

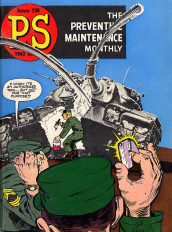
Issue 128

PS

1963

THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY

A GROUP OF  
ARTISTS  
WAS  
FORMED  
TO  
PROMOTE  
ARTS  
AND  
CRAFTS



## Where Do I Fit?

Dear Half-Moon,

For those reading in newspapers and magazines about the reorganization of the Department of the Army, I'm wondering in Washington:

When do I fit into this, and what will it require of the soldier like me in the combat areas?

—Major M. D. G.

Dear Sergeant W. D. B.,

That reorganization deal is a big idea, and that's just working on the maintenance—and you've just heard the whole so far. But "Lenny" (over in the States) has got all those truck-killers in the United States!

I mean you'll be seeing more and more, faster and faster. The things that you see will be the results of improved materiel support, rather than any direct part of the reorganization.

The greatest impact is for as you're concerned, in the long run, will be that there is just one Army unit's running the maintenance and supply business. This means that you should see standardization and uniform systems given an even greater boost than they've had before. In the not-too-distant future you should start to see greater compatibility between different kinds of items.

This is done a short time before the Army's reorganization. The New Equipment Readout System is a sign of things to come. Instead of different systems of maintenance and different systems of records for each of seven different technical services, you've got one—and they're still working hard to cut down on the exceptions and deviations that you find in that one.

Now, you'll like to see what has happened here. It's already taken a long time to get the Combined Field Maintenance Shops and Consolidated Support Groups in the States. And that's just the beginning. This is another sign of the fact that you'll be going to them instead of separate operations. The Ordnance and Quartermaster are also making changes.

Another sign of things to come you'll probably see is when you do maintenance work, you should see a lot of things that are common. You should see a lot of things that are common. You should see a lot of things that are common. You should see a lot of things that are common. You should see a lot of things that are common.

And in the long run, you should see a lot of things that are common. You should see a lot of things that are common. You should see a lot of things that are common. You should see a lot of things that are common. You should see a lot of things that are common.

"ALL ABOARD!"



Half-Moon

# PS

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THE BATTLES OF THE ARMY (1944-1945) (1946-1947) (1948-1949) (1950-1951) (1952-1953) (1954-1955) (1956-1957) (1958-1959) (1960-1961) (1962-1963) (1964-1965) (1966-1967) (1968-1969) (1970-1971) (1972-1973) (1974-1975) (1976-1977) (1978-1979) (1980-1981) (1982-1983) (1984-1985) (1986-1987) (1988-1989) (1990-1991) (1992-1993) (1994-1995) (1996-1997) (1998-1999) (2000-2001) (2002-2003) (2004-2005) (2006-2007) (2008-2009) (2010-2011) (2012-2013) (2014-2015) (2016-2017) (2018-2019) (2020-2021) (2022-2023) (2024-2025) (2026-2027) (2028-2029) (2030-2031) (2032-2033) (2034-2035) (2036-2037) (2038-2039) (2040-2041) (2042-2043) (2044-2045) (2046-2047) (2048-2049) (2050-2051) (2052-2053) (2054-2055) (2056-2057) (2058-2059) (2060-2061) (2062-2063) (2064-2065) (2066-2067) (2068-2069) (2070-2071) (2072-2073) (2074-2075) (2076-2077) (2078-2079) (2080-2081) (2082-2083) (2084-2085) (2086-2087) (2088-2089) (2090-2091) (2092-2093) (2094-2095) (2096-2097) (2098-2099) (2100-2101) (2102-2103) (2104-2105) 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# ROCKET LAUNCHING



Lift the handle . . .



turn the cap 90° . . .



then pull.



That's the latest word on loading the BSS, 115-mm gas rocket (rocket, gas, non-persistent, GB, and rocket, gas, persistent, VX).

Easy as 1, 2, 3 . . . but very important SOP . . . especially Step No. 2. If you should forget to turn the cap 90° you'll very likely damage the igniter lead when you remove the cap—and you'll have a mishap.

So, all together once again, please:

To safely remove the forward end cap from the rocket's shipping and firing container you raise the handle (to an upright position), rotate the cap 90°, and then remove the cap from the container.

Change 1 to TB CBR 79 provides the new procedure for the removal of this end cap.



## INSERTS OUT?



SHOULD BECOME OF  
REMOVING FLOOR BOLT



You've got it made if your Mack heavy has worked with the new inserts. The inserts are made so that they don't get pulled out when you remove the floor support bolts from the axle.

If you haven't run across the new inserts, and until they start showing up in your work, you want to look ahead in the store that you've gotten here to make sure the bolts. There's no guarantee that they won't take the inserts out with 'em. But you can help even out the odds by keeping a couple things in mind.



DON'T OVERTIGHTEN  
THE BOLT

GET THE RIGHT  
TIGHTENING TORQUE  
AND USE OF  
BOLTS



First and foremost... don't over-torque the bolts. And make sure the bolts and inserts themselves are clean and free of burrs before you tighten down the bolts.

It's also a good idea to remove the washer and washer shell as a unit whenever you can. That way, the bolts and inserts are left alone during most of your disassembly operations.

## A SURE CURE



The lock on the cover does the job and connects to the output meter—the one used with your Hawk engine not stop—but can let in dirt. It keeps the cover clean. Trouble is, if the lock is turned over it's needed to open the door, it might clog the pins on the J connector. You can take care of this deal by filing 1/16 inch from the end of the lock. Don't get rid of any more or the lock won't lock.

FILE 1/16 INCH FROM END OF LOCK OR IT WON'T BE TIGHT

## WASH IT OFF



Salt water is great for cleaning. You can do the job with this, if you don't want to use soap and clean water.

The same goes for your Hawk equipment—the the engine, loader and tractor—only more so. Salt water—

a spray is enough—puts you on the wall as corrosion.

To wash down things with soap and clear water whenever salt water has gotten to 'em. Easy with the water. Run the hose as much as corrosion when it comes to things like stripped parts.

## DOUBLE NO

Dear Half-Mast,

I've got two questions pegged to the Beach again.

First . . . is there any set time for replacing different pieces of vehicle handling equipment?

Second . . . is there any kind of setup for the new load testing the equipment?

MIKE H. H.

Dear Sergeant H. H.,

The answer to both questions is the same: No.

You replace the handling equipment when it needs replacing—like when it gets loaded or wears out.

And the equipment gets load tested

hooked up to the vehicle line. That is, the load beam does according to the setup in TR 7-8945-500-25 (1) (26 Mar 61). Ordnance is still working on the procedure it wants to be used for load testing the handling beam and crane assembly.



## NO PLACE FOR WATER



The way things're set up, they will test you in the loader and on your Beach loader transporters ought to drain out as easy as it get in. But it don't hurt to fill the same tank with a little water now there's no water in 'em. This makes real sense if you're in a place where the water could have to be 'cause that stuff can jam the inter-tilt leashes. And then they won't be able to extend down and turn on to the vehicle.

## YOU BETTER KNOW IT

READ THIS CAUTION  
PLATE ON THE EXHAUST  
MOUNTING TAB...

...KEEP THE MOTOR  
WIND-UP SPRING  
LOOSELY WOUND.



**CAUTION**  
DO NOT REMOVE EXHAUST  
MOUNTING SPRING UNTIL  
THE MOTOR IS FULLY  
WOUND.

Your rocket warning on your M34 Littlejohn rocket launcher means just what it says.

Forget it just once . . . and the elevating mechanism will snap the motor arm, create locking devices in one time flat and give you a sleepless shower you'll remember for a long time—if you're lucky enough to have another go at it.



SEVERAL  
MOUNTING  
SUPPORTS.

## YAKETY, YAKETY, YAKETY

One of the first things that can drive you nuts faster than a giddy gal is a chattering M34 Littlejohn rocket launcher. Keweenaw!

Nobody, but nobody, has yet come up with a safe, legal way of making off a nearby woman . . . but here's the wacky on what's bugging your launcher—and how to make it run the chimes.

Pure and simple . . . a few do-or-else-kind case plans might be the culprit.

You have it developed the twist is somebody's guess. It might have happened when you belted that hollow tin clamp on tight momentary but took it off maybe somebody forgot to fully adjust the spindle and now you can't look before choosing the launcher the last time out.

It could be a lot of things.

But, regardless of the cause, if the case plan's been set of which—your launcher's gonna squeak and chatter until the case comes loose.

The solution? Easy-peasy.

Your lippy help up to support and have the boys with the launcher either repair or replace the loose stabilizer and things will get peaceful and quiet around your launching site again.

Watch, before you start searching for support help it'll be a mighty good idea to make sure the case plan and connecting plate are lubed like it says in LO 9-1000-212-12, dated Jan 61, because dryness can also cause chattering.



A SHOT WOULD  
BE A GOOD IDEA



## PLUG IT IN . . .

## ALL THE TIME



You better believe it . . . that electrical connection between the battery and rocket assembly and the handle of the motor system on the M34 Littlejohn rocket launcher makes certain's gonna be made before your rocket starts spinning. If the connection's not seated in the receptacle—it's going to make like a white flag downed and ease the assembly to ground. If this happens, and it's your fault, you'll be going round and round with you know who.

## OUT OF THE WAY

It's a good deal—the way **MAKO YUKI-218** (Duo II) moved the auxiliary cable supports from the front plug compartment on your Nike-Hercules **2000** launching and handling unit to the outside of the rail. In all of your rail layouts installed from 1981 through 1986.

There's one thing you have to watch, tho. The cable can foul up the working of the ship release mechanism.

But so easy as it is for the cable to get in the way of the mechanism, it's just as easy to make sure it's out of the way. Putting the cable in the upper



part of the inspection hole while you're operating the mechanism will do just that.

## WORTH THE EFFORT



You think maybe you can forget these three smaller pump assemblies on your **20000** Nike-Hercules guided missile trailer (see howeve' you don't see 'em for weeks on end). You're on the wrong track if you do.

Unless you use the pump handle once a week to exercise the pump, there's a good chance that rust will form inside. Then comes the day when you have to use the pump assemblies to level the trailer bed. You go up, work the handle up and down . . . and that's all she wrote as the rail inside the pump has gone under pressure.

That kind of situation sure makes exercising worthwhile.

A manual for a recent publisher of "Travel in Departmental Motor Cars" (1967), the U.S. National Park Service's "National Motor Vehicle Register" (1967) and "National Motor Vehicle Register" (1967) and "National Motor Vehicle Register" (1967).

#### RECENT PUBLICATIONS

TM 9-2000-11-10, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-11, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-12, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-13, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-14, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-15, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-16, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-17, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-18, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-19, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-20, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-21, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-22, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-23, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-24, New Equipment, 1967, 110 pages, \$1.50.  
TM 9-2000-11-25, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-26, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-27, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-28, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-29, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-30, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-31, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-32, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-33, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-34, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-35, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-36, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-37, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-38, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-39, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-40, New Equipment, 1967, 110 pages, \$1.50.

#### RECENT PUBLICATIONS

TM 9-2000-11-41, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-42, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-43, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-44, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-45, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-46, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-47, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-48, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-49, New Equipment, 1967, 110 pages, \$1.50.

TM 9-2000-11-50, New Equipment, 1967, 110 pages, \$1.50.

## TM 9-500 FOR YOU



For the latest on vehicle-type equipment (complete descriptions, identification, family history, pictures, etc. needed) you've now got TM 9-500 (Sep 67). This new reference handbook is a real find, and incorporates TM 9-250 (21 Sep 66), TM 9-200 (19 Oct 66) and TM 9-250 (3 May 67) with its Change 1 (21 Oct 66).

## M543 WRECKER OEM

Hey, aren't you looking for the publication that lists all the vehicle-type and equipment and special purpose tools for your 5-ton M543 wrecker? The OEM (OPE, OPM, BBL) tools are now listed in the new TM 9-2100-111-10 (Mar 68). (They may be showing up in a new -20P, too.) Although the TM's initial distribution only gives you two copies, you should have one copy for every truck that's in your outfit. Since this year's publication is a GSA Form 47 for more publications, have this call for enough of this TM to go around.



Old number seven's the key to many things.

It's the floppy digit you count blood for in Las Vegas—and it's also the magic number that gets a few prizes in keeping your M41 SP 21 from being in those' shops.

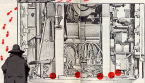


That's for sure . . . failure to hit seven—seven like things—on the turret happen, leading to serious consequences than those occurring around in a field.

Yep, it appears that quite a few very serious losses' got the word on the "seven seven" findings spelled out in Change 3 to TM 9-1064, dated 3 Mar 61, "major replacement of steps and rollers on the turret is a five 100 percent during rebuild.

To run down on this rebuild level other—and keep your weapons number ready—here's a general guide that'll get you started on the right road to the "seven seven" that may be listed quarterly with GSA.

One of the things you be listed with the crew compartment, first, because the turret will hold down between the machine rolls and the use of the turret and will get these like things.



Next hit the like thing you are looking through the hole in the turret face to the left of the turreting gun line.

# THE SECRET SEVEN



Now check around on the front, inside of the crew compartment. Just before the lower turret is an inspection plate held in place with the bolt.

Remove the plate and the mystery's out—because the last pair of like things come into view and you've solved the mystery of the long-haul "seven seven."

Now get your M41 into the like thing sitting directly below the hole in the turret face to the right of the turreting gun line. Hit this plate and you're in!

## GROUND

## MOBILITY

# DANGLING DRAIN COVERS

APPROXIMATELY 50% OF ALL DRAIN COVERS ARE LEFT HANGING FROM THE TRUCKS.

It's a simple matter to replace a missing drain cover.

Dear Editor,

On the M88 recovery vehicle there's no creature (or position indicator) on, or near, the hull drain-valve lever to remind the operator to close the drain valves when the vehicle's operated.

Rolling down the road (on cross-country) with the drain valves dangling can stomp up mud, silt, gravel, debris, etc., into the hull. The collection of road cross-sections presents problems in both the engine and in which cross-sections.



Also the tracks and the pull on the hanging valves often break off the

**CAUTION**  
DON'T USE  
STEEL WIRE  
CROSS SECTION  
OPERATION



drain covers, and they're less likely the valve holding pin breaks. In either case it means replacing the complete valve assembly about repair parts for it aren't available.

To help us help you solve these problems we're now using models on the ground level (and in the "ground") and the "ground" area, and also on the hull



in front of the operator so remind him to close the valves before he rolls off.

The drain valves should be left opened when the equipment's parked overnight, over the weekend or longer, when it's needed and after loading. They should be closed when the equipment's being operated.

Mr. R. Mail,  
M88 Parts—Air warning. And, how about an ER on the problem?

# SHEARED GREASE FITTINGS

THEY'RE THE ONLY WAY TO GET A GREASE FITTING TO HOLD TOGETHER.



Dear Editor,

We're using members more grip on the M88 recovery vehicle by simply switching the location of the grease fittings and the pressure relief valves for the front idler housing.

There's more elbow room further down the housing, where the pressure

**GREASE FITTINGS WITH IN RACE IN 1970—50 1000 (10.1000)**



The grease fittings sit up high on the idler housings, and spill close to the tracks, making sure so they do the fittings often get sheared off by mud piled up by the tracks.

relief valves are located. Making the grease fittings to the lower location prevents less from the tracks, over flow.

The pressure relief valves are square and less likely to angle with track from the tracks, and so they make sure OK in the area where the grease fittings normally sit.

Both fittings can be moved easily with a 5/16 in. open-end wrench.

Mr. N. M.

M88 Parts—Grease OK. Later model M88's sport a comparable arrangement of fittings for the front idler housings. Others, in your class, have lifted the old problem by replacing the grease fitting with a 1/2 inch pipe plug. They need little play, \$20 (10.1000-1000), 1000000-1000000, 10-10 (1000 1000000), or pipe plug, \$20 (10.1000-1000), square-head, steel, 10-10 NPT. Swapping the grease fitting for a plug leaves the pressure relief valves where it'd be safe from accumulation of mud, ice and trash. You're just gotta crush a grease fitting for the plug whenever hole (the valve) around.



## NO WARNING



Your 3000 MIV has 400 feet of hoisting which cable to pay with . . . for sure, but, did you know that when you drag out too much cable it's possible to break the boom mounting support brackets?

The why/when is this: The relief valve has been preset by the factory at a work (pressure) limit when the operating is being done at ground level (approx. 15 ft from tip of boom to hook).

going with you—the valve can't. Don't try lifting more than 30,000 pounds with more than 15 feet of cable because the pulling values change—and the valve won't give you warning.

One more thing, if the cable gets damaged, don't be chopped' it off and using the balance. Replace the whole 400 feet at once.

There's some talk about an 80000 marble dropping 200 feet off the 400 and causing the relief valve. If this is done, it'd be the end of the boom trouble and would mean longer life to the cable from normal wear and tear.



So guess the time when you have pay out more cable than this to back over the object to be lifted. The object being this weight more than 30,000 pounds, break the relief valve but

in the meantime, using the 4-part line and keeping the load limit in mind when making with the lift, it all the savvy needed to keep 'em hoisting like the should.

## CENTER GUIDE ON THIS



Dear *Kelly-Mark*,

It's always replaced the center guide on our rail trucks when they wear more than  $\frac{1}{2}$  inch across the top. Please see Inspector Brown as to replace them when they're just a hair under one inch across.

Has the regulation on this changed and where can I find the new regulation?

SFC E. S.



Dear Sergeant E.S.,

The latest regulation on wear limits for center guides is in TM 9-2640-200-14 (Rev. 83).

You don't say whether the Inspector was checking depot base or a line company.

If it was depot base, he's absolutely right. Center guides have to be at least  $\frac{1}{2}$  inch across for base or using straps. On 'yarker' base, using straps can wear 'em down to  $\frac{1}{4}$  inch before they need to be replaced.

*Kelly-Mark*





Quick, now! You want to make sure you get any required magnesium-ally components on your M113 APC stored quick-like with a corrosion preventive compound (P/N 9-2509-234-1000)—especially if you're anywhere near salt water.

The spots that need this special protection are:

- MOUNTING CHAS.
- DRIVE SHAFT
- DRIVERS' AND POWER PLANT COMPARTMENTS

**NOTE:** This stuff **does not** apply to the final drive shafts, covers the special protection for them, get shield of spray 9-2509-234-20/10 20 for 20.

The chow takes a bit of work and effort, but it's worth every bit of it . . . 'cause even salt spray can run away at these required magnesium components.

To get the job done you have to open the rear engine compartment doors, driver's compartment doors, and the power plant doors. Also, open the doors to the forward hull to get rid of any water.

**You install the protective like this:**

1. Take off the two bolts and the generator drive bolts (see pages 101 and 114 in 9-2509-234-20).



**SALT**



I usually make the differential mounting bracket covers, shafts, brackets, drive shafts, fan drive pulleys, generator pulley generator drive pulley, steering bar bar bar pulley, spring, steering bar shaft, and engine differential control valve with working tops. (P/N 9-2509-234-1000)

1. Thoroughly clean the required magnesium-ally components with the cleaning solvent (P/N 9-2509-234-1000). Make sure they're free of salt deposits, and use a brush that won't scratch the face of any surfaces.



2. Use the spray the protective compound with a brush (P/N 9-2509-234-1000). Be sure to spray the area 6-8 inches thick, starting at the top and working to the bottom because the stuff doesn't do back-out spray with some of the stuff in the tank, and could the spray evaporate fast. Be sure to keep the stuff away from bearings and movable parts in the engine bracket.

1. In the mounting dry for at least two hours. Before you remove the mounting top and get things back in proper order.



And, make sure you or you're a good a good eye at these magnesium-ally components when you pull a quantity, clean all any corrosion, and re-install with the protective compound, if they need it.

Also, be sure to record this P/N check on your M113's maintenance log (P/N Form 2509-4-1).

TD 9-2509-234-20/1 (30 Oct 62) is your authority for this important job, and, of course, EO 9-2509-234-10, parts list with you, when to do when you've taken the M113 into salt water.

# LO SPECIAL

You may have heard—but in case you haven't—our Army command got a new TRAC (MERCURY-POR MEXI-OL) and I (Mar-88) that was then met with some real important 500 poop for upgrading the oil changing intervals in your tracked vehicles with Continental air-cured engines and with Allison transmissions.

The LO's are going changed, with intervals stepping up like this:

Continental Engines: Drains for all every 1000 miles or 6 months (whichever comes first). PE (preservative oil) will get the same treatment as OE. It's the same oil but has a preservative added.

New Allison Transmissions: The first drain job would fall after 500 miles of operation. If it's a new vehicle, the obvious reading should be on about the 500-mile mark. Once the first drain job does have been done the your super cycle after 100 miles of operation.

After the 100-mile oil drain job, the interval widens—your next drain is 2000 miles later or 6 months (whichever comes first).



## ENGINE

8N-1790-00000  
 8N1-1790-0  
 8Q-880-4  
 8Q-880-3  
 8Q-1000  
 8Q-1000-0M  
 8Q-1000-5  
 8Q-1000-6 & 8  
 8Q-1000-7

VERIFY  
 "MERCURY" IS THE  
 RIGHT OIL FOR  
 YOUR  
 8N-1

## TRANSMISSION

CD-100-3 & 4  
 CD-100-3 & 4  
 CD-100-4 (3rd & 6th)  
 8T-80-1  
 8T-80-2A  
 8T-80-1-1-1A  
 8T-80-1-1-1A  
 8T-80-1-1-1A  
 8T-80-1-1-1A  
 8T-80-1-1-1A  
 8T-80-1-1-1A



VERIFY  
 "MERCURY" IS THE  
 RIGHT OIL FOR  
 YOUR  
 8T-80-1

There'll be things when you operators (for the good of your engine and transmission) will have to vary the intervals. Operation under extremely hot conditions means you check the transmission more often and change it when necessary.

Furthermore, when you deep-water ford in cold water—or even clear water—both engine and transmission lubrication means. If there's any water... change the oil.

Another reason for varying the scheduled interval: You've got to make seasonal adjustments to the grade (weight) of all grades with the temperature.

The LO says that you, in the weight of oil to use for a given temperature range.

If the LO says for your Continental engine don't spill out the poop (lead) in 100-Gal 804, then you'll just hold follow the poop in the 10... It's still good.

By going along with the new extended oil-change periods, you'll get the full mileage in the right direction. And it's better for you, 'cause your changes will be further apart.

VERIFY  
 "MERCURY" IS THE  
 RIGHT OIL FOR  
 YOUR  
 8T-80-1



## TAKE IT EASY — DON'T FLIP

You're making your way along some highway or byway in your MINI hatch.

There's nothing unusual about driving conditions—road, terrain, and weather are all normal.

You're rolling along at a good pace when you suddenly come to a curve. There's nothing unusual about the curve either. You've taken curves like this one before.

But....

What you may not realize is that the MINI is different. It handles and feels different from any other vehicle you may have driven. This puppy, lightweight as it still is, reacts to you.

You've got to get the feel of your MINI so you'll pick up the driver savvy you need if you want to handle your MINI safely.

You already know that the MINI has an independent swing arm (left and right arms pivot near center) rear suspension set up. You also know that when it's empty, there's a definite "positive center" on both rear wheels

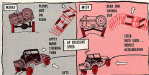


that's not based on vehicles with solid axles (like with the old Jags).

But you may not know that because of the inherent difference in the axle that each type vehicle reacts and gets handled differently.

If you happen to be taking a curve too fast with a solid-axle vehicle, you get a side tilt of the body. Not so with the MINI. It stays almost level. By the body tilting (like on the Jags) you get a warning that you're going too fast. With the improved ride in your MINI





you don't get the car, which means you don't get the warning.

While making a curve with a solid-side type there's a tendency to under-steer. You, and you correct this by steering 'or more less (with) the curve so's to roll with it.

WHEELS ROLL INTO TURN TOWARD CURVE



Again the M110 is different. When taking the curve the wheels to over-steer (the rear end comes out and away from the track). The correction for this is to let up on the foot pedal and turn the wheels so they're headed slightly out of the turn.

WHEELS



WHEELS ROLL OUT OF CURVE



You may not even know it, but if your speed is too fast, your car lurks the right side of the road ... with the right side it'd be the inside from the to leave the road first.



You've got to be doubly careful with the corner if you're carrying a trailer ... the trailer needs to show the M110's rear end even more.

Here are something to remember about:

1. Keep an eye glued on the quarter-car, particularly when you're going into a turn. Use them.
2. Drive an empty M110 slower than a loaded one under the same road conditions.
3. Be real careful when taking a trailer because it'll cause your M110 to over-steer.
4. When you pass, never bank into the right lane gradually. It may pull-in at high speed and flip you.

With your M110, remember that it's driver easy but crash the road.

Don't be misled! Each handle covers the mechanism for your M151 (4-pin track . . . There're two different kinds and you gotta know which goes where and how much torque each goes. Here's all the info in a pre-plate<sup>®</sup> presentation....

**4 LOCATIONS**  
**18 1/4" IN.**  
**24 1/2" IN.**  
**15 1/2" IN.**



THE INFO INCLUDED BY THE 12-POINT SOCKET.

**4 LOCATIONS**  
**24 1/2" IN.**  
**24 1/2" IN.**  
**24 1/2" IN.**



THE INFO INCLUDED BY THE 12-POINT SOCKET.

## HOW U-BOLT THE M151



How about comparing these cup sockets . . . Don't say it's one the old 12-point socket from your Mo. 1 Common Tool Set to break them loose. This socket won't stand the torque and

you'll chew up its handles. Also for any other 12-point 12-point socket you're likely to have.

What you need is sockets, sockets, sockets. 12-point heavy duty, 12-point

equivalents, sockets. The stock number for this 12-point, steel socket (for tapered) socket is 509 1129-001-0064.



It's now in the supply system and you should be able to get it with a written justification.

It has also been put into the Special, Basic, Set B, Department Maintenance Stock Kit. This kit is 509 5185-001-0001 (15M001).

You might be able to increase the socket from support because Change 1 to 504 9-4-5000-010 (Star 44) substituted it for 2nd and 4th vehicle tool kit.

If you can't get it in the inventory, you might want to buy it. AFPC 0425 socket works Fine Machine (MC-2000) is or equal to what you ask for in the local purchase hardware store.

Don't think it's an "OFF LIMITS" job to you organizational mechanics and drivers. The adjusting of the wheel steering radius (angle) on your M151 is not work up to just one thing . . . leave it up to support!

Course, it's up to you to be support know that you're getting correct steering from your M151.

When you find your M151's steering wheel won't move—or it will move much slower one way than 'other—then you'd better figure something is wrong. Don't be hauled over to support, they'll give a lot of attention to all the steering column linkage adjustments before even looking at the adjustments on the steering rack were.

Once the linkage is adjusted, then's when they'll use their special tool, Wheel Inducer 2056

### OFF



### LIMITS



409 9-221-0071 L, to adjust the stop air to get a maximum 21" steering radius . . . or more.

So to know how wheel radius works—so you don't make a mistake and get a wheel on them when you're going over those other body or frame bolts and over when doing your FM service. They may look like "they" and some might be up, but you just don't see like they had the tendency . . . don't go near 'em.

Here's why—if the suspension gets worked in all the way, the torque radius is increased. A sudden impact on the handle while they're in a change more position will do dirt to the gears in the steering gear case.

Just remember . . . it's a support job.

## THE "C" IS UP FRONT



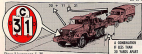
Dear Kelly-Mat,

What does a "vehicle combination" mean? The term's not listed in the dictionary of terms, and we've got a little discussion going on when it's necessary to display the "C" along with weight classification.

For example, is the "C" used on a tractor-trailer setup? Is it used on a wrecker towing a vehicle or a transport?

And, are the combined weight and the "C" shown on both the towing vehicle and the towed piece?

M. J. H.



Dear Lieutenant J. H.,

Any time you've got a self-propelled vehicle towing another vehicle (or other piece of equipment), you've got a combination, at least as weight classification rules is concerned, unless they're more than 100 yards apart.

A tractor-trailer is a combination vehicle. Does a wrecker towing a vehicle (or any other piece of equipment)?

All 746.2100-1, "Marking and Posting of Supplies and Equipments," (Division IV, para 15) says all self-propelled vehicles towing other vehicles or equipment will show the combined classification and display the "C". Also see para 75a (1), FM 5-14, "Route Reconnaissance and Classification."

The "C" is used on the front of the towing vehicle only. The classification of the towed item isn't changed . . . it gets no "C" . . . it shows only its basic classification.

See TB 5-260 (14 Apr 55) for info on marking kits.

*Kelly-Mat*



## END PLAY



The next time you quarter-backs call the play, it'll leave 'em the real play checking to those front-end shafts on your 1-ton G744-series trucks.



You've gotta be right on the ball when putting the assemblies onto your truck's steering knuckles or there'll be too much end play in the joints—the U-joint'll find itself off-center in relation to the kingpin, causing the steering to bind and even lock up. If this happens, you or the next guy at the wheel can get hurt or lose things up fast.

You've been getting the short shaft under FSM (200-734-0081) and the long shaft under FSM (200-734-0084)—but what you didn't know is that these FSM's can bring you two different type shaft assemblies.

The earlier shafts have a shoulder on the outer shaft (seen on the U-joint)



and need a spacer washer, (FSM 1116 003-0087) for correct play in the unit.

Later production shafts have no shoulder—when you cut them, they don't take the washer. Replacing the later shafts get replaced by the earlier one, get the spacer washer on that shoulder next to the U-joint.

To make sure the steering setup is OK in your 1-tonners, you'll hafta check to see if there is no more than

1/16-in. end play (in-and-out movement) in the shaft.



Here are some tell-tale signs that indicate the spacing washer is missing or the end play is more than 1/16 inch.

1. You feel heat in the axle. 
2. A cooling water in the front axle with the truck is blowing at the speed is a danger sign. 
3. End axle is pull to one side, cooling pressure as the steering wheel is turned cause the side pull, cause loose end stem may be a short time that begins pulling to the side again. 

For a more direct and positive check, remove the wheel lock flange and see if the shaft is the type that has a 1/4-in.



NPT (National Pipe Straight) tapered hole in its end. If so, get a 1/4-in. NPT pipe nipple about 6 to 8 inches long, and screw it into the tapered hole. Use this pipe extension as a hand-hold to

push-and-pull the shaft to check the end play.

If you can't find a 1/4-in. NPT nipple, try one that's 1/4-in. NPT (National Pipe Tapered) threaded. Because of the difference between the NPT pipe thread and the NPT tapered axle-hole, take it easy when removing the pipe nipple from the axle. Over-rotation may cause the pipe nipple to break off in the axle.

Another way to make this check is to screw a 1/4-inch 5d cup screw into



the axle-hole. Then use a pry bar against the cup screw to move the axle in one direction or with a hand screw. If the axle can be moved beyond 1/16 inch, you'll know that the washer has been left out of an earlier type shaft, or whatever type shaft you've got it won't do much and must be replaced.

On axle shafts that have no tapered hole, because the shaft is turned as far as it will go . . . walk it sharply with a brass mallet or a hammer and brass die. Push the shaft forward by hand and measure the distance the shaft moves.

In all cases, the end play should not be more than 1/16 inch. After you make your check, replace the old flange gasket (POM 2100-714-0010) if it looks like it needs it.

This is a big animal you're playing with and the better the owner, the better for you.

# JOE'S DOPE

# MATERIEL READINESS IN THE MAGIC

WELL, MIGHTY BE LONG  
IT'S ME, YOUR BOSS  
BOY IT'S BLACK  
WE'VE GOT SOME  
HEART OUT THERE

LEAVE  
WELL, GET  
USED TO IT...  
HAVE FUN, BOY!  
I'LL SEE YA,  
BOSS!

WELL,  
BOSS!

WELL,  
BOSS!

WELL,  
BOSS!

WELL, THE MARCH  
AND EXTRA DUTY EVERY  
MIGHT FOR A WEEK...  
JUST AN "APPROXIMATE"  
A "COUPLE" OF "ALL"  
"OVERSIGHTS"  
ON MY  
PART.

SO NOT IF I HESITATED  
DURING THE "MARCH" ON THE  
"CL" MARCH, JUST WHO WOULD  
BEHOLD? IF YOU WOULD  
PLEASE SPEAK ON BEHALF  
OF "HEALTH" ISSUES, THEY  
WILL BE FOR "GOODMAN'S"  
"BOY" "TWO" "MAY"  
"BE" "NOT" "THE"

LET'S GO  
CLOMP CLOMP CLOMP

LET'S GO  
CLOMP CLOMP CLOMP

SO I DON'T  
CLEAR THAT BIG  
BOSS AFTER  
FIGHTS, SO NOT I  
LEAVE GET  
SOME LIGHT IN  
HERE.

THAT'S BETTER.  
OH WELL, THOSE "LITTLE"  
"BOSS" ARE ABOUT THE  
"BE" "THAT" "MAY" "CAN"  
"BE" "REALLY" "IMPORTANT"  
"CASE" "IN" "SIGHTING"  
"MAY" "FIGHTING"  
"CONTS" "FIRST"

SACK TAG!  
CLOMP!

CLOMP  
CLOMP



THEY'RE NOT THE  
SAME!



YOU'RE  
DON'T BLAME  
ME... I'M  
THE  
PLANNED  
YOU  
SHOULD  
BE IT



WHEN I SAW YOU  
WALK  
TO THE  
MINE,  
AND  
I  
SAW  
YOU  
GETTING  
KILLED  
BY  
THE  
MINE,  
AND... (I  
HEAR)

ZZZZZZ



WHEN I  
SAW  
YOU  
GETTING  
KILLED  
BY  
THE  
MINE,  
AND... (I  
HEAR)



YEAH!  
I'M  
THE  
BEST  
SOLDIER  
YOU  
EVER  
HAD!  
I'M  
THE  
BEST!  
I'M  
THE  
BEST!



YOU  
ARE  
THE  
BEST  
SOLDIER  
YOU  
EVER  
HAD!  
I'M  
THE  
BEST!  
I'M  
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BEST!

YOU  
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BEST  
SOLDIER  
YOU  
EVER  
HAD!  
I'M  
THE  
BEST!  
I'M  
THE  
BEST!



**Joe's** Dope Sheet

In the **COMICS** it's not needed... But in **REAL LIFE**  
**EQUIPMENT READINESS**

COMES FROM  
CONTINUING MAINTENANCE  
**AND PREVENTIVE MAINTENANCE**  
IS YOUR BEST INSURANCE  
AGAINST THE UNFORESEEN!



**WE HAVE THE WORLD'S BEST EQUIPMENT ...** *Take care of it*

IF YOU WANT TO DISPLAY THIS CENTERPAGE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.



TO HAVE EQUIPMENT THAT IS **RELIABLE** WHEN YOU NEED IT! **REGULAR PREVENTIVE MAINTENANCE PRACTICE IS ALL THE MANT!** YOU NEED!



YEAH, AND TALKING ABOUT MONEY...LOOK AT YOUR RESPONSIBILITIES!



AM HE RIGHT...THE A. SHOOTING MAN...WHAT'S KEEPING YOU FROM TALKING TO HIM?

TELL HIM WE STAY!

AND GET EVERY PIECE OF EQUIPMENT IN THE WORLD...EVERY PIECE...EVERY LOG BOOK...EVERY **PIE**...ALL CONTRIBUTING TO THE CONTINUING IMPROVEMENT OF TOOLS AND WEAPONS!



THE INFORMATION YOU SUPPLY TODAY WILL GET **BETTER EQUIPMENT** IN YOUR HANDS TOMORROW AND MORE SUPPORT TO YOU TODAY, IF ONLY YOUR SUPPORT PEOPLE NEED **ANOTHER MEET** **NOW!**

LET'S GO ON...SUPPORTING BY **COMMITMENT**...THE MAN TELLS THEM WHAT THEY'VE GOT TO FIGHT WITH.



WE'RE STILL WORKING  
ON THESE BUSES WE  
CAN TALK WITH ABOUT  
HOW TO GET  
EQUIPMENT  
READY TO GO

THEY'RE A  
LOT OF BUS  
I'VE TALKED  
AN AMY FROM  
THE BUREAU  
SEE?



THERE'S ALSO  
MAINTENANCE PARTS  
TO INSURE...

LIKE NOT  
PUTTING THE  
INSURE SERVICES  
AND INSPECTIONS

THE  
WELL  
YOU SHOULD  
KNOW  
SOMEONE!

WE, OH!



BEFORE WANT TO  
APPLY IN  
SPECIALIZED  
SUPPORTS!

THAT OL' BOY!  
SUPPORTS AND SUPPORTS  
MAINTENANCE LOAD AND  
& SUPPORTS IN  
SUPPORTS AND SUPPORTS





FOR  
THE  
TENT  
FOR  
THE  
TENT



# JOURNAL JERKS



Dear Mr. Editor,

Two of our G-14-series trucks with the improved clutch called for in MWD 5-115-111-3672 (Feb 55) have turned up with broken journals (D5V 1230-124-8800) on the transmission-to-transfer prop shaft.

Maybe some dead-beat passed the engine when testing out the clutch, but I can't pin it down. Have you heard of any other journal failures like this?

L/Tgt M. E. L.

Dear Sergeant M. E. L.,

The main story's hit me from several directions, Sgt. I'd suggest the first place to check is those "clutch" shank-hung driving bolts.

But there could be more than that (releasable driving, if necessary, there's an MWD, now available, that those trucks might have missed. It's MWD Ord G-14-W-25 (18 Oct 51) also called for change in the universal joint adaptors on those shafts to increase the journal's angular clearance . . . sometimes called shank slip. But that, you might say, is water under the stone.

There's also a possibility that looseness of the housing for the clutch or flywheel could cause this failure. If the housing slip just a bit, the transmission may drop just enough to jam and break the journal. Its housing slip screws should be checked for tightness. See para 105 in TM 5-838 (Jan 51). And if you're installing a new clutch,

new link-rod ends and screws should be used.

## THE USE OF SHANK SLIP



IF YOU WANT THE SHANK SLIP FOR JOURNAL



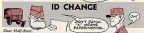
It's likely to be hard to spot this looseness as a cause of failure after it happens, however all housings may break loose when a journal goes.

Then, too, this failure could be caused by power train twisting if the

truck's allowed to drift forward or backward without shifting the transmission in the direction you're moving. You might prevent it by jacking up a wheel on each side now and then to make sure there's no power-train wind-up.

So, keep one eye on your driver-training and Foster on the under side of those vehicles.

*Hot Rod*



Dear Mail-Man:

I have a few 1 1/2-ton cargo trailers which are identified on their manufacture tags plates as XM1001; the plates also refer to TM 9-810.

But does the TM list this model number? Was it done?

What TM does cover this model and what does the "X" mean?

DC M.G.A.

Dear Sergeant M.G.A.,

Your XM1001 trailer is the same as the M10A1 1 1/2-ton cargo trailer. TM 9-810 plus TM 9-200-241-14 and TM 9-200-241-24P cover your "X" model.

The story behind the "X" model goes like this. The XM1001 was an experimental model which was usually referred to as M10A1 when the trailer went into mass production. The few experimental trailers made before the production trailers kept XM1001 as their model designation.

In general, the letter "X" before the "M" model designation on Ordnance vehicles means an experimental vehicle. In some cases, a few experimental models are manufactured and issued as final



use if the experimental version is adequate for its intended purpose. This is how you get yours.

To bring your XM1001 trailers up to date have your support unit replace their identification plates with new ones; they can requisition these new plates from Red River Army Depot, Tarrant, Texas.

*Hot Rod*

# SHEARED

# SCREWS

WANT TO  
DRILL A  
HOLE THROUGH  
A HARD SURFACE  
WITHOUT  
CRACKING IT?

**CRASH!**



With a load on your Model 42-2 trailer (with 24-wheel, 10-ton special trailers for extra heavy attachments), you've got only one break-out screw between you and a collapsed landing jack.

That's a fact, even if the two screws shear off, any forward motion of the trailer may bring the landing jack break-down—*crash!*

To get an eyelid of these screws, if they're finally in place—fine. But if they're sheared, drill 'em out and replace with a new pair of screws.

Then you hold that trailer to the main leg at four equally-spaced points—say at 3, 6, 9 and 12 o'clock.

Even after this fix is applied, you've got to watch it when moving out with that trailer.



Make sure the jack is in correct position and locked up before you get under way. Then it'll be ready for use when you arrive at the next stop.

## SO NOW YOU'RE A



Many moons ago, a guy taught himself an elephant, named it and rode it to become the world's first rough terrain mechanical handling equipment. It could do, uh, lift, lift, reach, operate on uneven ground and even its stealer water. And it'd work for years.

They gave this guy a sticker-type parade and hailed him as a genius. And they called this machine, meaning great. Now this machine was no dogs. He discovered that Justus'd do anything you asked if you treated him right. But if you ever forgot, of Justus'd balk. So the mahout performed his daily job like his workday just depended on it.

But times changed. Some companies and Justus found himself replaced by a mechanical mammoth with hydraulic muscles. He pulled his trunk

and moved to a job. The mahout? He retired, got himself an M-40 (there and here) and YOU know what.

Today this mechanical mammoth—sometimes called MHE 501 and sometimes 173—is the greatest beast of load that you ever saw around in all the line. Being mechanical, it can't think for itself like of Justus could. Which means you have to be the leader of the whole operation. . . . Every step of the way, from before you turn on the master switch all after the minute and hour are have been joined on the launch.

Here's some tips on things you should and shouldn't do when using the rough terrain around a variety site—whether you're using the fork or crane attachment.

# MAHOUT

WITH YOUR NEW MHE 165



maneuver around obstacles. Especially make sure the rear axle lockpits fit in the storage brackets and that the rear suspension cylinder is hydraulically and mechanically disconnected from the track tension system.

### STARTING UP

Before you reach that master, be sure the hand control elements—the one applied through MHE 16-0100-223-5073—is on right. That'll help keep the vehicle from stalling at a critical moment.



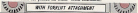
Incidentally, here's you've got your handy bearing and turned up, you might not have the engine from up there in the driver's seat, especially if the



MHE 16-0100-223-5073 are working properly. Be sure around and keep an eye on the flipper cap on the console while you're putting on the master lever. The moment the cap goes up you'll know the engine's started.

Don't push that starting lever more'n 15 seconds at a time, though. If the wire's worn right up, try again in a minute or so.

When it's up for at least 3 to 5 minutes in normal weather—and longer's best if it's cold—before moving out . . . or heat off the water temperature gage climbs to 160 degrees. And don't forget to check the battery generator indicator with the ignition switch on and off. After it says in Para 1 in The 16-0100-223-18 (Jan 61).



Of course, every operation begins with a check-out. See that the MHE 16 attachment's in proper shape for the job. Anything less than perfect won't cut the



## SHIFTING

Here's a trick to make it easier to get your RFFCT into gear: Work the directional control lever with your right hand and the high-low range lever with your left hand at the same time. Do it easy-like till the gears synchronize. You'll get the hang of this after a couple tries and then you won't have any more trouble with grinding, rapping and gearing.



## LIFTING

When you're lifting a load with forks, be sure to keep the load level by using the load back indicator and the mast tilt control lever.

If your CD says it's OK, you can move 20-400 containers on the forks, too, as long as you use a load limiter (TYPE 1880-200-01940 . . . 041) or a suitable 1/4-in. cable to make sure the container rides snug. But keep the forks at most 11-12 inches off the ground and tilted back at least 3 degrees.



## LOADING

Basic electricity's a danger around loads—especially in dry conditions near and wherever you have a lot of flammables. So be sure to use a ground cable at all times.



## WHEEL AND TIRE

There's several things to remember here. Your MHE has two load points and six chains and six suspensioners.

This means you can stop on a dime with either foot. These aircraft-type brakes are the best of their kind on an MHE and they take some getting used to. If you're using a vehicle, for instance, watch real careful you don't





## OFF IT COME

When you and your buddies remove the link attachments and put on the crane gloves, think about the dogs in Chapter 3 of *TM 18-2058-118-10* (Jul 81). A hole-puncherman here could cut Uncle a small coin—and maybe even the life you live so dearly.

For example, isn't it you're making careful you could get shot in the hydraulic system . . . or blow out a pin . . . or lose a hose . . . or . . . or . . . but can you think of anything worse?



Anytime, when you're through with the load-lifting project, give the whole job a good overhauled. Double-check every part you touched in the change-over, especially the hydraulic lines and connections.

And while you're at it, make sure the crane's been inspected according



to the scope in Part II of *TM 18-2058-208-20* (Jul 81)—meaning in the last 60 months or 500 operating hours or since it shows its teeth, etc., has been changed.

And check those cables, sheaves, hooks, rollers, etc., too. They're go-

ING...



ing to handle something bigger's back of you, and twice as easy.

One of the first things you want to do is to make sure the crane stabilizer



cylinder is hydraulically and mechanically connected to the track rotation system.

Another "must" is seeing that the three heavy cables attached to the crane operation.

Never use the vehicle without the stiff legs and when the legs are installed, be sure to tighten the winches in the ground with the legs can't pull off. Why? Important! Either leg or stiff leg may be used, depending on the job you have to do. But remember, if you're storing explosives, these stiff legs have got to be load tested along with the crane attachment.





## STAY ON

Don't ever try to load or unload or even move your crane unless you have a buddy on the ground giving signals. He should always be in a position to see both you and the load at the same time.



Follow your signal man to the assembly area. Two assembly men (not positioners!) will walk alongside the load, ready to shove the dolly back or take any other emergency action that might be needed. And two other guys will stay for extinguishers in the event, too.

While you're in formation, take directions from the two guys on the dolly (you're as far as the initial load is concerned, but only take directions from your guide as far as movement of the crane is concerned).

When you arrive at the launching area, set the dolly as close as you can to the end of the launching rail. Your helpers will then disconnect the pins and lower the sling. While you're moving the vehicle around, they'll push the dolly the rest of the way into position and check it for loading onto the launcher.

To load the missile or booster onto the rail for the jacking, you have to position the crane. Lots of outfit guys white-line on the mainline where the

wheels should be halted, from all kinds of backdrops.



After your rig's lined up right, either check all four wheels or just the front and elevated brakes on. Though not necessary, some outfit the hook for greater safety.

Now, in order to do a good job up there on your crane you ought know the entire operation of jacking the missile. So, before doing another thing, make sure you get a good briefing on just what's going to happen and what you're supposed to do about it. Don't be afraid to ask questions.

## SAFE UP

From here on in you're in the hands of your signal man, so watch him like a hawk.

Once you can't operate the crane, the coil lift cannot lower when a load's suspended from the hook, you'll have to make all necessary adjustments before raising the load. It's best to preset the millimeter cylinder a couple degrees before you lift the load. This will allow for the natural swing of the boom as you lift.



Let your signal man decide exactly how your ladders attach the hoisting beam to the crane. And make sure



you've got no binds in the chain on the lifting arm boom.

After they hook up, lift over an evenly, then bring the side over to



see that the beam will carry evenly. Then lift further till the crane's air-locks, like very slowly, keeping your eye and ear glued to your signal man and your mind concentrated on what you're doing.

One thing you don't do is to stop in mid-air. Or if you ever have to, do it over so gently . . . no rocking . . . no rolling . . . no sudden jolting . . . no sudden low sights. Don't take much vibration or back swing to do a powerful lot of damage.

And when you lay the crane and boom on the rail, lay 'em like a brother. And when you pick up, brother, say good-bye . . . inch by inch, slow and gentle-like. Good-bye!



After the hoisting job's done, don't back away till your guide gives you the signal.





It won't take a genius to realize that the machine who drives the mammoth must be able to play "Dixie" on it, which takes practice, man, and lots of it. You gotta know this boat inside out . . . in every white and whimper.

That's why, whenever you get called out to do other chores around the site—with the back or crane attachments—make every operation a preparation for the big job. Get to know how this baby reacts to every push of every lever.

**THE HITCH**

First, never pick up any load till you know your MHE can handle it. Then make sure the load's attached good and tight.

If you have to make like a mountain goat with the forks up, remember the gradeability and side stability limits of the vehicle. The published data in the 10-1000-123-10 says you can operate on a 45-percent grade, which means 24 degrees. For side stability, you can operate on a 30-percent slope, which comes to about 16½ degrees. Your ball-bank indicator'll tell you how your rig's slanted.



And when you're driving from one end of the site to the other—loaded or unloaded—that's try to hitch it like with your own jumpy. This is no hot rod. It's a steady plow. Never abuse it. Like all Jumbos, it'll never forget . . . and the day of reckoning could arrive

just as you're making a u-turn and loosing.

Especially be real careful when you're changing over from forks to crane, and vice versa. Double-check the hydraulic connections to see no dirt or seal gas in them. That goes double for the crane attachment while it's parked on the platform. If you leave the dog plug off, for instance, you'll sure



stuff get pushed through the entire system. Any oil left in the hose lines of the crane attachment after it's disconnected from the truck will get circulated in the entire system (truck and crane alike) after you've made connection and started up again.

Just keep this thought in mind: Your tough terrain vehicle is the most reliable MHE in the world. It made the most and best FM you can mount.



## TM CHECKER



DA Form 2087, the one for maintenance requests and ideas for improving equipment, can do a lot of chores, and can a lot of credits for you—but it's not for sending in ideas for improving the new system and/or procedures, or for reporting errors you find in TM 14-710.

Ideas for improving the system can go in by letter, and for reporting deficiencies or short-comings in TM 14-710 you can use DA Form 2028 (recommended changes to DA TM's, your

list or supply manual), or you can send 'em in by letter.

And remember, whichever it is you're talking about, and whatever way you decide to send it in, the info goes through channels to your major command headquarters. That info'll show it to the President, U.S. Army Maintenance Board, Fort Knox, Kentucky, through the U.S. Army Supply and Maintenance Command, Washington, D. C.





Old enemies may fade away, but trusted jobs should go—right away.

That's one of the reasons for the existence of the 14-Series of DR Classics. They're your ticket to unchallenged status and the latest goop.

Make your own special selection of security equipment and accessories. You'll find the most advanced in the industry on page 128.

- DR-401-1 (1 Mar-88)
- DR-401-2 (22 Aug-87)
- DR-401-3 (19 Oct-88)
- DR-401-4 (16 Mar-87)
- DR-401-5 (7 Mar-88)
- DR-401-6 (7 Mar-88)
- DR-401-7 (24 Mar-87)
- DR-401-8 (23 Mar-87)
- DR-401-9 (19 Feb-88)

- "General Practice"
- "Special Hardware and Materials"
- "Maintenance of Alarm Systems"
- "Special Structural Repair"
- "Special Engines"
- "Special Maintenance Tools"
- "Key Practices"
- "General Support Equipment"
- "Weights and Scales"

The new manuals take this thing one step from your pile of old goop.



DR	Title	Expired by	Availability
DR-401-1 (1 Mar-88)	"General Hardware and Materials"	DR-401-2	DR-401-1 (1 Mar-88) DR-401-2
DR-401-2 (22 Mar-87)	"Special Hardware and Materials for Security"	DR-401-3	DR-401-1 (1 Mar-88) DR-401-2 DR-401-3
DR-401-3 (19 Oct-88)	"Types of Structural Repairs and Special Tools and All Tools"	DR-401-4	DR-401-1 (1 Mar-88) DR-401-2 DR-401-3
DR-401-4 (16 Mar-87)	"Special Maintenance Tools for General Operation of Equipment Manufactured in Other"	DR-401-5	DR-401-1 (1 Mar-88) DR-401-2 DR-401-3
DR-401-5 (7 Mar-88)	"Design of Keys"	DR-401-6	DR-401-1 (1 Mar-88) DR-401-2 DR-401-3
DR-401-6 (7 Mar-88)	"Special Engines, Tools, and Maintenance of Keys"	DR-401-7	DR-401-1 (1 Mar-88) DR-401-2 DR-401-3
DR-401-7 (24 Mar-87)	"General Manual for Structural Repair (Construction)"	DR-401-8	DR-401-1 (1 Mar-88) DR-401-2 DR-401-3
DR-401-8 (23 Mar-87)	"Special Structural Hardware"	DR-401-9	DR-401-1 (1 Mar-88) DR-401-2 DR-401-3
DR-401-9 (19 Feb-88)	"Special Engines, Tools, and Maintenance of Keys (Special Support Equipment)"	DR-401-10	DR-401-1 (1 Mar-88) DR-401-2 DR-401-3





## KEEP 'EM DRY



No need to do a double-take, looking for an oil hole in a Teflon seal and bearing—you won't find any!

The rugged Teflon is showing up more and more in aircraft, as a replacement for the metal-type bearing. And it's mighty important that you know which is which. Why? Simple!

These Teflon jobs don't digest a lubricant, either. So you never want to "top up" a still new Teflon-type bearing with oil or grease, or by soaking it in a solvent. Lubricant in any amount will invite dirt and grit—clog up the Teflon liner and ruin the bearing in no time.

So how do you tell the difference between the two bearings? Well, it's easy

as impossible as see the Teflon liner around the ball on the Teflon-type. But the lack of any grease hole will clue you in. Then too, the metal-type has either a grease fitting, a bronze bush, or both.



Remember . . . before you check the needle with your lubricator, be sure you have a metal-type bearing in your sights.

## NAMELESS INVERTER!



You can't hardly tell the player without a name card—that goes for a piece of electrical equipment without a name plate, too.

Talkin' about the money inverter, model M28-23-1, PU 1757A (PN 612-650-8100) and model M28-23-5, PU 5717A (PN 612-518-8150) in your Milwaukee 10V-11 electrical system.

Know that name of the player got lost in the supply shuffle. So if either inverter goes on the line, you can order another one right out of TM 11-612-654-82P (31 Dec 61).

## THREAD THE NEEDLE

When you thread hole wire through an engine all-purpose oil-and-water drilled cap, and you're looking for a place to anchor it, open those baby blow valves to find the right spot.

Anchor wire around nut and work it for the hole. You'll see where it can thread free.

Now engines have an extra sight on the housing in the area of the cap. You just thread the needle, and!

## STENCIL VEHICLES



Dear Windy Windcock,

I got giggled by an inspector who said I should have this warning stenciled on an airport support vehicle used in the hangar . . . **WARNING, KEEP 1 FOOT CLEAR OF AIRCRAFT ENGINES AND FUEL TANK AREAS.**

I've looked right and left but still haven't been able to come up with an authority for this stenciling. What gives?

Sgt. G. H. G.

Dear Specialist G. H. G.,

The authority for marking vehicles and equipment is AR 116-1100-1 (11 Mar-60), Section V, paragraph 12 and F, on page 51, leaves it up to your CO whether or not special notices are needed because of local operating conditions.

So, if you service aircraft with mobile battery chargers, vacuum, vacuum cleaners, air compressors (any electrical source that can give off a big hot spark) in poorly ventilated storage buildings

or hangars, stencil the units

**"WARNING—KEEP 1 FOOT CLEAR OF AIRCRAFT ENGINES AND FUEL TANK AREAS"**

This is in the Underwriters National Electric Code, Number 70 (3 Aug 59), under Article 515. AR 116-10 (29 Jul 59), "Army Safety Program", gives you the green light to use the Code.

*Windy Windcock*







## BEWARE OF WOBBLE



Like the Mac Mini, your T-125/GRC-19 combination gets a little wobble in the joints from constant use.

It's unavoidable, sure, but you may be surprised to fiddle around with controls that need replacing rather than constant adjusting.

Like the band selector control and the service selector switch, it's common.



A wobbled band selector could be fussy with the frequency you want, but all you'll get from it is silence. A slight wobble to the left or right will give you the frequency most of the time, but

when you need more than a slight wobble is a new control. The play in it is a no-no—smaller than a new user's shoe.

Same thing applies to the service selector switch, particularly those with the plastic cover wobble. Constant use wears the shaft hole.

Remedy it that your set can go on and off for an apparent reason.

A new acoustic waker on the replacement switches has proved much used that problem—can you get it on the air.

However, the same FIM (1004-006-1001) gets the remedy on the plastic waker, since the latter are still in the supply system. The big pain in don't believe to call for help when you have to fiddle to get your frequency or when you lose power.

## AN GRC-19 FIXED ANTENNA

One random measurement of your antenna wires on the standard Hero doublet can pop the PA side in your Auger 19 frame's you can say "NO!" The doublet makes up from the AN/GRC-12 antenna group.

A slight extension in antenna wire length—on little as three inches—can mean additional plate current which can knock out the power amplifier tube (V-200 tube type 4X1500).

Since it's part of the operator's responsibility to see that the antenna wires match, use a tape to be doubly

sure of that doublet. Remember, three inches is close as much as they can differ.

If you're a little wary on doublets, TM 11-20H will bring you up to date.



## RELEASE THAT LOCK



Dear Half-Moon:

Our AN/FRC-10's are going to the repair shop regularly because operators forget about the DIAL LOCK when testing the set.

Could you drop a reminder in *PI* on the subject this month?

Cpl. R. J. M.

Dear Corporal R. J. M.:

That April '71 had the FRC-10's, R, RA, S and SA in the shop since they have the same controls. You might say it's a good idea to check the wire holding the lock, too . . . so be sure it's always snug.

The TUNING knob does have some built-in slippage, but if you put on the pressure without first releasing the DIAL LOCK (turn it to the left), the

gear isn't going to strip as you force 'em against the lock. This damages the lock, and the spring gears allow that old familiar clicking to set in . . . and another Park hit the repair shop.

Since the TUNING knob should turn freely during operation of the set, any resistance means you probably forgot to unlock it. So check that lock . . . first.

*Half-Moon*

## THEY DON'T HAVE TO GLOW



That's the word on ANYONE-I radio marking on panel markings.

When the front panel markings on your R-174/LBE receiver and the PP-58/LBE power supply lose their glow, it's not necessary to rub 'em with the luminous paint.

There's no need for the markings to glow, and the paint costs money and



also too much time, anyway!

The word is: When the markings get hard to read, fill 'em in with a permanent white paint and cover with a clear varnish—as per RM Spec RM-Y-5894. It meets the requirements of RM-M-15011 (Marking of Electronic Panels).

## A LITTLE SHORT ON SHAFTS...



The poop from the poop is that many and many RT-66-66/GBC 10-cylinder-transmissions are being clock shorted, causing a lot of FM water thrust resistance to be learned too.

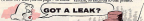
The shaft is the transmission's internal coupling shaft. If the internal stop mechanism is not adjusted right, it lets Coll 1-13 come into contact with Coll 1-12, causing a short which forces the engine. Just as simple as that.

Change 1 of Apr 531 to TM 11-289 (1 that 531 tells you on page 7 on shaft).



For the proper operation of the stop mechanism, it then gives your mechanic the steps on how to adjust the stop mechanism on pages 11-12.

If you don't have this Change 1 to the TM, you're going to be having' for certain, so looking to see prints.



If any of the four corners of the case on your AM/PRE-8 rolls are not learned on time, you're in for some real damp trouble.

When this happens, a hot spot for leaks is the corner of the top half of the case—the edge that fits into the groove of the lower case.



Even with the rubber gasket in place, rain, splashed water and other moisture can still find its way inside the ca-



... of the cover's damaged. We need to tell you what moisture can do to a roller's gear. Just hang up the "no-sell" sign.

Give the case a look, and seal it to support fast if it's damaged. Get 'em for a while it's still minor. A water-corroded or worn a lot more to-do than a chipped case—no don't be shy about speaking up.

## UNKINKIN' THE CORDS



HALP!

A hay and probably hasn't been laid right. You let it go now, quick and easy as you can, because back in those terrific weeks for your telephone handset and handset . . . when you know how.

All you need's a 1/2-in. dowel or rod, a minimum of patience and work, and that "hay" cord will spring right back into its coiled position.

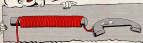
But if the cord still don't work right after you treat it this way, then replace it.

Problem that when you try to straighten out a reusable cord to remove a kink. The trouble shows up if you inadvertently applied the cord in the wrong direction. This causes the original lay of the cord, and you've got another hay-cord.

But don't get me a kink—and to make a previously kinked cord reusable—in use the dowel or rod method.



LET'S TRY THE DOWEL OR ROD METHOD



# PDR-39A NEEDS SOME GREASE



Dear Half-Mast,

We've got a problem with our DR/PDR-39A rubber cut and maybe you can help us. Namely, the selector switch blade. The switch controls the position of the motor cable on the indicating motor. After a little use, the switch is just about useless and pretty hard to adjust. Is there a reason and a cure for this?



BT D, K, F.

Dear Sergeant D.K.F.,

You and you.

The reason the switch blade is broken is because it works a braided steel cable that rides through an aluminum guide tube around motor or lever. It breaks itself in the rubber aluminum.

Just take out the four cover screws and lift the cover off with the handle on the front of the set.

You may have to pop the bottom cover with a screwdriver the first time.



To cure it, TB MG-215-34 (11, Jan 61) says you can use Insulating Grease (one pound), electrical on the cable to make it slide free. FM 5578-101-1000 gets you an eight-ounce tube of the grease.

When you do, coat the cover gasket with the same grease so's it'll fit any other day.

Then, coat the steel cable with the grease. Another light coat every six months or so should keep the switch running freely.

*Half-Mast*

## ZM-3/U TUBE SUBSTITUTE



If you're wondering what to do with the original tube failed and the replacement 6C4W electron tube for your ZM-3/U and ZM-3A/U analyzers, risk around a minute.

The shield was designed for the original 6C4 tube, and the 6C4W just won't fit in it (height difference), so . . . there's a new replacement tube—the 6C4WA—which is the same size as the old 6C4. It'll end your troubles.

You can get the 6C4WA with DOW 1000-317-0100. All three have the same reference symbol, Y2, in your analyzers. You can substitute the 6C4WA for the 6C4W spot in your TM 11-5012-241-01P (Sep-58), and TM 11-5013-12 (May 58).

## W1 TO W4... OVER

Get your copy of Change 1 (18 May 59) to Sig 7&8 MT-307/G8 real handy! That's the mounting for your W3C-15, 17 or 18 audio sets.

Well, let's come meet all over again on these W1 and W4 cable assemblies.

Cable assembly W1 is really cable assembly DOW 1000-262-T366, for use with receiver R-108, R-109 or R-112.

OR.

Cable assembly W4 is really cable assembly DOW 1000-262-0793, to be used as a power connection from the mounting to power supply PP-105V/G8 or PP-111V/G8.

To make a field crew real sure you've got it all around.



LETTERS: DON'T LEAVE  
UP THE TUBE MARKS. MAKE  
THEY ARE THERE AND FOR  
SOCKET AND TUBE.

HEARD A  
COMMENT: THE TUBE  
MARKS ARE NOT  
NECESSARY TO IDENTIFY  
THE TUBE. WHY NOT?



## SOCKET SLIP-UP

Dear Hal/Helen,

TR 11-1963, page 41, para 6(c), says that when replacing the V2 tube type 6X6G4, the pin nearest the red dot on the tube should be inserted in the socket and pin socket from the red mark on the tube socket.

As you know the socket is on the TR-1963 GBC base of the 6X6G4-6, -8 and -10.

It's total putting the tubes in this way, but they don't work... some thought they had not GBC. Can you give us the word on this?

Ed R. W.

Dear Sergeant R. W.,

Be happy to share your troubles with the Park 6 tubes have identical problems with the V2 and V3 sockets and need a spell.

The solution is simple. After lining up the red marks on the tube and socket, the 6-pin tube can only go into the 1-4 or 1-5 contact in the socket. If one doesn't work, try the other.

The problem wouldn't be there if the sockets had only four contacts to match the 6-pin tube. However, early models used the 6-pin tube because of a shortage of the others.

Normally, the contact farther from the red dot was so easy inserted, but now you go through with the one near to the red mark inserted.

TR Sig 11-10 recommends that the inserted contact cathode it's best or should be plugged with 50 types or other suitable material.



## Comic Book's

REI



### HOT STUFF—WATCH IT

That's for sure—and that's why there's a handle on the thermostat dry battery (500 4128-603-8809) in the remote thing box of the REI T-Team multiple socket launcher. This baby really develops high temps in a hurry . . . and stays hot even after the power has locked away. So, plug it away, allow time for the battery to cool down and then use the handle to remove it—like it says in the 9-1-888-213-12.

### A GOOD STIFFENER

Here's good news if you're having trouble keeping the black flag straight and secure on your M&M machine gun. M&M 9-1-800-824-3072 (or fax 82) provides a reinforcing kit with two stiffener plates and a center spacer. These'll give a lot more rigidity to the frame and keep it from collapsing and being thrown on its side.

### M&M LITTER KIT

Still having trouble getting the litter kits for your M&M Personal Carrier? It's the Litter, P&M 1200-771-4113 (Dial Number 1200-1144), listed in Federal Supply Catalog C200-02, Vol 1 (200-0150-02, Vol 1) Apr 85 on page 166. Call per 18 8 823-72.



### M&M P AND T SETS

OR wear M&M . . .

Your M&M protection and treatment set and your M&M (M&M) or M&M(T) combat vehicle mask just have to get company pronto-like. Otherwise the set's metal container may damage the mask's face glass or its lens.

Will you hear different bangs the P and T set out of the mask's center, but be sure to store it near the mask. That way anytime you have to grab the mask you can get the M&M in use all your way to work, empty pockets . . . but try not to sit on it if you can help it.

### M&M BREATHING APPARATUS

Yep, it's true. An M&M oxygen generating breathing apparatus will keep you going for 20 or 40 minutes (depending on how hard you're working). But, buddy, that's continuous time. Once you start the counter you can use it as you like, but only until the alarm goes off.

That is, just because you used an M&M for only 10 minutes don't expect to pick it up later and get 20 or so more minutes out of it. Once the alarm's gone off, that's it. It'll be ready for another 20-40 minute stretch only after you give it a new canister and reset the timer.

*Would You Stake Your Life on  
the Condition of Your Equipment?*



**THE CONDITION OF YOUR  
EQUIPMENT WILL DECIDE!**