

PS

THE PREVENTIVE MAINTENANCE MONTHLY

Issue 79

1984 Series

BEFORE OPERATION SERV



1. CHECK ALL WATER
TUBES, BATH
CLODS, LO
CLAMPS &
LUBRICATI
CHECK FOR L
UNDER TRAN
VENTION, COUS

LUBRICATION TRUCK, 16-TON

NOTE: SEE HOW TO OIL AND
SERVICES AND OIL MAINTENANCE
MANUALS.



AT THE COST OF ONLY MINUTES A DAY



PEACE

Amistice

WAR

PEACE

WAR—IN PEACE

Time marches on, and as it does, more and more of the old boys who did the fighting in World War II and Korea are finishing their time and leaving the Army.

The training program does its best to give the newcomers some idea of what they may be up against if the show goes on the road again. But it's very hard to get across the fact that equipment used in Iraq is top condition at all times during the year—perhaps you'll be ready to roll when someone blows the vehicle and you have to get into combat.

It is the leader who entered the service with a tank he worked like a baby till he die who comes out alive. The "secondary types" and the guys who forget about care and cleaning have the tank crushed against them.

It's all a matter of habit and frame of mind. If you always think of each tank you handle as the last tank you'll ever get, and always try to be just as easy on the old girl as you possibly can (even in combat, you won't be likely to find yourself sitting inside a broken-down tank) while the other man ignores the team.



When the situation deteriorates—as the gas who aren't there like to call it—your machine can go without lubrication, cleaning and adjustment for a surprisingly long time, and still keep fighting. You can afford to do the work and forget the tank for long enough to fight through the action to a quiet spot again. Your tank can take more than the other guy's, anyhow.

But, the little tricks that give you trouble when you are safe at home or the training course will tear up your tank just as fast as when the chips are down. Only breakdowns in battle-front, you don't get off with a clean escape don't get off at all.

So let's study problems and learn to avoid all the little things in our driving which can break us down. Something at too high a speed, for instance, will lose a transmission under fire just as fast as it will on the flat-Knox driving ranges.

Now, if you'll only remember to treat your present tank right, when you have to fight with one, you'll have a good chance of getting back to make a part of yourself in the RZ (overhaul).

"Now, in our way . . ."

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TANK-AUTOMOTIVE

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24 - VOLT WATERPROOF

Here's the rundown on the new 24-volt Waterproof Electrical System you have been meeting on the new vehicles. This is one of a series of articles which will start with basic principles and run through to on-the-vehicle tests and troubleshooting.

IT'S AMAZING!

Some of the smartest men in the Army work in water pools. For they do, in spite of what the water expert says. They're the men who understand the internal plumbing of a submarine, the same life of a four-cycle engine—over the usual behavior of the hydraulic lines.

But when it comes to the electrical system of the truck or tank, these same men often bog down in a maze of repetition, name and plain talk magic. To control electrical troubles requires a kind of a lot-vehicle, but some of these same men manage the off-vehicle job like a hot-dish off the deep-end.

This is plain talk, for it's so easy to understand your electrical system on any other part of your vehicle. With the new vehicles all you do is test and replace materials, replace GM wires, you will do a better job if you understand what goes on inside the boxes, what they do for you and how they do it.

Let's hit the high spots, once over lightly, to give you the minimum understanding you should have for any motor pool work. If you want the whole hill of goods, start with TM 11-444 and go from there to, let's say, 11-444A, B, and C, which pretty well cover the subject.



ELECTRICAL SYSTEMS

PART 1

**WHATEVER YOUR MOJIB — OUR MISERABLE
MORNING IT'LL COME IN HANDY TO!**

KNOW YOUR BATTERY

Perhaps the most abused and discussed part of your whole electrical system is the battery. This is probably because it is misunderstood, even by those who have a pretty good idea of what goes on in their generator and regulator.

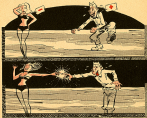
To begin with, the name "storage battery" implies a storehouse for some electricity. This is misleading, for except in special and limited cases, electricity cannot be stored. Any electrical current must be used at the same instant it is generated. There is no way to put it up in a battery until it is needed. On the other hand, as you all know, we apply a charging current to a vehicle battery today, and somehow we get current from the same battery tomorrow morning when we want to start our truck. One-fer? Reed on—

BATTERY CURRENT

What actually happens is this: While you cannot store electricity, there are some chemical conditions which will produce electricity. In general, two different metals in an acid or an alkali solution will have an electrical current set up between them. Some other materials (such as carbon) will have the same effect. Naturally, some of these materials will produce a greater flow of current for a longer time than others, but in every case, the production of the current is dependent on actual chemical changes within the cell.

In your flashlight battery or the larger dry cells used in radios, the current is produced by the action of ammonium sulphate on the zinc which forms the cell's outer shell. This zinc is gradually consumed by the chemical action, and as you have no doubt seen, if the battery is left in the flashlight too long, it starts to leak all over the inside of the case.

It would be possible to run a radio on this type of dry battery. The trouble would be the size of battery needed and the cost of replacing the zinc elements every few starts, for this type of battery reaction is not reversible; therefore, the battery cannot be recharged.



STORAGE BATTERY

Fortunately, there is one type of battery reaction that has the advantages of being reversible, and at the same time using relatively common and reasonably cheap materials. This is the lead-acid battery, or the common automotive storage battery.

You've probably seen broken batteries. You may have taken these apart, if only to salvage the lead in them for fishing sinkers. In any case, these batteries are made up of alternate plates of sponge lead and lead peroxide. These plates are separated by thin porous plates, generally made either of wood or (in military and some other heavy-duty batteries) of micro-porous rubber or fiber glass.

A bank of these alternate plates and separators is suspended in a hard rubber case and makes up one cell of the battery. The case is then filled with a mixture of sulphuric acid and water, originally about 28% acid to 72% water. (Specific Gravity 1.280 at 80°F.)

Taking the chemistry over slowly, you have negative plates of sponge lead, positive plates of lead peroxide—this is a compound of lead and oxygen—separated by non-conducting but porous separators in a solution of dilute sulphuric acid. All the negative plates are connected to each other, but not to the positive plates, while at the other end of the cell, all the positive plates are connected to each other, but not to the negative plates.



Now, if you connect a voltmeter from the positive terminal of the cell to the negative, it will indicate a potential of roughly two volts. If you connect a two-volt lamp, it will light. Now watch what happens. As the current is drawn from the cell, some of the "sulfate radical" (SO_4) of the sulphuric acid combines with the lead of the lead peroxide in the positive plate, while some more of it combines with the pure lead in the negative plate. At the same time, the oxygen (O_2) from the lead peroxide in the positive plate combines with the free hydrogen (H_2) left in the electrolyte to form water.

As you can see, this action is gradually turning both the positive and the negative plates into lead sulphate. Now remember that only **different** metals (or compounds of metals) in a solution will produce current. So when the plates turn into the same metal compound, the current flow will not finally stop.



By S. L. Dell. Courtesy of the National Bureau of Standards, Washington, D. C.



Actually, this reaction will not go all the way to completion, since the electrolyte is being diluted all the time by the water made in the reaction. The SO_4 is also being withdrawn. Also, the lead sulphate forms a crystal that settles on the plates, and finally prevent any more acid from reaching the plates. But when the reaction has gone as far as it will go, the battery is said to be completely discharged. (A long slow discharge will get a lot more out of a battery than a fast discharge, which is why your battery will often fire your ignition long after it refuses to crank your engine).



Now if this were a zinc-air dry-cell flashlight battery, that would be the end of it, and a new battery would have to be put in its place. But this is a reversible reaction, and you can put things back like they were by reacting a current from some other source (generator or battery charger) back through the battery.

The lead sulfate on both plates is split up by the charging current into lead acid "sulphate solution" while water is split up into hydrogen and oxygen. The sulphate radical leaves the plates and combines with the hydrogen to form sulphuric acid. At the same time, the

oxygen combines with the lead of the positive plate to form lead peroxide. Notice that water actually takes part in the chemistry of this battery.

Notes: This is a simplified explanation of the reaction—for a complete rundown, see battery TM 9-2667.

Since sulphuric acid weighs more than water, the amount of acid in the cell can be measured by taking the specific gravity of the solution with an ordinary battery hydrometer. Notice that as the cell is discharged, the specific gravity falls off for two reasons: Sulphuric acid is being transferred to the plates, and new water is being made. This water is formed at the positive plates, and since it rises slowly, these plates are most likely to be damaged by freezing after a real heavy discharge. Remember this for later when you are considering cold-weather battery care.

BATTERY FROSTING POINTS	
Specific Gravity	Frosting Point
1.284	-60°F
1.270	-67°F
1.255	-74°F
1.240	-81°F
1.225	-87°F
1.210	-94°F
1.195	-101°F
1.180	-107°F
1.165	-114°F
1.150	-121°F
1.135	-127°F



HYDROMETER READINGS

When the battery is charged, the specific gravity rises for two reasons. The reverse of those above: The water is used up, and the sulphuric acid is formed. This acid also rises slowly, and sometimes the specific gravity of the solution (up at the cell cap where your hydrometer gets hold of it) will seem to rise for some time after charging is stopped. Actually, you are not getting any more acid into the solution, you are just waiting while it rises all around.

Another thing can fool you: If you take a reading while the solution or electrolyte is full of gas (it fizzes while charging), you will get a false low reading. So take your final readings after the battery has been all charged for an hour or two.

As you know, the 6-volt car batteries have three cells, connected in series. The 24-volt military trucks have two 12-volt batteries, of six cells each, also in series, to produce

the desired 24 volts. Since all the cells in any one battery are made exactly alike, made at the same time, get their first charge at the factory together, and work together all the time—it follows that they should be in the same condition of charge at all times. Which means that they should have the same specific gravity at all times.

One of the first signs of trouble in a battery is any noticeable variation between cells in that battery. Many things can cause variation between cells, but they all mean trouble, whether a short circuit between the plates, a failure of the separator, loss of acid by spilling or overboiling, addition of too much water to one cell, or whatever. So whenever your battery shows a variation of more than twenty-five gravity points between cells, get it out of your truck and put in good batteries. You never want to be running around with a doubtful battery.

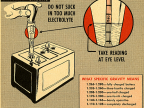
TEMPERATURE vs. CHARGE

Your hydrometer will also tell you the state of charge your battery is in, but there is a joker in the deck. You must know the temperature of the battery solution in order to get real useful information from the specific gravity reading (see chart). When your electrolyte cools down it contracts and becomes denser. Therefore, a cold solution will give a higher reading

than a warm one, although the actual percentage of acid is just the same. But since the percentage of free acid in the cell is what tells the state of charge of the cell, you should allow for the temperature before you can learn much about the state of charge.

If you have a way of telling the temperature of your solution, or if you know the temperature of the air in which the battery has been standing for a long time (all night or longer) without being either

BATTERY CHECKS



HYDROMETER METHOD

charged or discharged, learn how to correct for temperature.

For every two degrees below 80°F you subtract 4 gravity points from your reading. For example, a battery at 67°F might read 1.232, a reading which would indicate about half-charged at 80°F. But when you subtract the 21 points (4x3=12) to correct for temperature you find it is actually a 1.208 battery, or barely 1/4-charged.

On the other hand, you add 4 gravity points for every two degrees above 80°F. On a real hot day in the desert, say 120°F, a bat-

tery which reads 1.244 (4x3=12) would actually be at 1.260, or fully charged.

You can see that in field conditions this problem is going to be hard to lick, but you don't really have to lick it. All you need to do, if you don't have a real good way of checking cell temperatures, is to check your reading carefully for variation between cells. No matter how hot or cold the battery is, if the cells show more than twenty-five hydrometer points difference, get it off your truck because trouble is coming.

Dear Skip Mast,

I was here at our base
we have
but you
ating
sawing
and
idea



197 (1-AM) 448

Come along Skip, fix or work on the engine tomorrow? Then, get it done and send it off to PE Magazine, Mountain View, Maryland. It'll be passed along so other guys can benefit. Let them in on your share of good maintenance.

simple
Kinn-
down
a best!!
if get
like
a really
Dance

BATTERY CHECKS



VOLTMETER METHOD

Now, to see if your battery is near enough charged to run your truck, get a voltmeter that goes to at least 30 volts and hook it from the positive post of your battery to ground. Leave your switch off, and crank your engine with the starter. If you have at least 18 volts while the starter is cranking, you have enough for ignition. And if the starter turns your engine reasonably fast, you have enough capacity to start.

The joy of this particular test is that you make the temperature work for you. On a real cold day you need a better battery than on a warm day, and on a cold day your

starter takes more out of the battery to crank your cold engine. Therefore, if your battery will crank the engine at about normal cranking speed, and still have 18 volts left for the ignition, it is good enough to start that engine on that day—which is what you wanted to know in the first place.

Of course, the battery which passes this test on the Fourth of July in Georgia may not pass on Christmas in Wisconsin, but for where you are when you're there, if she cranks OK and has 18 volts showing, she is safe to take out on a run. If she won't pass the test, get a good one.



Cold weather also cuts down the output of a battery, even when it's in good condition and fully charged. In extreme cold, say below zero, you may find that you can't start, no matter how good your battery is, or it may happen that you can't get a good battery to replace your poor one.

If you have one of the slave-bits or other portable heaters, you will, of course, heat the entire engine and the battery before trying to start. But if you have nothing but a heated maintenance tent for any warm place, no matter what I take your battery needs, and warm it up. Keep the battery a safe distance from stoves or explosives and open fire and avoid heating it too fast. A good rule is not to let the battery get any warmer than will let you immediately hold it in your bare hands. See TIE Card 280 for data on using stove bit (342) to heat batteries.

When you put the battery back in the truck she will probably start. However, do not be fooled if she does start—it will very possibly not start again after the battery gets

cold. So don't kill your engine until you are back again to where you ran when the battery if necessary.

If heating the battery is not enough to start the engine, remember that in trying to start, you have forced new water at the positive plates and so made the battery much more liable to damage by freezing. You'll have to take it out of the truck and back into the warm place until it can be fully charged again. (Naturally, in a 24-volt vehicle you give both batteries the same treatment.)

And speaking of the same treatment, never replace one battery out of a pair, change 'em both, and let the battery man who charges 'em test 'em fully and set up matched pairs for use together. If you couple a new battery with an old, believe it that the old one is not going to last long. Even though the batteries only need charging and heating, it must be done by a competent battery man who has a warm place to work, and can make both by-drometer and capacity tests to find well-matched pairs of batteries that will work together.

ON-VEHICLE CARE

**TOO MUCH WATER IS
AS BAD AS TOO LITTLE!**



There are a few things you can do for your battery during the daily servicing of your vehicle which will keep it in the best of shape and really save you walking back some stormy night.

First of all, keep the top of your battery clean—and this means really clean. Of course, you know enough to keep the water level up in your cells, but remember also that too much water is as bad as too little. If your batteries use more than about one ounce of water per cell in a week, you better talk to the shop electrician about checking your generator regulator setting; might be too high.

The final decision on what water to use in a battery will depend on what you can get. Distilled water is best, of course. If you don't have it, the cleanest water you can get will do. If you have to use tap

water, let it run until the water which has been standing in the pipe is gone. The fresh water will have less metal salts in it. Always remember that ANY water is better than NO water.

One other thing, since the battery demand for current in your truck, the starting load, goes from the battery through the heavy cables, be sure the cables are clean, tight and free of broken strands. After washing the battery is a fine time to take hold of each cable and test it for tightness. Another good time is to crank your engine for 15 seconds with the neutral off, and have someone tap hands on the cable ends while you do it. If they are loose or corroded they will get hot under the load.

Keep these ideas in mind and you won't have any trouble with the battery part of your system.

TANK CARBURETORS ARE INTERCHANGEABLE

BUT...



You gotta play it cool and get the right type carb for your particular track-wagon, Man. Otherwise, you'll find that Continental engine won't run worth a continental dime.

Some joes get the idea that the carburetors are all interchangeable between all these Continental engines. But that just won't get it.

There are two different types but four different carburetors. From the outside they look a lot alike. But one type (two different carb.) works right on the AG-893-3 engine only; the other type (also two carb.) on the AG-893-4 and all AV-1790 series. Give one of these engines the wrong juice-pot and it'll spit 'n' splutter 'n' drag its heels.



This carburetor will be an carburetor covered by Stock Nos. 0213-1346000 and 0213-1346001. There's for the AG-893-3 engine only.



This carburetor will be an carburetor covered by Stock Nos. 0214-1311199 and 0214-1311200. There's for AG-893-4 and all AV-1790 Series.

All four cars carry nameplates which identify them as Model NA-TSG3 (see figure on page 879). And this might fool ya, if ya didn't look any further. But a closer gander'll show that the nameplate is also stamped with the engine model in which that particular 'jag should be used. Now, that's the dope that steers ya straight—not just the carb model number.

Also, you oughtta know that there's been a slight change affecting both types of carbs. On earlier engines they both used 1/2" studs for mounting the air-intake elbow. On those coming out now they take 5/16" studs. The chart shows you which is which. (Depends on serial number of your engine.)

Now you're about to ask if two 'jags made for the same engine model—but using different size studs—are interchangeable. Right? Right! They are.

Just make sure the type of 'jag is right for your particular engine. Of course, you may have to get bigger studs or get Ordinance to drill and tap the holes, depending on which carb (total size, that is) your inspection brings.

But whenever you need a 'jag for a tank with a Continental power plant, this chart will pick you up on the right stud number to use. Just check your engine model and serial number and order the carb as indicated. You either get it (if it's available) or use that'll work.

FOR THESE VEHICLES	441, 440A1, 441, 442, 441-2100	4117, 441 (74111), 441A1 (74112), 7981, 7992
WITH ENGINE MODEL	40-893-4 and all 40-1770 Series	400-893-3
*USE CARRINGTON STOCK NO.	02447001189 (Use 1/2" studs for mounting air intake elbow. 1770 Series after Engine Serial No. 4948, 40-893-4 after Engine Serial No. 242.)	0224704883 (Use 5/16" studs for mounting air intake elbow. 400-893-3 after Serial No. 702.)
	02627002091 (Use 5/16" studs for mounting air intake elbow. 1770 Series after Engine Serial No. 4948, 40-893-4 after Engine Serial No. 242.)	0225704889 (Use 5/16" studs for mounting air intake elbow. 400-893-3 after Serial No. 702.)

*Refer to your copy of your local car laws. Your other copy on 78 Ford 818 (28 Apr 58) which says something a little different on the subject—won't fool ya. The 78 is being revised.

LITTLE CRAZY MIXED UP CLUTCHES



Check before you try. This job looks easy to mislead. And you yourself can give them the proper treatment that'll make them snap back and be right. The best part of it is you did not do the prescription while lying on your back...but follow these real facts/remarks and there won't be any chance of your clutch going down the drain.

1st Step—The grease fitting on the clutch release bearing sleeve must come out (see Fig. 1). In place of this fitting put a 1/2" pipe plug (J2905-0343903) and thereafter keep grease out of this sleeve. Make a note on your LO about this. This sleeve will get its share of grease at time of rebuild at overhaul. So—that lets you out.

2nd . . . a minor operation—The transmission level. It must be kept as outlined in MRO Ord DT4-MS. Now here's where we're going off the beaten path a little. That MRO provides a transmission oil-level inspection-hole so the oil will be at the right level, but never has it that some people have misinterpreted the MRO





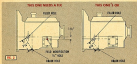
and are drilling the inspection hole in all these 3-inches.

They've got the wrong impression. The MVO applies only to the early model trucks which have the transmission filler and inspection hole located above the power-take-off plate. Before you drill, measure the distance between the center of the drain plug and the center of the filler plug. If it's 6 1/2", then it's a late model truck to which the MVO does not ap-

ply. But if the measurement is 7 1/2", then do it the MVO way (Fig. 2).

No matter where the inspection hole is, the right amount of oil in your transmission is 27 pints with PTO and 23 pints without the PTO.

Now for the last of the nuts... remove the drain plug from the flywheel housing and keep it in your map compartment. It's to be used for locking purposes only.



Connie Radd's "SHORT 'N' SWEET GIFT"



Are you watering the starter?

Be careful with the use of water or steam when cleaning your new GM 1500, 1600, 1700, 1800, 1900, 2000 and 2200 trucks.

It's possible for water to enter the flywheel housing thru the vent system and get into the starter. Water getting into the starter can rust up and corrosion which can destroy the starter shaft's bearing and cause the starter drive gear teeth to wear excessively, especially if the truck is idle for any length of time after a good washdown.

General also has added two gaskets to help stop this trouble. They're Flywheel Housing Cover Gasket (Part No. 2049-812766) and bearing ho-



HOW DON'T YOU AND YOUR GOMMA GET "BROKEN" ABOUT BURNIN' A TRUCK see us Flywheel Housing Gasket Check No. G149-80175641.

They're factory installed on vehicles after 11/91/8717. On vehicles before that, they'll be put on in the field.

Circle towing

Some 1984's are finding their engine hood's cross-member banged up by the engine's lifting-ring after the engine's been taken out rear or side.

Lifting the engine can stretch the ring, so it's a good idea to check its clearance every time it's reinstalled. Besides knocking a hole in the cross-member, the ring's close contact with it gives out a terrific rattle.

To save your cross-member and get

that quiet ride, check the engine's and lifting-ring's mount bolts to see that they're in and snug. And check the width of the lifting-ring's bottom bracket cut could make it fit. If everything's tight and in place, and you're still having trouble, stretch the lifting-ring a little. If she's right, take off and hammer the ring back to its original shape. And when you see that hammer, rap rather than swing.

Air cleaners... keep clean

(Both bottom AND top)



When operating your MCH under extremely dusty conditions (dunes, for instance), MCH pay you to check and clean the MCH of your air cleaners as well as the oil reservoir.



Saw a truck at Camp Irwin which had been returned to Ordona for lack of power on the main line. Oil reservoir was clean as a whistle, but the air dunes up on top of the chamber were packed with the red desert dust.

The crew dumped the oil cans and put them back on to catch the dust, which was then scraped and washed off the upper section. Emptying the dust out of the oil cans and cleaning and re-filling them was all it took to return the truck to action. You should have seen the serious the shop officer presided to the crew!



These ideas won't hurt a bit on any tank you may be driving.



You, too, can avoid damaged digits



On your MCH the rubber cap is usually flanked by some sharp edges of the box around. As you may have already learned the hard way, this can easily lead to finger-tips, short tempers and lost repairs.



One of the few Arsenal find an easy way to, avoid little say but health to be cut in pieces of old brass tubes about 1/2" x 2" with a 1/8" center hole, and fit it over the filter tank, under the cap, as shown above.

**PERFORMANCE HAS THE ANSWERS!**

Dump body hinge bracket

Make the following checks often or you might be dumping more than your load, on your M51.

The dump body hinge bracket is bolted to a heavy, longitudinal piece of substance (like pipe) at the rear and under the dump body (Fig. 1). This longitudinal piece is welded to a crosswise flange-plate in front of it.

You've got to keep those bolts tight and keep a check on that weld. It means that when the dump body starts to go up there's a real-dee clunk on the hinge and the piece it's attached to. And if the weld starts to crack, the'll crack all the way and maybe start the body.



If the bolts are loose it'll give a rattle or creak on the longitudinal piece that'll crack the weld every time.

These clunks will cause body, cargo and all.

A fix is on the way to reinforce the hinge and strengthen the machine that the hinge are attached to. Till then—keep a watchful eye on it.

Control valve adjustment

Can troubles with your M51 dump truck hydraulic hoist? If so—check your control valve to find cause to check the hoist's control valve.

This valve is a sensitive little buggie. It has a little ball inside sometimes like a tile ball on a pin-ball machine, so if you don't know the way you'll knock things up but good. Let the experts do the necessary fiddling whenever it comes to the hoist linkage and controls. If they aren't familiar with the adjustment procedure, they can always put their finger on TM 9-1870D, page 15, and get the exact steps.

**JOE
DOPE**

**SAFETY
PRECAUTIONS
FOR TANKS**

...WHILE YOU
ARE PICKING
UP THE PIECES
...LET JOE TELL
YOU HOW TO
ADD ANOTHER
...MISS!



**GET PNEUMATIC BRAKES
BEFORE STARTING.**



REMEMBER YOU CAN'T
START THE ENGINE
TILL THE TRANSMISSION
SELECTOR LEVER IS IN
THE NEUTRAL POSITION.



DO NOT OVER-PRIME ENGINE WHEN STARTING.

... NEVER ENGAGE A STARTER FOR PERIODS LONGER THAN 30 SECONDS.



IF OIL PRESSURE GAGE INDICATES NO OIL PRESSURE, OR IF OIL COOLING FAN INDICATING LIGHTS FAIL TO GO OFF WHEN ENGINE IS OPERATING... STOP ENGINE AT ONCE!

NEVER MOVE A TANK IN A MOTOR PARK OR A CONFINED SPACE WITHOUT A GROUND SLIDE.



GROUND SLIDES WILL NEVER STAND BETWEEN THE TANK AND A WALL, TREE, DITCH, OR ANOTHER TANK. A GUIDE MUST FREQUENTLY GLANCE TO HIS REAR TO AVOID TRIPPING OR STEPPING IN A HOLE....

WHEN FOLLOWING A SLIDE AT NIGHT, **STOP** IF HIS LIGHT CAN NO LONGER BE SEEN....





WHEN BEING CLIMBED, NEVER LET THE TANK GET CLOSER THAN TEN YARDS FROM THE BRIDGE, AND USE ONLY FIRST OR REVERSE GEAR.

DO NOT MOVE A TANK WITHOUT RECEIVING AN ORDER FROM TANK COMMANDER. . . . THE GROUND UNDER THE TANK COMMANDER . . . REGARDLESS OF GEAR.



STARTING



STOPPING



ALWAYS WASH UP A VEHICLE PROPERLY BEFORE STARTING TO MOVE OUT, AND COOL IT PROPERLY BEFORE STOPPING THE ENGINE.

ALWAYS MOUNT AND DISMOUNT OVER FRONT SLOPE PLATE, SO THE DRIVER CAN SEE YOU. NEVER DISMOUNT OVER THE TRACKS.



KEEP HIPS BELOW RIM OF THE HATCH OF THE CUPOLA. . . . BE SURE HATCHES ARE LOCKED EITHER OPEN OR CLOSED. . . .



Dope Sheet



YOUR GROUND
GUIDE IS TOP-DOG...
HE ALWAYS RANKS...
DON'T OPERATE IN A
PARK WITHOUT HIM!

WE HAVE THE WORLD'S BEST EQ

KEEP
HELL DOWN
IN THE
TURBINE... AND
KEEP HATCHES
LOCKED—
EITHER OPEN
OR CLOSED!

For tankmen who live by sheer pluck,
Herc's advice not dependant on luck.
It's a four letter word
And one that you've heard.
Play **SAFE** or you're a dead duck.

NEVER
SMOKE
WITHIN
50 FEET
OF YOUR
TANK!



EQUIPMENT... *Take care of it*

NEVER LEAVE LOOSE THINGS OR EQUIPMENT IN A TRAMP.



ALWAYS DRIVE FORWARD THROUGH A NOOSE - DON'T PICK UP - AND KEEP YOUR HEAD INSIDE THE HULL!

STAND CLEAR OF A CABLE WHEEL OR UNDER STRAIN!



STOP



STOP

ORDER... (WHEN IN DOUBT) **STOP!**
COMMANDER... (WHEN IN DOUBT) **ORDER DOWN TO STOP!**

SHIFT INTO LOW GEAR WHEN YOU START UP OR DOWN HILLS.



NEVER SHIFT INTO NEUTRAL OR CUT OFF IGNITION DOWN HILLS.

EASE INTO AND OUT OF HOLES.



ALWAYS COME TO A COMPLETE STOP BEFORE SHIFTING INTO REVERSE.



5 **LOW DOWN** WHEN BACKING
TRACKS OR OTHER VEHICLES.
... A BROWSE TRACK CAN
CAUSE A LOT OF HAZARD.



6 **GET PERMISSION** TO PASS
IN COLUMN.

REMEMBER... YOUR FINEST FIRE
EXTINGUISHERS PROTECT THE
ENGINE COMPARTMENT ONLY. DON'T
GET SLOPPY ABOUT FIRE PRECAUTIONS.



W HILE REFUELING, SHUT OFF THE
ENGINE... AND MAKE SURE A
FIRE HELMETS IS ON THE BACK
DECK WITH A PORTABLE FIRE
EXTINGUISHER... AT READY!

FGANSKES DO NOT USE GASOLINE
FOR CLEANING !!!



I T'S MURDER TO RUN A TANK
ENGINE INDOORS, UNLESS THE
PLACE IS VENTILATED.

NEVER SLEEP UNDER A TANK
... IT MAY MOVE !!!



... ONLY JOE
LEFT OVER ABOVE
PIECE OF ADHESIVE
TAPE...

AND ABOVE ALL, NO
HORSEPLAY, BECAUSE
YOU MIGHT GET HURT.



NOW
PULL YOUR
SELF TOGETHER,
POORCHIE!



BUT
CARELESS
TAPPING
IS SLICING
TAPES.

YOU'RE
TELLING
ME?



CARE SAVES WEAR ON YOU AND YOUR EQUIPMENT



IN WITH BE NEW

Dear Half-Mast,

We've got an M1P with some M1RA1 joints like a sealed ball bearing and the larger nut on it. It looks like it came from production that way. Is there any transition model?

For E. J. McN.

Dear For E. J. McN.,

No, there's no special M1P transition model, and no fix-up either. Those joints you mention were added while the 'M's were still coming down the assembly line. The sealed system was first used in one hundred and two of the vehicles (Serial Nos. 11887 through 11989). These sealed units were used again. But it wasn't until Serial No. 21152, that the sealed unit

took over on all M-cars through the present M1RA's. So you'll have some early M1P models that won't have the same features as later models.

Half-Mast

DEFENSE ON THE CHARGE FOR SGT. JAC



WHITE IS THE COLOR

Dear Half-Mast,

The trouble is locate information and authority at this point for painting the inside of a turret on a tank white. Can you give me a clue where to look?

Ally L. F. W.



Dear Ally L. F. W.,

The basic authority you're looking for is in MIL-C-1317 General Requirements for Vehicles, Combs, Self-Propelled and Towed) which is mainly for manufacturers and rebuild shops.

As for repainting, the basic specifications still apply because all you're doing is bringing the tank up to the same spec. It's like when you break a window. Authority isn't needed to put in a new one—just replace it with a similar type.

When doing a repaint on coach-up job, the man you're using the correct "white" paint. Use only Enamel, synthetic, gloss (TT-E-400, Engineer Stock No. 12-E-6021-240) will give you a quart and 12-E-6021-250 a gallon.

Half-Mast

RAFFING SOLUTION

Dear Half-Mast,

I should to protect the M111's spare tire from falling through one of the transfer case's forward U-joint, like PB 1-5534-20 says, is correct. But does about another where the rear U-joint stays in it? The stuff leaks on the spare and is cracked on by the hot engine. Another should to fit the tire's shape could use it.

Pet J. D. M.

Dear Pet J. D. M.,

Too many balls can be halting. The better solution may be to cut out the slugging by using the right amount of grease and wiping off any excess. That way the rear U-joint should keep its lube on hand. It's usually the grumpy-guy who goes up the works.

Half-Mast



PAINT ON RUBBER-COVERED CABLE

Dear Herb-Rub,

Maybe you can help me. Electric cables on gas carriages and other type vehicles are usually secure by clamps as they aren't moved when a paint job is done on the vehicle. The overspray gets on them and after a time and a few paint jobs, these cables are painted too. It's impractical practice to mask till delivery but manufacturers and distributors are always asking me for the authority for it. Is there any written word that says cables must be free of paint?

WYOMING, U. S.

Dear WYOMING, U. S.:

Might as well stop your search . . . even if we can figure it, there's never been anything published that says you have to keep paint off cables or you get piggled. Just like there are being a vehicle law that you've gotta pull your windows down when it rains . . . just good common sense. TIA 9-2011 does say to mask anything that shouldn't be painted but says nothing specific to the present vehicle. It's good practice not to let oil base paint get on rubber at any time . . . likely to cause it to crack.

SOME GOOD COVER-UPS FOR HEAT SPRAY-PAINTING



IN OLD TIME TUB



GRANDDAD'S



IN EXPENSIVE
MASKING TAPE



BEYOND IT ALL . . . BE CAREFUL

USE WHATEVER IS MOST HANDY . . .

So . . . try it anyway you like but it holds us if you're just going to have to keep along without primed word and nothing to back it up but just good old-fashioned common sense. Some design engineers have

said it's OK to paint if it doesn't bother function. That's all we can tell you (aside of course you know how to keep it off).

Herb-Rub



1967 Dodge, 4x4 DODGE CARGO TRUCK

19 F-250-1

Power Train

19 C-442

Fuel Tank Pressure

19 C-443

Stop Light Switches

19 C-444

24-volt Personal Heater

19 F-250-2

Battery-pack Insulation

19 F-250-3

Battery Cable Assembly

19 F-250-4

Cargo Front Support

19 F-250-7

Steering Post Rod

19 F-250-8

Brake Line

19 F-250-9

Radio Power & Fuel Valve

19 F-250-10

Balljoint Support Bracket

19 F-250-17

Headlamp Glass Kit

1967 C-442 D-442-40

Air Cleaner Element



1967 Ford, 4x4 DODGE CARGO TRUCK (F-350 & TRUCKLATOR)

19 F-350-100 2

Spring Axle

1967 C-350 100 10

Manifolding W-34

19 C-442

Fuel Stop Sol. Flv. 1

19 C-443

Fuel Tank Pressure

19 C-470

Connectors & Fuel Valve Assy

19 C-472

Fine Pressure

19 C-499

Stop Light Switches

19 C-500

Welded Toward Side

19 C-511

Radio Settings

19 C-516

Battery Filter Caps

19 C-522

Mount Personal Heater

19 C-532

Steering Replacement

19 F-350-11

Fuel Stop Solvent

19 F-350-17

Wash Motor Flv

19 F-350-8

Wiper Motor (Overhaul)

19 F-350-12

Wiper Motor Switch

19 F-350-13

W/O Washer Wiping Motor

19 F-350-14

Fuel Tank Filter Cap

19 F-350-15

Wiper Motor

19 F-350-17

Air Valve Support Clamp

19 F-350-19-1

Steering Knuckle Stop Screw

19 F-350-19-2

Power Axle Oil Seal

19 F-350-19

Headlamp Glass Kit



MHO Ord 444/WH
 MHO Ord 4742/WH along 1
 MHO Ord 4742/WH along 1
 MHO Ord 4742/WH along 2
 MHO Ord 4742/WH
 MHO Ord 4742/WH
 MHO Ord 4742/WH
 MHO Ord 4742/WH

Modify Truck Mount
 Battery Hold-down Frame
 Brakes/Cab Assembly
 Oil-Draining Chock
 Radio Case/Cover/Flare
 Heater Kit/Exhaust
 Replace Fuel Filter
 Cargo Body/Storage
 Brake/Steer Guide Post



NOTE: 1/2 ton truck CARGO TRUCK (MHC)

Ord # 294-214 Rev. 12
 Ord # 294-214 Rev. 2
 Ord # 294-214 Rev. 2

18 Ord 493
 18 Ord 499
 18 Ord 530
 18 Ord 534
 18 Ord 536
 18 Ord 537

18 P-285-11
 18 P-285-12
 18 P-285-13
 18 P-285-14
 18 P-285-15
 18 P-285-16
 18 P-285-17
 18 P-285-18
 18 P-285-19
 18 P-285-20
 18 P-285-21
 18 P-285-22
 18 P-285-23
 18 P-285-24
 18 P-285-25

MHO Ord 4742/WH
 MHO Ord 4742/WH
 MHO Ord 4742/WH
 MHO Ord 4742/WH
 MHO Ord 4742/WH

Special Tool Set

Tire Pressure
 Day Night Indicator
 Battery Filter Caps
 14-inch Perimeter Fastener
 Hydraulic Tension Cams
 Blower Air Replacement

Control Governor
 Tie Down S-Bolts
 Power Lock Storage
 Starter Mount Base
 Hood/Cab Mounter
 Tension Specifications
 Replace Storage Battery
 Spare Tire Mount
 Upper Tail Pipe Clutch
 Grease Linkage
 Perimeter Heater Kit
 Power Floor Heater Kit
 Handicap Cleaver Kit

Train Cell/Wire Tube
 Regulator Valve Spring
 Wash/Cleaner Flare
 Front Clutch, Cover/Kit
 Train Actuating Lever





300, 3-ton 4x4 TRUCK TRACTOR (DIAMOND-T)

TS Cnd 300

TS Cnd 324

TS P-837-3

WFO Cnd 3784-WO

WFO Cnd 3784-WF

Welded Front End
24-cub Footwork Hoists

Ball-bearing Front Fender

Wash Roller, Tinned
Oil Level Hole



300, 3-ton CARGO TRUCK 4x4 (300)

301, 3-ton DUMP TRUCK 4x4 (301)

TS Cnd 300 (WOF)

TS Cnd 324

TS Cnd 300

TS P-837-3

TS P-837-3

TS P-2855-10

Welded Front End
24-cub Footwork Hoists
Electric Supplement

Tallgate Wing-Join Truck
Ball-bearing Front Fender
Flange-top Chassis Kit

Wash Roller, Tinned
Oil Level Hole
Dump Body Front Hoists



LIGHT TANK M19, 75mm DDM

TS Cnd 324

TS P-2855-11

TS P-2855-12

24-cub Footwork Hoists

Footwork Hoists Kit

Power Plant Tractor Kit



MEDIUM TRAKE MISS, 75mm GUN HO & HO

TS Oad 202

24 volt Personal Heater

TS 4-2025 10

Personal Heater 20

TS 4-2025 14

Power Heat Heater 20



MEDIUM TRAKE MISS & MISSLE, 70mm GUN ROAD

TS Oad 491

Control Box Information

TS Oad 492

Regulate Fueling Procedure

TS Oad 494

Reset Gun Information

TS Oad 498

Switch Box Lockage

TS Oad 504

Truck Oil Pressure Gauge

TS Oad 505

Two-ohm pressure light

TS Oad 511

Truck Control Valve

TS Oad 514

Wiper Settings

TS Oad 524

24 volt Personal Heater

TS 4-7 58-9

Truck Oil Pressure Plug

TS 4-7 59-10

Truck Oil Control

MWCO Oad 021W07

Replace Fuel Line

MWCO Oad 021W08

New Insulator Standoff

MWCO Oad 021W09

Oil Cooler Line Clamp

MWCO Oad 0204W1

Obstruct Waffle Blank

MWCO Oad 0204W2

New Engine Heat Shield

MWCO Oad 0204W3

Forward Sight

MWCO Oad 0204W4

New Standard Pin

MWCO Oad 0204W5

Replace Bulb Lamp

MWCO Oad 0204W6

Replace Drive Lever Bolt



MEDIUM TRAKE MISS, 70mm GUN FITTING

Trucking Control No. 30

Fuel Delivery M47

TS Oad 497

Fuel Injector Range unit

TS Oad 491

Control Box Lubrication

TS Oad 494

Reset Gun Lubrication

TS Oad 498

Switch Box Lockage

TS Oad 504

Truck Oil Pressure Gauge



TE-Crd 218
TE-Crd 219
TE-Crd 220
TE-Crd 221

TE-PT26A-7
TE-PT26A-8
TE-PT26B-1

AWD-Crd 01-1907
AWD-Crd 01-1908
AWD-Crd 01-1909
AWD-Crd 0220-102
AWD-Crd 0220-103 Aug. 1
AWD-Crd 0220-104
AWD-Crd 0220-105
AWD-Crd 0220-106

Knowledge: Light
Team Control: Radio
Hydro: Bearings
Search: Personnel: Pattern

Team: Exercise: Gear
Team: Performance: Requirements
Team: Troubleshooting: Kit

Reaction: Fuel: Lines
New: Models: Recurrent
New: Oil: Cooler: Line: Change
Fuel: Lines: Drip: Seal
Reaction: Radio: Sound
Signal: & Meter: Jumper
Correcting: Speedometer
Team: Serv: Team: Staff



CIRCULATION DEPARTMENT



Does your unit get enough copies of *PM*? Would your men in the 100% Mess/Kitchen Repair Squadron like to get it? If you have any question concerning who gets *PM* and how many, see the distribution formula printed on page 187. If your outfit isn't included, check your AG publications officer or section.

You can tell him that the official

circulation representative for *PM* Magazine is the Adjutant General's Office. There is a definite formula for distribution of *PM* to nearly all military units through normal channels, and AGI can help you.

For you who still need back issues or that special issue, *PM* #14 (on the light tank series), *PM* will supply you as long as they hold out.

ARMAMENT & AMMUNITION

-30 and

-50 Caliber

SLUG SPITTERS

YOU CAN'T SEE THEM—

(They're Doing All They're Got)

When you're spouting with your .30 cal. machine gun, it throws out about 30 slugs a second. Pretty fast, eh?

Some hot-codders think it's kind of slow and get the idea the needs a difference in the buffer-tube. They think that this differing will make 'em kick out more than 600 rounds a minute.

They're wrong, but they try sticking some shims or maybe a penny between the buffer disks in the buffer-tousing.

By doing this, they're taking away the cushion provided by the metal-to-metal contact of the bolt and the buffer-plate. Taking away that cushion is like running a jeep into a stone wall—no give—plenty of bounce—no jeep.

When the bolt slams back it strikes the buffer-plate. A lot of little fiber washers called buffer disks are behind the plate.

Some machine guns have 22 buffer disks, some 12 and some 8, plus a return one, to absorb the shock. These disks have to be in good condition and free of oil.

There's a screw in the buffer tube to adjust the amount of cushioning given by the disks. The set adjustment is not more than one full thread of the screw sticking out of the buffer tube. The screw can't be in the tube any more than that one thread either. The set adjustment is to keep you from packing the disks too tight and raising their cushioning power.

These disks and their adjustment give you a gun that'll fire as fast as the gun and keep on firing.

You wouldn't add your gas for a penny. Why ruin it with one?

MAKE THOSE DECALS STICK

Like we were telling you back in PE #13, if you have one of the .30 cal. heavy barrel machine guns that have been modified, you gotta



make sure it has a warning decal—controls on the receiver top plate. That's to give everybody and his cousin the clue that the correct way to adjust headspace is told in Change 4 to FM 23-45. (These guns were modified under MWO Ord A55-W13 and MWO Ord A55-W14.)



A new decal label is now available through your normal publications supply channels. It is DA Label No. 15 (1 Oct 53). It replaces the label of the same number dated 1 Feb 53. The new label includes the reference to Change 4 to FM 23-45, which is just where you'll find how to adjust the headspace. (You can also see it in PG #35 beginning on page 379.)

There's a catch in the deal, though. Lots of guys make a fool about these other labels. Claimed they couldn't make 'em stick to the receiver top plate.

Well, there's a good chance they did have trouble. Step in a little closer while we tell you the secret.

The reason it won't stick too good is that your receiver top plate probably has been given an oil-dipped phosphate finish. The way

to get around it is simple—clean the surface with solvent and let dry—then apply a coat of thin lacquer to the spot you want. After that, your decal should stick with you like a girl's kid brother.

The one you want is DA Label No. 15 (1 Oct 53). Your authorization for it is DA Circular 130 (9 Nov 53).

ALL-BRASS PUGS GET HOT

Sprink' stags from your .30-cal. water-cooled machine gun makes and water hot, and the front and rear water-jacket plugs get "hotter-than-the-hinges."

First insulation is pinned to these plugs to keep you from getting hot fingers if you have to take the plugs out.

Sometimes the insulation breaks off. If you can't get a replacement plug (Stock No. A005-6017558), file the pins down and use the all-brass plug.

Have a pair of pliers handy—you'll need 'em. With an insulation, that all-brass plug's gair' to be all-fired hot if you try to take it out with bare fingers.



CARBINE CURE



When it comes to checking your M1 carbine you've loaded, there's one more paper hanger with the job.

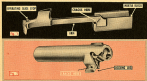
You know that some day it could be your life insurance—so gun-bling here.

You eagle-eye the operating slide for cracks around the operating-

ears where the inertia block and the arcs come together (Fig. 11). At the same time you check its breaks around the hole for the operating-slide stop.

Feel your eye on the bolt for cracks around the right-hand locking lug (Fig. 12).

No stress—your's not the guy to gamble. If these parts are cracked or broken, run 'em into supply for new ones.



DIRTY HEADS CAUSE TROUBLE



It's all in the head—keep it clean.

After you've used a grenade-launcher, take a look-see for dirt or carbon under the gas-escape lock-screw head of your M1 rifle. That head is a part of a valve in the lock-screw (Fig. 1). It seats itself like the valve in the head of an engine.



Fig. 1—Here's a head that fits into a hole of locking mechanism to make sure it's clean.

When you stick a grenade launcher on your rifle, a stud on the launcher opens the valve in the lock-screw. This lets some of the gas escape from the front of the rifle when a grenade is fired.

Part of the gas escapes from the front of the rifle and prevents full recoil of the operating rod and gives you a slight-but-usable fire-grenade launching. It also prevents parts slamming back too hard to recoil and damaging them when you launch a grenade. But it does give dirt and carbon a chance to get under the valve-head.

Dirt or carbon under the head (Fig. 2) will distort the head and mark it. You've got a lotta gas pressure in there. Improper seating or cracks will give you a slight-but-when you need a semi-automatic rifle.

To get at the head, stick the screw-driver end of your combination tool in the open end of the lock-screw and push against the valve stem. Then give it a going over with your old tooth brush and a little bore cleaner.



Fig. 2—A tooth brush combined with rifle bore cleaner will sweep grime from the head.

ENGINEERS



DOZER DO'S

There are tricks in every trade, and bulldozing is no exception. Here are a few, from an old hand, you'll find worth trying on your pusher.

THE ROCKY ROAD

Dozer blades often bite over big rocks, usually give their blades, and hit, tracks and rollers an awful walloping. You'd best plan 'em out first. If your dozer can't get 'em out, use a roller or blast powder, and you'll soon have those rocks small enough for the dozer's diggings.

Unless it's bad rock that's stalling you in the face, of course. For that kind of stuff, push a dirt fill over the granite until you're finished raising material over its top.

And here's something else to think about on rocky ground. When you keep your front tire wide open

and blow a cloud of smoke, you cut down your tractor's push power. But if the chock's cut down, you'll be able to shove more stuff at a time—especially on a rock pile.



DOWN, BOB, DOWN

The dirtiest deal play is getting rid of somebody's dirtiest the fast way. This can happen, should you leave your door with its blade hanging in the air. Then, while one of your buddies is looking under the blade, some smart may decide to hang his coat on the control lever, releasing the blade with a bang. But this time, your buddy could be lucky enough to only get his foot in it. Oops!

Whenever you leave your door, lower the blade to the ground. A good idea is to rest the blade on a piece of wood or a small stone so that if the ground is rocky and the weather cold, you won't find your blade frozen solid when you get back.



**KEEP ANGLE OF
UNDER 1 INCH**



MORE THAN 1 INCH



UNDER 1 INCH



ON THE LEVEL

When you level off a field, and raise or lower the blade more than 1" at a time, you'll likely have an uneven surface. Then the uneven wheelbarrow effect will roller-coaster the tractor up and down as it crawls forward, cutting out more and more uneven layers of dirt. Keep this up long enough, and you'll get a field that looks like Josephine's hair-do after she had a permanent wave. It's wise to keep the blade's up and down movements to less than an inch.

ANOTHER TIP

Should you try to crack through the top layer of frozen earth with the blade in its regular position, it could feel like you were trying to slice through a brick street. And the blade can't take much of that. It's better to take the easier way to get your cut.

Just lay a smooth log, plank, or railroad tie in front of one of the dozer's tracks the long way, and ride the dozer back and forth over it. This sets the tractor and its blade at an angle so that you'll cut with only the blade's pointed corner and soon tear through the frozen top soil.

Once you've done that, it's easy to break up the surrounding area by turning the tractor and hitting the cut straight-ahead. Bring the blade up under the frozen surface and haul it with the dozer head.



THE SOOT OF TIMBER

And finally, here's one that'll save your neck as well as your tractor. When you're using a dozer to push over trees, lay off once the tree begins to fall. Otherwise you're liable to find yourself and the tractor 20 ft off the ground on the tree's roots. To save your all, shift into reverse and move out of reach when the call is—"Timber!"

AVOID HOT TIMES
BY KNOWING ALL THE

COLD FACTS



The man who uses "what's on hand," instead of "what's called for" in repairing refrigerant lines, could make those cold things hot for himself if he doesn't watch.

It may be easier at times to get a plumber's or automotive mechanic's gut instead of one specially designed for the cold line, but it's usually not a good idea to use it. Why? Lead us on and we'll tell you.

Take galvanized or cast iron fittings, for instance. The coating on a galvanized fitting dissolves when it's used to carry Freon. Freon is the most common gas used in cold boxes. And cast iron fittings are almost as leaky as a rusty tin roof—at least when carrying the stuff under pressure.

For Freon, use only copper, brass, or steel fittings. But if you're squeezing ammonia, use only steel. Ammonia breaks back out of copper and brass when it's around moisture—a little steam you have plenty of with cooling systems.

Another reason for sticking to special refrigerant fittings is that

they're usually closer machined than the others. Refrigerant gases will seep through smaller cracks easier than will water, oil or most anything else that's piped.

A common goof is in the use of flare nuts. When water gets under the long flank of the kind used for other purposes, it's usually OK. But where you're making cold, that water'll freeze and crush the tubing or crack the nut and you'll lose your gas. The flare nuts issued specially for refrigerator purposes are freezeproof. That's why you need them.

All of which adds up to the fact that special refrigerant fittings give you real cool service, man. Need more to read?



CONTRIBUTIONS



FEED-DOWN LEVERS

Dear Editor,

The MCI weeder's manual-control-lever and transfer-lever sometimes stick or freeze together on their common pin. Then when you move the transfer lever you engage the windch levers. While the safety levers on the windch should hold it, and ought to be locked as before the vehicle is operated, that lever could slip out—or could be somebody fished it up so forget to lock it. A loose windch can sling, or at least damage the front end.

To be sure the levers work independently of each other, remove and then install and pass $\frac{1}{4}$ -inch- ϕ 7 grease fitting in each lever on the pin (Fig. 1). See the

two fittings on the lever's right side and face them upward so you can grease them.



Fig. 1. See the two grease fittings and face levers the wheel off the transfer lever's back.

and replace floor panels. Getting them off'er will be accomplished over a year or more. 12,000 miles.

Ernest Tabin
Russell E. Tabin
APC, Maryland

(Old Note—Ordinary support for the truck for this job. Slipping it to them and sending through a CEF are the first step to help the mission. Sometimes, time about using both hands—hold one hand when moving the other. And, to protect yourself) from a wandering wheel, disengage the truck's safety lever each time before you get in the cab.

Another idea you might like even better, that the experts are working on, is to change FORD'S M3000 with a die on one side, removed to the floor-board, to hold the wheel in place when it's not in use (Fig. 1). Then when you want to use it, all you gotta do is lift up the die. An added advantage to this set-up is that you won't be able to move the wheel should you grab it by mistake when you reach for the transfer lever.)



UNLIFTING IDEA

Dear Editor,

We had a lot of trouble with the M3000's spare tire carrier breaking at the top, forward end. With the bouncing around it goes in those hills, it's a wonder the wheels last as long as they do. We crawled it with a hammer and longer hand but found those wheels broke too.

The gimmick we like so that's doing the trick is a lower die-support we got from a WW II jeep that's used in last days. Welded on the APC was some number, in words like (Fig. 2).

Major George Paul
APC, San Francisco

(Old Note—It does the trick in a small idea but it may be rough going an old jeep die support in the field. How about welding a brass nut of two pieces of scrap metal? The upper just doesn't have to fit the die's shape exactly as long as it gives it something to sit on. This can be done on approval by the Ordnance officer or a major command, in a field in under AR 17-10.)



Connie Rodd's BRIEFS



Two Parts Needed

When you requisition the carburetor-assembly for the M41 Gun Tank, be sure you order it by the number . . . GP43-833547. This is a new kit complete with key and washer. This way you don't get a spring assembly less a few parts. Dig out your M41 and jet down the new number.

Exchanged Windshield Bumpers

While peering through the water pool the other day, I saw a neat trick for the M41 jeep. Someone had noticed about eight sections of old brass under the hood's windshield bumpers. They were painted OD, of course.

Dope On Generators

If you've been looking for some dope on those Holcat Generators? Look no more. For the 30-hp 400 cycle, you may see get TM 5-8073, LO 5-8073 and TB 5-8073-1. For the 50-hp 60 cycle, there's TM 5-8089, LO 5-8089 and TB 5-8089-1. See your nearest publisher for details. You can't tell the players without a program.



M41 Tank Cables

Just a word to the wise. When replacing the left air cleaner on your M41 Tank, be careful not to join the tooth-on-step cable between the air cleaner and the drive rod. After clearing the cleaner into place, check the tooth cable to be sure it's free. You don't want a cable kinked or bound. Some guys seem to think that it's wise to be able to drive thy jeep, you know.

Breaking your spiders?

If the transmission-to-transfer U-joint on your 5-ton MTP-series has been giving you a hot headache, try the new spider for that location as a cure. Kit, repair, universal joint, GP44-833262 is what you should be using to doctor the transmission-to-transfer U-joint. The transfer-to-brake axle and transfer-to-tilt block U-joints take kit, repair, U-joint, GP44-758842.

Light Tankers Don't Go

M41s are the 7412, M41s are the 7412. This is hot all the yields. The 7412 is now M42.

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BUCKET LAUNCHERS
100 AND 100B

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NEW NUMBERS

FOR TECHNICAL MANUALS

HERE'S HOW IT'LL BE:

- The old "100-series" manuals will be **even-numbered**.
(For 1st and 2nd echelons)
- The old "1000-series" manuals will be **odd-numbered**.
(For higher echelons)

Just as simple as that.

On the new manuals you'll see the old number in smaller type just below the new number. Helps you to keep 'em straight.