐	TIRES	☐	☐



QUESTION AND ANSWER DEPARTMENT



FIVE-STAR FINAL

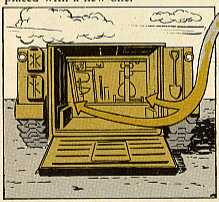
Dear Half-Mast,

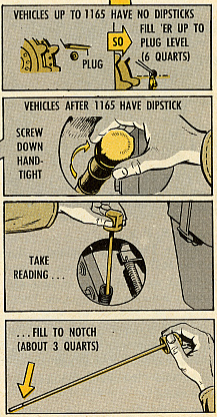
That final drive on the M59 Armored Infantry Vehicle has me wondering. Some have dipsticks and others don't. How come?

SFC M. K. Y.

Dear SFC M. K. Y.,

All M59's before vehicle No. 1165 did **not** have dipsticks in their final drives. If you find a vehicle with a number before 1165 that does have a dipstick, you can bet your final dollar that the original final drive's been replaced with a new one.





If the final drive doesn't have a dipstick, fill it with oil to the filler plug level. It'll hold about 6 quarts of oil.

If the final drive has a dipstick, fill it to the notch on the stick. It takes about

three quarts of oil to fill the final drive to the notch on the dipstick. Don't let the difference in oil capacities throw you . . . follow the TM for the old final drives, and the new info for the later models.

By the way, the right way to use that dipstick when checking the oil in the final drive is to screw the dipstick down hand tight before removing it to take a reading.

It appears as if, sooner or later, all M59's will have dipsticks in their final drives. The older assemblies without dipsticks are being phased out.

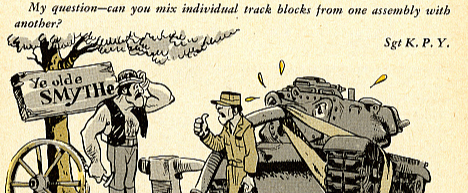
TRACKIN 'EM DOWN

Dear Half-Mast,

Understand there are three types of tracks for the M47 tanks—a rubber chevron track called the T84E1, FSN 2530-704-9657, a steel track called the T80E1, FSN 2530-704-4266 and another steel track called the T80E6, FSN 2530-738-6994.

My question—can you mix individual track blocks from one assembly with another?

Sgt K. P. Y.



Dear Sgt K. P. Y.,

No dice. They can't be mixed, so don't try it. If you use a T84E1 rubber track on your M47, you have to use the same track blocks all the way through—you can't stick any steel blocks in there with 'em.

As far as the steel tracks go, the T80E1 is about a ½ inch lower than the T80E6, so their track blocks can't be mixed either.

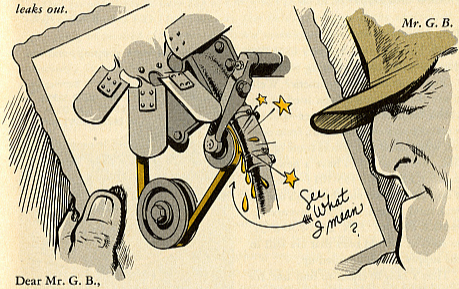
Now, what can be mixed are the track pins. There are two kinds—hollow and solid—and either kind can be used with any one of the three tracks. You can also use a combination of solid and hollow pins with your track. In other words, if you don't have enough of the solid pins, you can fill in with the hollow—or t'other way around.

For the full dope on tracks, see TB ORD 562 (16 Dec 55).

Dear Sgt Dozer,

I've noticed that some of the troops are using too long a fan belt on the 5-KW Onan model WC4-7.5S generator set. The generator has the internal V-type idler pulley arrangement. The trouble with a belt that's too big comes when you try to adjust it to the proper tension. To get the belt adjusted right, the idler pulley has to be drawn out until it hits the radiator outlet hose. The hose gets cut and coolant leaks out.

Mr. G. B.



Dear Mr. G. B.,

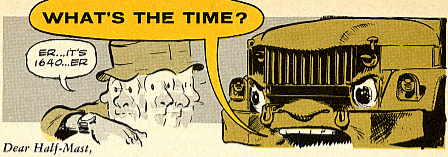
Thanks for the tip. Naturally, all equipment should have the right size V-belts . . . and have 'em properly adjusted. That goes double when the wrong size belt can ruin a radiator hose, like on this model Onan generator.

Eng 7 & 8 5045 (Sept 1954) tells you to use this size and type fan belt on the Onan model WC4-7.5S generator:

BELT, V: rubberized fabric, with fiber cords, 1 ply, lightweight; $2\frac{1}{32}$ overall width, $\frac{1}{32}$ thick, 40-degree angle; 34-outside circumference. Requisition it under FSN 3030-239-4890.

If you have this model Onan, give the fan belt a check. Getting the right belt and having it adjusted properly doesn't take much, and it'll save a lot of trouble.

Sgt Dozer



Dear Half-Mast,

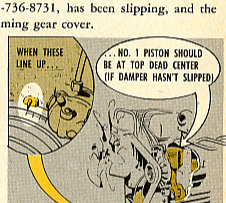
What's what with some of the G742-series 2½-ton trucks? We just can't get timing marks on the vibration dampers to line up right when we time the vehicles. What's the mystery?

MSgt T. P. K.

Dear MSgt T. P. K.,

It's because that damper, FSN 2805-736-8731, has been slipping, and the damper has been interfering with the timing gear cover.

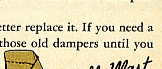
Ever hear of butyl synthetic? Well, that's the stuff that's been used in the elastic member of this damper—and it's a real slippery character. But, from now on, when those new trucks come off the line, they're going to have a new type damper, FSN 2805-333-5014—one with a neoprene elastic member. This one's a real solid citizen, and will eventually replace damper, FSN 2805-736-8731, as soon as the old ones that are still in the supply system are used up.



Here's how to check to find out for sure whether you have damper slippage:

When the top dead center mark on the damper is placed opposite the pointer, piston No. 1 should be at top dead center. To get No. 1 on TDC, get No. 6 intake valve open, which puts No. 1 intake valve on the base diameter of the cam. Then, set No. 1 intake valve lash at .045 of an inch. Rotate the engine forward until No. 1 intake cam begins to raise the push rod. Stop this forward rotation when the clearance between No. 1 intake and the rocker arm has been reduced to .029 of an inch. At this point, No. 1 piston is at TDC. This method is accurate to within plus or minus 3 degrees.

If you find the damper has slipped, then you'd better replace it. If you need a new timing gear cover, put it on. Keep checking those old dampers until you get the new non-slippery type.



Dear Sgt Dozer,

We've got a big argument going here on whether a DD 110 is required when a weekly or monthly check is being done on Engineer equipment with a DA Form 464.

One group interprets para 22g of TM 5-505 to mean that equipment is always dispatched with a DD 110. They say this holds true even if the equipment is not going to be used other than while the maintenance is being done.

The other side says that an item of equipment does not require a 110 during a weekly or monthly check unless the equipment is going to be operated after the check is pulled.

Who wins?

CWO W. H. J.

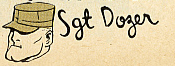
Dear Mr. W. H. J.,

The second group takes most of the marbles. I can see where a strict interpretation of the first sentence of para 22g in TM 5-505 could cause quite a debate. But it isn't necessary to use a DD 110 while you're pulling a weekly or monthly with a 464. But if the equipment is to be operated after you pull the maintenance, you need a DD 110.

Look at it this way. A 464 not only covers all the maintenance checks on a 110, it covers a whole lot more. So if you fill out both forms just for a weekly or monthly service, you're not accomplishing anything but double paperwork.

The 464 also gives you authority to operate equipment **during an inspection.** But—if you're going on a road test or something like that, check the local ground rules on the trip ticket. On most posts, a DD 110 is required if you're going to move something out of the motor pool for testing.

Cut out paperwork, administrative detail and red tape every place you get the chance. It's good for what ails you.



WATER THRU THE DAM?

Dear Half-Mast,

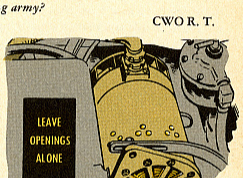
Any vehicle that has the 100-amp system is about as waterproof as my last winter's shoes—and no amount of kit, paraffin or glop is going to do anything about it.

Question: What does this do to our fording army?

CWO R. T.

Dear CWO R. T.,

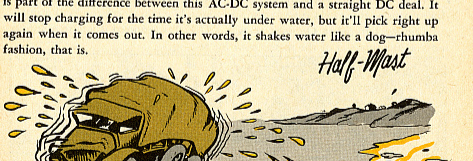
Answer: Nothing. And, here's a word of advice, Sir—stop using that glop on those 100-amp system parts.



That alternator is built the way she is on purpose. She has a fan and has air holes right through her. Means that cooling air comes in, is circulated and cools the baby off when she's hot. Without these holes, your alternator would last just about as long as a polar bear in Africa.

Now, this doesn't mean you can't put that system under water—you can. This is part of the difference between this AC-DC system and a straight DC deal. It will stop charging for the time it's actually under water, but it'll pick right up again when it comes out. In other words, it shakes water like a dog—rhumba fashion, that is.

Half-Mast



GET YOUR PUBS HERE

Dear Sgt Dozer,

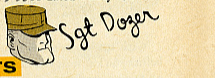
I can't get pubs for the Keco Model F-9 air conditioner or Detroit Diesel generator Model 4907A. Can you give me a clue?
SP2 J. F. O.

Dear SP2 J. F. O.,

There's only one Army manual that'll help you, but you can get manufacturers' publications to cover everything else. Requisition 'em through Engineer repair parts channels, just like an ordinary repair part.

On the Keco Model F-9 air conditioner, you'll get one manual with service, maintenance, and operating instructions. It also has a parts list.

You'll need two pubs for the Detroit Diesel Generator set, Model 4907A: General Motors instruction manual, Form #6SE64; and General Motors maintenance manual, Form #6SE55. For parts, get ENG 7, 8, & 9-5310 dated 2 May 1956.



A-FRAME KITS

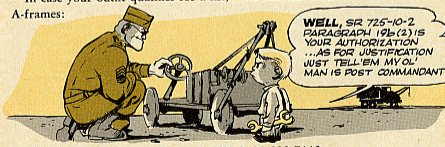
Dear Half-Mast,

How can this organizational maintenance outfit get A-frame kits? We've heard that we could, and we would like to have them—they'll sure help us out.
Lt P. T. Y.

Dear Lt P. T. Y.,

Those A-frame kits are mainly authorized by an outfit's TOE. But, if you **don't** have it listed in your TOE and your work requires a kit, then maybe your CO can requisition one. SR 725-10-2 para 19 b (2) is his basis of authorization for requisitioning the kit, and his justification is the fact that his outfit's work requires it.

In case your outfit qualifies for a kit, here are the stock numbers for those A-frames:



For the M38 and M38A1 Jeeps, FSN 3830-833-7113.

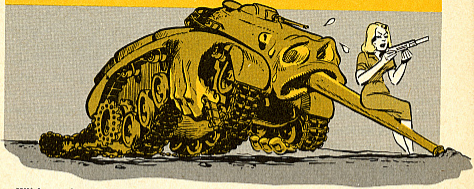
For the G741 ¼-ton trucks, FSN 3830-833-7114.

For the G742 and G749 2½-ton trucks and the G744 5-ton trucks, FSN 3830-833-7178.

Half-Mast

TRACK TENSION SPECS

GOT YOUR SAG?

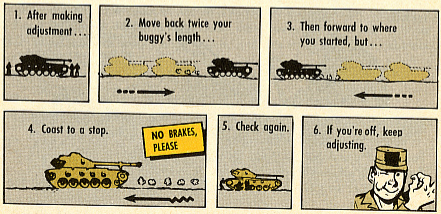


With track tension, it's gotta be just right—or it's all wrong. If it's wrong, before you know it, you're creeping slaunch-wise, tearing up grousers—or setting up thrown tracks, worn center guides, road wheel flanges and end connectors.

If those tracks flap like a carefree buzzard or quiver like a banjo string you'll soon be in for some hard work.

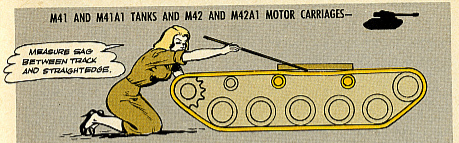
To save yourself a sore back from replacing track scan these paragraphs. They'll tell you just how to take up slack and what your track tension should be.

First, and this goes for all tracked vehicles, except the M44 155-mm self-propelled howitzer, the M52 105-mm self-propelled howitzer, the M55 8-in self-propelled howitzer and the M53 155-mm self-propelled gun—coast the vehicle to a stop on level ground, without hitting your brakes. This'll equal up track tension on all parts of the track.



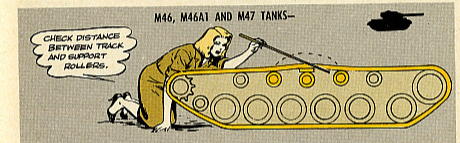
Now, here's how to adjust track tension for your vehicle—

M41 AND M41A1 TANKS AND M42 AND M42A1 MOTOR CARRIAGES—



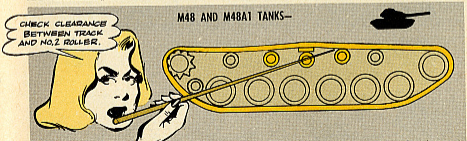
Lay a straightedge on top of the track so that the ends are over the front and center support rollers. Halfway between the two rollers, measure the sag between the bottom of the straightedge and the top of the track. It should be over $\frac{3}{8}$ of an inch and under $1\frac{1}{8}$ inch. If it isn't, adjust like TM 9-730 says for the M41 and M41A1 tanks and TM 9-7218 says for the M42 and M42A1 motor carriages.

M46, M46A1 AND M47 TANKS—



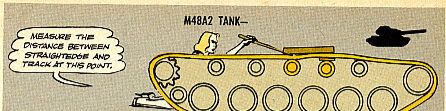
Take off the three forward dust shields and put a supporting roller cam or $1\frac{1}{8}$-in wood block on the outside of the center support roller. Then drive the vehicle forward so that the track will be lifted $1\frac{1}{8}$ inches over the roller. There should be a $\frac{1}{4}$-in clearance between the track and each support roller next to the center roller. If the tension isn't right, adjust like it says in TM 9-718 for the M46 and M46A1 or TM 9-718A for the M47.

M48 AND M48A1 TANKS—



Get a track shoe centered over the No. 3 support roller when coasting to a stop. Then place a 1x6x6 block between the No. 3 support roller and the track. Measure the clearance between the track and the No. 2 support roller—it should be between $\frac{1}{8}$ and $\frac{3}{16}$ of an inch. If not, adjust like it says in TM 9-7012.

M48A2 TANK—

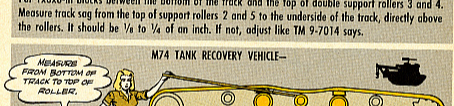


Put a 1x6x6 block between the No. 2 support roller and the track. Put a straightedge on the top of the No. 2 and No. 3 support rollers. Then, measure the clearance between the straightedge and the track at a point midway between the No. 2 and No. 3 support rollers. Track tension should be from 1/8 to 3/16 of an inch clearance at this point. If not, adjust the track adjusting link until you get this clearance.

M103 TANK—

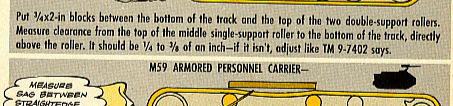
Put 1x6x6-in blocks between the bottom of the track and the top of double support rollers 3 and 4. Measure track sag from the top of support rollers 2 and 5 to the underside of the track, directly above the rollers. It should be 1/8 to 1/4 of an inch. If not, adjust like TM 9-7014 says.

M74 TANK RECOVERY VEHICLE—



Put 3/4x2-in blocks between the bottom of the track and the top of the two double-support rollers. Measure clearance from the top of the middle single-support roller to the bottom of the track, directly above the roller. It should be 1/4 to 3/8 of an inch—if it isn't, adjust like TM 9-7402 says.

M59 ARMORED PERSONNEL CARRIER—



Lay a straightedge on top of the track and measure the sag between the bottom edge of the straight-edge and the top of the track. It should be over 3/4 of an inch and under one inch. If it isn't, adjust like TM 9-7002 says.

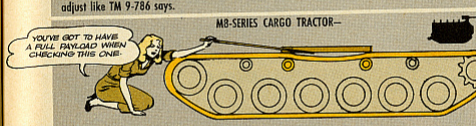
M75 ARMORED PERSONNEL CARRIER—

Lay a straightedge on top of the track over the 2nd and 3rd track rollers. Measure the sag between the bottom edge of the straightedge and the top of the track. It should be over ⅛ of an inch and under one inch. If it isn't, then adjust like TM 9-7418 says.

M5-SERIES 13-TON HIGH SPEED TRACTOR—

Lay a straightedge on top of the track between the two idlers and measure the sag between the bottom edge of the straightedge and the top of the track. It should be over ½ inch and under ¾ inch. If not, adjust like TM 9-786 says.

M8-SERIES CARGO TRACTOR—



When checking or adjusting track tension, the tractor must have a full pay load. Lay a straightedge on top of the track between the 2nd and 3rd idlers and measure the sag between the bottom edge of the straightedge and the top of the track. It should be over ⅜ of an inch and under one inch. If not, adjust like it says in TM 9-7420.

M6 38-TON HIGH SPEED TRACTOR—

Lay a straightedge on top of the track between the 1st and 2nd or 2nd and 3rd idlers and measure the sag between the bottom edge of the straightedge and the top of the track. It should be over ½ inch and under ¾ inch. If not, adjust like TM 9-788 says.

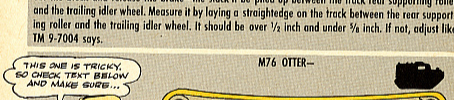
M55 8-IN SELF-PROPELLED HOWITZER AND M53 155-MM SELF-PROPELLED GUN—

Coast to stop on level ground in reverse gear. Lay a straightedge on top of the track between the front and middle support rollers. Measure the distance between the bottom edge of the straightedge and the top of the track. If you have rubber track T84E1, it should be one inch; if you have steel track T80E6, the distance should be 1 1/8 inches. If not, adjust like it says in TM 9-7212.

M44 155-MM SELF-PROPELLED HOWITZER AND M52 105-MM SELF-PROPELLED HOWITZER—

Take up the slack by putting a 4x4-in block under the track—right against the trailing idler wheel. Back the vehicle against the block until the track is tight. Now, set the brake and turn off the engine. Knock out the block and release the brake—the slack'll be piled up between the track rear supporting roller and the trailing idler wheel. Measure it by laying a straightedge on the track between the rear supporting roller and the trailing idler wheel. It should be over 1/2 inch and under 5/8 inch. If not, adjust like TM 9-7004 says.

M76 OTTER—



Measure from the top of the second tire (front tire of the intermediate suspension) to the bottom of the track, directly above the tire. Clearance should be 3 3/4 inches. If not, adjust like it says in TM 9-7604.

TREAT 'EM ALIKE

Your M42 twin 40-mm self-propelled guns are like twin people—they look alike—and they should be made to act like mirror twins.

What you do is make sure you fire each twin about the same amount of time as the other. Too much firing of one gun wears it out faster'n the other one.

And, when you're not shootin' for a spell, release the breechblock to take tension off the breechblock closing springs and the firing pin springs.

WIRE IT FAST

A question: Do you fire any of these combat vehicle-mounted weapons... the M32 76-mm, M54 90-mm, M36 90-mm, or M41 90-mm guns...the M49 105-mm howitzer... or the M58 120-mm gun?

Another question: Have you been keeping an eye on the screw that fastens the muzzle brake lock to the muzzle, counterweight or deflector? The old eagle eye'll tell you the screw loosens up now and again after you get through with more'n a little shooting.

The answer: Call in your support unit. They have the scoop on how to run some locking wire FSN 9505-596-1648 (Eng), through the head of the hex screw that holds the lock to the muzzle, counterweight or deflector.

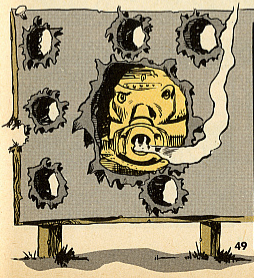
On the 76-mm gun . . . the wire goes around the brake or through the hole in the lock and then is twisted tight.

With the other weapons . . . the wire goes through the screw head and around the key projection before it is twisted tight—like so.

KNOW YOUR AMMO

You wanna make the 90-mm gun in your M47 tank a better shooter?

All it takes is to bring the facts and figures on your M12 range finder's ammo data chart up to date. The chart should look like this:

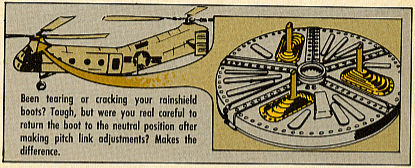


AMMO DATA CHART

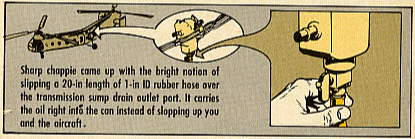
AMMO	MV F/S	NO.
HVAP-T M304 HVTP-T M317A1 & A2	3350	40
HVAP-T-M332A1 & B1A1 HVTP-T M333A1	3825	28
HE-M71 (WPM313)	2700	56
HE-T T91 (WP-T 192)	2400	74
APC-T M62	2800	54
AP-T M318A1 (T33E7)	3000	47
HEAT T108E46	2800	63
HEAT T108E45	2800	64
HEAT T108E40	2800	62
HEP-T T142E3	2600	77
0.50 CAL		73
0.30 CAL		90
BORESIGHT 0	8567512	

GROOMING YOUR SHAWNEE

Here's some odds and sods about your Shawnee (H-21) aircraft that may be new to you.



Been tearing or cracking your rainshield boots? Tough, but were you real careful to return the boot to the neutral position after making pitch link adjustments? Makes the difference.



Sharp chappie came up with the bright notion of slipping a 20-in length of 1-in ID rubber hose over the transmission sump drain outlet port. It carries the oil right into the can instead of slopping up you and the aircraft.

HOLD THE HOSE

It's hard to believe, but some people fueling a Bird Dog (L-19) are still letting the fuel nozzle function as a crowbar and break the baffles in the fuel tank.

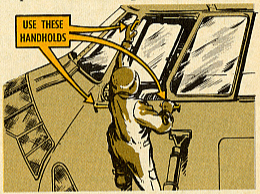
You've gotta support the weight of that hose by your hands while you're filling the tanks. You can't just hang the nozzle in the tank and go away and leave it.

GRAB THE HANDHOLDS

Hear tell there's a chopper driver eatin' off the mantelpiece these days. He was climbing into the office from the outside of a Choctaw (H-34), which is perfectly OK, but he grabbed hold on the slidin' window instead of the handholds.

Bein's that slidin' window is designed to let go easy in case of emergency, it came off in his hand, and he made a personal crash landing on the ramp. Painful, it was.

Remember, that window is rigged to jettison, and it's rigged that way for your safety. In case you ever want out real bad, you can belt the window outta the way and come out pronto. But, by the same token, you can't depend on the window to pull yourself up into the greenhouse. Use the metal loop handholds instead; they're stressed to take it.



FIRST PRINCIPLE

Dear Editor,

As you know, in aircraft maintenance, nothing at all can be left to chance, because men's lives depend on the work being done exactly right.

Here's a picture of one of our wall signs that helps drive this home. These signs are in all the maintenance shops of the Army Aviation School at Fort Rucker. They remind the mechanics that we never never give anybody a hard time if he asks for advice. But we won't stand for guesswork for a minute.

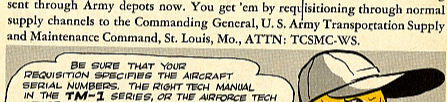
So we have a safety record we're proud of.

CWO George J. Holton
Fort Rucker, Alabama

ARMY AIRCRAFT

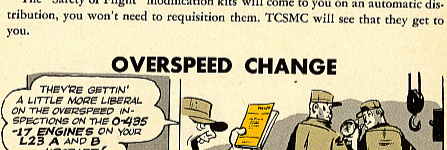
Step right this way, gents, and give a quick look at SB 1-15-9 (19 Mar 1957). This Department of Army supply bulletin gives the word on the distribution of all modification kits for Army aircraft.

You see, all these kits, except "Safety of Flight" modifications, are being sent through Army depots now. You get 'em by requisitioning through normal supply channels to the Commanding General, U. S. Army Transportation Supply and Maintenance Command, St. Louis, Mo., ATTN: TCSMC-WS.



The "Safety of Flight" modification kits will come to you on an automatic distribution, you won't need to requisition them. TCSMC will see that they get to you.

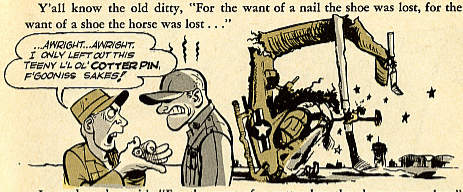
OVERSPEED CHANGE



The new allowance is 3510 to 3600-RPM—inspect according to TM 1-2R-1-15 . . . 3600-RPM and over—remove the engine and return for overhaul.

HORSESHOE NAIL, ANYBODY?

Y'all know the old ditty, "For the want of a nail the shoe was lost, for the want of a shoe the horse was lost . . ."



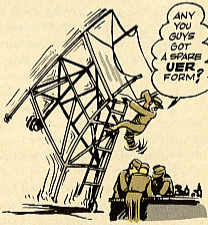
In modern dress, it's "For the want of a cotter key the chopper was lost." Pilot on a "Ravin' Raven" had his right rudder pedal fall slack, and he clobbered his bird, a 90 per cent washout. Fortunately, nobody hurt.

So wha' hoppen? Somebody left out the "Safety Pin" (cotter key) from the bolt that holds the tail rotor control cable to the pedal. Natch the nut came off, and natch the bolt wiggled out, and natch the bird didn't fly so good.

You, of course, are not a clobberhead, and you, of course, are always just as careful as a man can be that no silly little oversight is going to cost your ship. That's why you are a good air mechanic.

TILT!

A fella sez that when he ran his new maintenance platform, FSN 1730-084-7577, up to its full seven-foot height it sorta tried to buck him off when he climbed the ladder. He sez that if you have a tool box on the ladder side of the platform the beast gets real skittish and tries to fall over on you.

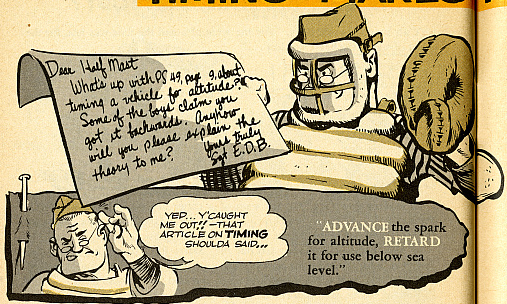


All this makes everybody real unhappy since there's plenty of booby traps around a hangar at best, without adding an unstable work stand.

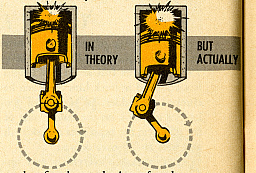
So if you've got this problem, fire off a UER (DA Form 468). The Transportation people can make a real thorough investigation and come up with a stand that'll stand.

Meanwhile, if you've gotta use it, take it easy.

TIMING MAKES THE DIFFERENCE



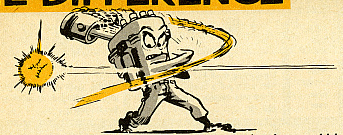
Theoretically, you'd fire the spark in a cylinder right at the top of the compression stroke. Upper dead center they call it. That is, when you wanted the mixture to start burning and pushing down on the piston, you'd fire it off. In practice, this wouldn't work too well, because it takes a little time for the spark plug to ignite the mixture and for the flame to spread through the whole charge. Just a fraction of a second, mind you, but with an engine turning over two or three thousand revs a minute, the crankshaft turns several degrees in that fraction of a second.



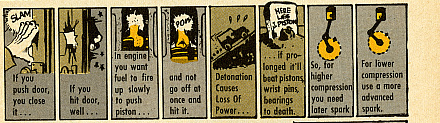
So they advance the spark. That is to say, they fire the spark plug a few degrees before the piston gets to the top of the stroke. This way, the fire is already burning good when the piston starts down, and so gives the maximum possible push.

And you can see that the faster your engine is turning, the farther you'd want to advance your spark, bein's the time lag stays about the same.

This is why you have the centrifugal advance mechanism in your ignitor or distributor to advance your spark as your engine speed increases.



Only, it's not all that simple. There are some other factors which have to be allowed for, since they affect the speed at which the fuel charge ignites. The one you are most concerned with right now is compression. The higher the compression in your cylinder, the quicker the ignition. If this is carried too far, the mixture fires off all at once, or detonates. This is most ungood for your engine. Like this . . .

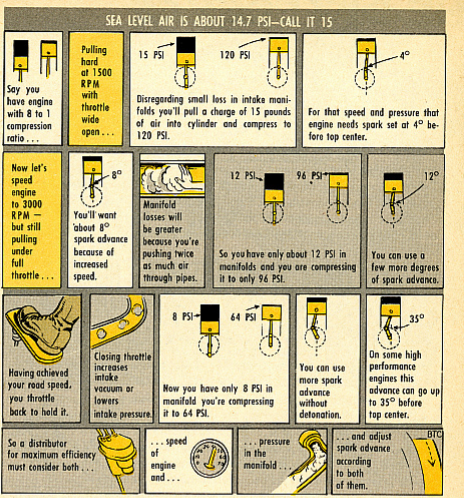


But, the plot thickens, as the old mellerdrammers used to say. You see, the compression you are concerned with here is the actual pressure, in PSI, of the gas charge in your cylinder. And this charge varies with varying driving conditions. First of all, you only arrive at the maximum cylinder pressure when you are using full throttle under load. When you are at full throttle at top speeds the limitations of your induction system (air cleaner, carburetor, intake manifolds and intake valving) cause a partial reduction of the charge in the cylinders. And of course, when you have the throttle partly closed, this restricts the flow of air, and reduces the charge in your cylinders. Simply put, the compression pressure of the cylinder will vary with the pressure in your intake manifold. It will be approximately the actual pressure in the manifold multiplied by the compression ratio of your engine.

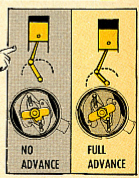
Wait a minute—I know you're gonna remind me that intake manifolds have a vacuum. But even a partial vacuum is a pressure, it's just less than atmospheric.

Now, leave us take some purely arbitrary figures to make the calculations simple, and see what we have to reckon with in setting a spark.

Sea level air is about 14.7 PSI, call it 15.

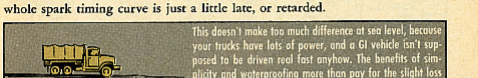


If you'll look at your family car, you'll likely find a vacuum line from the manifold or the carburetor running to a little round housing by the distributor. There's a spring-loaded diaphragm in that housing that measures the manifold pressure and shifts the distributor a little bit to retard the spark when the pressure increases. At the same time there's a centrifugal weight device in the distributor which advances the spark as the engine speed increases. These two devices work together to give you the best possible spark setting for both speed and manifold pressure.



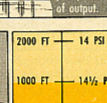
So they eliminated the vacuum diaphragm portion of the automatic spark control, and worked out a good compromise between the centrifugal spark advance curve and combustion chamber shape that gets good results without it.

But, every time you compromise you have to give something up. In this case, to get a spark curve that would not detonate at full throttle under load, they had to sacrifice a little of the performance at higher speeds with part throttle. The whole spark timing curve is just a little late, or retarded.



This doesn't make too much difference at sea level, because your trucks have lots of power, and a GI vehicle isn't supposed to be driven real fast anyhow. The benefits of simplicity and waterproofing more than pay for the slight loss of output.

At real high altitudes, like 5000 ft and over, two problems come up. One of them is that at altitude atmospheric pressure is less.

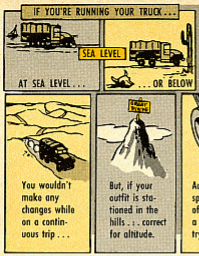


It falls off ½ PSI for every 1000 feet above sea level.

The air is less dense and you get less of it into the cylinder on each intake stroke since weight of combustible mixture in cylinder determines power output. Your engine isn't as powerful at altitude.

At the same time, since you are not taking in air at the full 15 PSI into your cylinders, your compression is not so great. If your local air pressure is only 12 PSI, your cylinder pressure will only be 96 PSI. Which, as I said before, will allow a greater spark advance. And bein's as you're not getting full horsepower from your engine, any little thing you can do to improve your performance is much more important than it was at sea level.

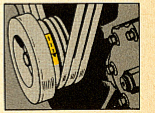
Since this lighter air is the same at all engine speeds and driving conditions, and since your automatic spark advance is able to take care of changing speeds, you can advance the spark by rotating the distributor housing (like the TM's show you) and the advance will be the same at all speeds. The amount of advance will depend on the altitude at which you are regularly working the truck and the nature of your work. It may go as high as six degrees in advance of the sea level setting.



A while back I told you that you had two problems when operating a vehicle at high altitudes. The second one is mixture control. Your carburetor mixes gasoline and air, but it mixes them by **volume**. In other words, every so many cubic feet of air passing through your carburetor will pull a gallon of gas out of the jets. But, the richness or leanness of your mixture is actually determined by **weight** again. You want one pound of gasoline for every 15 pounds of air, more or less, for the most efficient fuel mixture.

Well, the way your carburetors are made, at sea level and thereabouts, you'll get this mixture. But up in the high hills, where the air doesn't weigh as much per cubic foot, you get troubles. Your carburetor keeps on pumping the same gallonage of gas into the same cubic footage of air. But while the air is lighter at altitude, the gasoline weighs just as much per gallon as it did at sea level.

So your mixture is on the rich side. In civilian practice you get around this by using smaller main jets or a different metering rod in the carburetors. But in the Army, the trucks must be kept ready to serve in any place in the world, so you can't do this. Military vehicles will do pretty well anywhere you take 'em with their standard carburetors, but this condition does cause some loss of power at altitudes. (Just one more reason you need the little advantage you can gain by advancing your spark.) You see, the difference is this: You can re-set your spark in a matter of minutes and without disassembling the truck. But changing the carburetor jets or metering rod calls for extra parts and a skilled carburetor mechanic. So you won't find high-altitude parts for military carburetors available for issue.

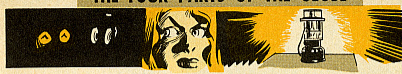


I hope this clears up the problem for you.

Cordially,

Half-Mast

THE FOUR PARTS OF THE GLOBE



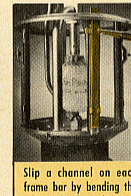
The time has come for the one-piece globe for the gasoline lantern to give way to a new four-piece model. And four pieces of glass are a heap sight better'n one.

When you crack the one-piece globe, you're in the dark until you can latch on to a new one. And they're hard to come by. But when the new-type globe is broken, you can just knock off a little piece of glass and substitute a quarter section. The quarter-section (or quadrant) will be easier to get ahold of since there'll be more of 'em around. And they'll be a lot handier to carry as spares.

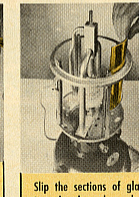
The new globe comes in a conversion kit, complete with four globe sections and the necessary runners, or channels, to slide 'em into. So next time you bust your big glass, just ask for Conversion Kit, quadrant globe, gasoline lantern, FSN 6260-174-2000 (QM).

Converting a lantern takes less time than clearing the main gate at pass time. Instructions are included with each kit.

After lifting off the ventilator and the busted globe,



Slip a channel on each frame bar by bending the tabs on the channel around the bar. The tabs go on the outside.



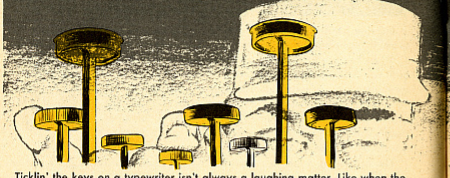
Slip the sections of glass into the channels, replace the ventilator, and fire away.

After your lantern's converted, order replacement parts only—not the kit.

For the globe sections only, ask for Quadrant, globe, gasoline lantern, FSN 6260-174-3874. You'll get four sections.

For the channels only, call for Channel, globe, gasoline lantern, FSN 6260-174-3873. You'll get four.

YOU'RE THE KEY MAN



Ticklin' the keys on a typewriter isn't always a laughing matter. Like when the keys stick or bunch up or don't make a mark at all or give a crooked line of type.

Like always, preventive maintenance will keep those mechanical writers on the line 100 percent. And, like always, the operator himself is the man for the job.

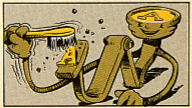
This check list of key tips will keep any machine up to the minute and ready to fire whenever ya' whip the cover off...

Erase with the carriage to the right or left. Otherwise, bits of rubber from the eraser will fall down into the type segment and jam up the works.

Dust and brush the typewriter every day.

Replace the ribbon carefully. Whenever possible, use a ribbon that's made 'specially for your machine. All current models take ½-in ribbons, so they'll fit any spools now in use.

Clean the platen with alcohol occasionally. And to keep that rubber roller smooth firm, try a double thickness of paper. That second sheet will act as a cushion to absorb any extra imprint that otherwise would cut into the roller. Clean the type face frequently if you're cutting stencils or using a heavily-inked ribbon.



If the machine sits on a rolling stand or table, keep it from taking a nose-dive by hanging onto it when moving the stand.

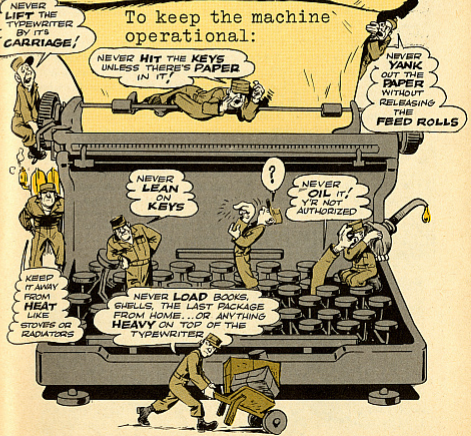
Cover the typewriter when it's not in use.

And that's all! When parts start fallin' off and the carriage goes left when it should go up—throw the cover on and wait for reinforcements. It takes special know-how to repair a typewriter, so leave the tinkering up to the experts.

Comes a time when the best way to stay out of an ambush is NOT to get caught doin' certain things. And here's half a dozen traps in operating a typewriter that'll take them out of action pronto.

Typewriters are tough and they'll come up fighting every time if given a fighting chance. They're a bargain at the low, low cost of simple preventive maintenance.

To keep the machine operational:



If you've ever had the unhappy experience of getting water into the gas tank of your car you know what happens—the engine sputters, coughs, and finally conks out.

Too much water in the water separator of your M5 mixing and transfer unit can cause just as much trouble. In fact, if you let the water level get too high, the next time you want to mix up a batch of incendiary oil for your flame throwers your mixture won't gel.

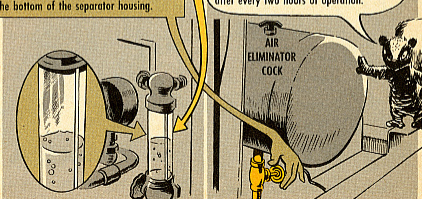
You see, when gasoline is pumped through the unit, it enters the water separator. Inside the separator are three cartridges which filter out any sediment or water that's in the gasoline. When too much water gets into the separator it'll keep the cartridges from filtering out any more and you have to drain the excess off before your unit'll be able to do its job again.

There's another important reason to drain off that excess water. In winter if there's too much water in the separator it'll freeze and gasoline can't go through.

Best way to keep this from happening is to keep close tabs on the sight glass on the side of the separator housing. When you can see the water level about one inch below the center of the sight glass, you know it's time to drain it off.

Just open the drain valve. You'll find it at the bottom of the separator housing.

And while you're doing this, it might be a good idea to take a minute to open the air eliminator cock on top of the separator. This will get rid of any air or pressure that's been built up in the unit by gasoline fumes during the last operation. Pressure keeps building up while you're operating the equipment, so tap that cock after every two hours of operation.



CONTRIBUTIONS

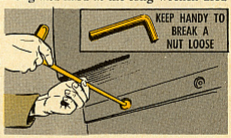
QUICK LOOSENER

Dear Editor,

The guys around used to have a long face whenever I'd mention about removing the hex-socket screws holding the elevation trunnion covers on the Nike-Ajax acquisition antenna. You couldn't blame 'em because there're plenty screws and you took 'em out with a stubby socket head wrench.

With many of the screws, we could only make a half-turn with the wrench. This meant a lot of time spent in turning the wrench... removing it... inserting it again... turning it... and on and on.

Then one day one of the guys looked long and hard at the long wrench used on the access door of the event recorder. The gears began to mesh—and, when he compared the wrenches, he found both were 7/32-in hexes. We use the big wrench on the trunnion covers now and there's no more sweat.



WO J. F. Doyle
36th AAA Missile Bn

(Ed Note—Right smart idea. You can really spin those screws loose in a hurry. But keep the socket head screw wrench handy so's you can break loose the tight screws. The other wrench isn't built for heavy work.)

IN THE SQUEEZE

Dear Editor,

Two inches... that's all you gotta move the handrail on the cab of the Shield Bantam Crane, Model ABM-53, to save yourself some banged knuckles or busted digits.

The way it's set up now, when you wrap your fist around the handrail and open the cab door from the outside, the door hits your hand. If your hand gets

hit and you lose your grip while balancing on the tire, you could fall flat on your kisser.

Moving the handrail two inches toward the front of the cab . . . away from the door . . . will prevent it.

Spin the nuts and washers back on and you're in business.

Cpl Fred Bolan,
Camp Drum, N. Y.

WATER TRAP

Dear Editor,

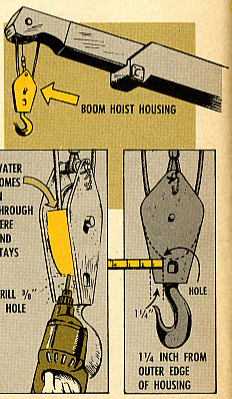
Have you ever noticed what a storehouse of water that cup-like housing which covers the cable on the crane of your M62 5-ton wrecker can be? Probably not, because you can't see the water.

But, you sure can feel it if you happen to be standing under the crane as you play out the cable. She comes pouring out on you.

So because rusted equipment means extra work, all we did was drill a little hole in the bottom of that curved plate. Now, when that water catch-all catches, it doesn't hold, because out the water drips.

Suggest other guys with the wrecker do the same.

The Gang
104th Armd Engr Bn
New Jersey National Guard



(Ed Note—Good Idea, but just to fill it out a bit, here's the dimensions to drill into that boom-hoist housing. That hole should be ⅜ of an inch in diameter and should be placed 1¼ inch from the outer edge of the housing.)

Connie Rodd's BRIEFS

New breed

Any new tires or tire flaps you get for your wheeled vehicles that have the letters OZ on 'em are a special breed. They're ozone-resistant tires, and they'll stand the weather better. They don't need any strippable coating, like other tires, when parked outside for a long time. They're particularly good for those NIKE and M33 FCS vans, which have to stay put for time on end.

Installation switch

Forget what you've heard about the crew of an M44 155-mm self-propelled howitzer being able to requisition and install a T95 firing lock as a replacement part. From now on . . . it's strictly the gun mechanic's job to requisition and install this lock—on the organizational level, that is.

An FSN to remember

If you have trouble ordering the inner oil seal for your hub bearings, it may be the stock number you're using. FSN 2530-740-9550 brings home the bacon for vehicles covered by these SNL series: G744, G750, G751, G755, G800, and G802.

Pictures are deceiving

When you looked at the special tools for the 2½-ton Reos and Studebakers in PS 60, did your eagle eye rest on that second picture on page 12? The stock number was right (FSN 5120-795-0404), but here's what the nomenclature and picture should have looked like: Wrench, Flange, ½-in sq-drive, 1-in thk, 7-in diam (air compressor pulley).

New GAA

If you come across a can of GAA with Mil Spec MIL-G-10924A, it's OK—you can use it to grease your wheel bearings, just like you can use GAA Amendment 2 or 3. This grease—the one with the A at the end of its number—is something new. It's supposed to be a general, all-round grease that can be used for anything.

Hull-a-ba-loo

You can expect to have trouble soon with the hull drain valve on your tracked vehicle if you don't do something now. That drain valve'll stick when rust, corrosion, and debris gather 'round. To make sure yours keeps working right, open and close that drain valve a few times daily—when you do your daily PM service would be a good time.

USE IT WHERE IT BELONGS—

IN YOUR GAS TANK