

PS

THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY

JUNE 1951 ★★★★★ VOLUME 1 NUMBER 1



UNITED STATES ARMY  
THE ARMY IN GREAT

25 MARCH 1945

Dear Sirs:

I am glad to see P.B. Magazine  
getting under way again. I am  
sure it will be a great joy to  
you and a great joy to me.

The current issue of P.B. Magazine  
will contain a large number of  
new and interesting material.  
It is important that the new and  
old material and material for  
the new and old material  
are kept well informed in  
the new and old material.

If P.B. Magazine will help to  
maintain this material, it will  
be a great pleasure to me. I  
am sure the new and old  
material will be a great  
pleasure to me.

Sincerely yours,

*John H. Collins*

Editor, P.B. Magazine  
American Fighting Forces  
Aberdeen, Maryland



# "MOBILITY... DEPENDS UPON EFFICIENT MAINTENANCE"

—GENERAL J. LAWSON KILPATRICK



Coveries of *P. L. Magazine East*  
Issue . . . JUNE 1951

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**P. L. MAGAZINE** is published monthly for the interest of **Armored Motor Officers** for service and maintenance in all organizations, as part of the **ARMORED MAINTENANCE** program.

**P. L. Magazine** is glad to get your ideas, suggestions and criticisms, and is glad to answer your questions. Write to us.

Editor, **P. L. Magazine**  
Armored Training Ground  
Armored, Maryland 20710



You are now holding in your hand the first issue of "P.L. Magazine"—the magazine of maintenance for trucks and trucks, the not-and-nots digest for anything on wheels or tracks. If you were lucky enough to have worked with or reported vehicles that'd like to be, you will remember little-features called "Army Motors," "P.L." is the successor to "Army Motors," the magazine of those not-and-nots, on trucks and trucks. Do you have strange marks in your trucks now? Are you bothered by how the machines between your little truck make little problems of all sorts that you call "P.L." will give you the answers, and what to do about it.

But that was know all the answers? It's just that we are glad to get you the answers. We are surrounded by people who designed your trucks and trucks and the world of little things judges that are not there. We have with us national services for, that there is no one, the original answer man. But there is also enough in the "maintenance" engineers to get on them, and other stars. And that there your maintenance problems, your truck and truck troubles. And they are with us. Well, that is, in trucks or not. In your high level, or low level, or no level at all, that that will get you the answers.

Carroll Field, and company, is with us too. Carroll is the telephone boy who answers the shop lines, shortcuts, and runs little department. Carroll's old man built the original little for Field and he didn't forget by his own. Carroll is known for his technical manual construction and for making your particular attention to these trouble spots, big and little, on your vehicles and what to do about them.

"P.L." has a "Contributions Dept." Have you dreamed up a special little make a hard job easier? Have you answered the impossible, or worked out a faster or easier way to change a part or make an adjustment? Write the details to "P.L." MAGAZINE," Attention: Reading General, (P.L.), we'll publish them and make life easier for the rest of the Army.

For your good ideas, for your questions to help that which would a situation that needs solving, for any letter from you that answers a question or suggests some solution that needs answers, you will receive direct by mail, absolutely free, a one-year personal subscription to "P.L. Magazine."

What else are we going to give? We are giving away pages and pages of useful information which may pull you out of trouble, or even save your skin when the going gets tough. Send me 50¢ to "P.L." is free.

Look for us every month at your favorite motor pool, motor office or motor garage.

*The Editors*



# COMBAT MAINTENANCE STORIES



LESSONS FROM TWO WARS BY TANKMEN  
WHO WERE THERE . . . AND CAME BACK.

## KEEP MOVING IN HOT TUNN

By H. Reed—Silver Star, Purple Heart

I am something happen right as we drove off the L&T and up the sandy beach into Italy. I was Section Chief, commanding an M48 Gun Motor Carriage in a Tank Destroyer unit. The M48 in front of us had to stop suddenly to avoid running down a Jeep that drifted in front of it. Right then, the M48 stopped. It was following in the tracks of the tank in front. I knew it wasn't riding on the left tank. But slowing down and stopping that 30 tons of tank bogged it right down. We had to finally pull our tank destroyer around in front and tow it out. Of course that was an accident.

Just one of those things. But it shows how important it is to keep moving along on sandy beaches. Once you stop, brother, you're bogged down.

## EVERY MAN FOR EVERY JOB

Something general you can tell the guys here. Every man has some sort of job to do. Look for that matter, should try to have every other man's job. When I was in North Africa I was a gunner in an M4. The tank commander got wounded and I took over and we kept going. Same thing in Italy. I was commander then. When we got around Mignano I got wounded and the driver took right over. The winning move was the driving. That's the way our crew worked, every man knew every job in the destroyer.

## THE TANK'S YOUR HOME

Cpl. L. L. Doreado

Boy, if there's any feeling you get when you're in action, it's the feeling that your tail depends on your rear tank. You get the feeling your tank's your home, your protection, your moving home. And here we talked over. You'll see what I mean . . . around Fardale in Tunisia, you learned damn quick how important it is to keep your tank in the best shape. I checked over the tank every chance I got. A little thing like a loose commander can be bad. Two men found a tank lost track of it, and that reminds me, we learned to turn gradually, some of this spinning around on a dime stuff. That's due to training—but you never have to do it on the battlefield. You go along easy. The spines we used to dodge Jerry was to pull up behind enemy lines, straddle him and fire, pull forward, turn fire, and turn—we always keep the tank commander signified you. Always keep toward the enemy, it's like a house-hunter and pilot wing in a plane. The driver has to watch out the turret that makes it easier for the gunner. Course it isn't always easy. When you're standing, you've got to take the difference in the turret. The enemy always has the best spot, usually. But that's where a good driver comes in . . . he shows his stuff.

## MORE NIGHT DRIVING

Pfc. R. G. Roberts

The first thing that struck me to me was the amount of night driving we had to do every day. All the time, going around the

whole mountain made at night you had to be a regular cat, or it's too fast. There wasn't no spot eyes, but with enough practice your eyes get used to driving at night. We did get enough practice—in Tunisia. I think all men should get more practice in night driving. I know we could have used more.

## KEEP HULL FORWARD

Tech. Sgt. G. J. Oliver—Silver Star,  
Purple Heart

First time I saw real action was in North Africa. Our tank exploded—we up around Kasserine and things were flying in our sector, several of the tanks were moving around and they put their tails to the enemy. Several of them got knocked out right then. The tail wasn't the. The tank should be kept with the hull facing him. A smart tank commander should keep the front of the tank facing the enemy.

## KEEP TANK CLEAN



I learned a good lesson up there . . . to always keep the inside of the tank clean. The walls, the operators, the hull wiped dry at any expense. And don't keep that grease rags in the tank. There's no use. The inside can be dirty as hell, but the inside—keep it clean.



When you get a scratch along the side, you know, the kind that takes a touch of sand out. But a scratch of the seams, it doesn't hurt anything. But it tears the metal around there while hot. If there's any grease on the inside wall, or any grease tags poking up against that spot, they'll flare up and start a fire. Keep your feet clean all the time.

### KEEP DO THIS ...

Sgt. E. E. Hasey

I was a driver of an M4 in Italy, and I'll tell you it was no easy job. Most of the time we were driving at night, on slippery wet roads. Didn't go across country much because we'd have got stuck. Had to stick to the roads. These tank destroyers are heavy and slide around a lot. Some drivers make them slide even more. When you feel the tank start to slide, don't touch the steering lever. It's natural ... but don't do it. It'll only make you slide more. Just let the tank go, and she'll probably catch herself and stop sliding, if you've still got forward speed.



That's a lot of drives to go through. I called it little driving to get through some of them. Before you go in, slide down to a lower gear. Once you're back down pretty all you're at the bottom they give it full power to climb out. Just as you come over the top ridge and a little over half length of your tracks are out,

come up on the gun. If you give it the gun at that moment, it puts an extra-heavy load on your suspension and gives trouble in spring the sprockets.

You might keep something about radio equipment. It's important over there. Be sure the radio operator knows the radio all where he's not using it. One time my was left on all right. But the battery all the way down. We had a lot of a time. That reminds me, it got in trouble with my radio equipment. I disconnected the headphones the regular way, but ...

I left the plug dangling around on the floor. Just got sloppy. When I got back in, I stepped on the plug and smashed it. Then I didn't have any interphone or radio connection with the commander on the crew. I was plain out of. Those gotta wait hard to get you.



## WHAT IS YOUR COMBAT STORY?

A lot of guys who haven't got their stories would like to hear about it ... SEND IT TO P.F.I.

Address: P.F.I., Magazine, Aberdeen Proving Ground, Aberdeen, Md., and even receive a free personal subscription to P.F.I. Magazine.





Up at the front where a high state of hygiene and integrity in the normal order of things, there's nothing like the bright light of maintenance equipment and responsibilities.

This is the reason for the echelon system of maintenance—and lots of you'll be. Muppi. The echelon system means three maintenance—what can't be done is a hurry up front is looked on back where a man himself is possible.

Army Regulations 15-1, dated 21 Feb. 1944, describe an echelon system.

THIS IS DELEGATIONAL MAINTENANCE . . . RESPONSIBILITY OF WORK. DELEGATION ON ITS OWN MEANS: CLEANING, OILING, PRESERVING, LUBRICATING, ADJUSTING . . . MINOR PARTS REPLACEMENT IF NO SPECIAL SKILL IS NEEDED.



specifies time intervals for automotive maintenance. Each vehicle is provided certain parts, personnel, and equipment—and does all the work it can do within the limits of its parts, tools, personnel, time, and military situation.

All orders made in good faith to the  
highest bidder.

**Table 1** Continued  
Table of Contents

Tools and equipment are authorized by Tables of Allowances, and, except as otherwise noted, Tables of Equipment, Formally Issued as T/O & E's.

Parts are authorized in the 2000-2001  
NHTSA's (National Highway Traffic Safety Administration) list.

The "Editorial Committee" is a panel of opinion and you better judge for yourself unless you have better than higher authority.

3. Third's view of the relations of words is shown below:

This illustrates what happens to a vehicle in a typical driving—the vehicle through which it passes and the work rate when it does so.

Review the chart and find out why you need.

... THE K. PETSCH FOUNDATION ... FOR  
FOUNDED IN DIRECT SUPPORT OF A GERMANY  
FUNDING PROJECT

100

more efficient procedure  
would involve the insertion  
of a small amount of  
water into the  
reaction mixture.

**THE**  
**NEW**  
**WORLD**

[illegible]

1. The first step is to identify the problem. This involves understanding the symptoms and the context in which they are occurring.

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1. **Introduction**  
 2. **Background**  
 3. **Methodology**  
 4. **Results**  
 5. **Conclusion**  
 6. **References**

# LATEST ON THE M46



There have been production changes on latest tanks having to do with the methods of draining the auxiliary generator engine and gear box...which if you don't know about them, may very well put you and your tanky behind the right tank.

As detailed in a special bulletin from the Office, Chief of Ordnance, all M46 tanks from 1400 on up have a new-way drain valve and a new-way filler tube on the auxiliary generator. The oil is drained by removing the plug from the inspection plate on the left side under the auxiliary engine and turning the drain-valve handle from the top of the tank engine compartment, to "open" position as stated on the instruction plate. After draining, turn the drain-valve handle to closed position and fill the crankcase to the specified level. But, on latest tanks up to and including 1400, the generator gear box gets its oil under pressure from the generator-engine-oil pump. The auxiliary-engine valve on these tanks are equipped with one three-way drain valve and two filler tubes. One of these filler tubes is for the generator gear box and one is for the engine oil pan. Here's the important part: if you don't know the correct use of this three-way drain valve, you may wind up with all that oil all down the drain instead of inside the auxiliary generator where it belongs.

Here's the correct sequence the gear box of the generator, turn the L-shaped handle toward the rear end of the tank. To drain the engine-oil pan of the generator, turn the handle towards the left side of the vehicle. To close the valve, turn the handle toward the right side of the tank, the side on which the auxiliary engine is mounted.

OK. Now, by the way, here's how you go about getting the oil into the auxiliary generator: (1) Make sure the L-shaped handle is in the "off" position like we just said, pointing toward the right side of the tank. (2) Take off the gear-box-breather cap and fitting attached. (3) Open the oil-level drain cock. (4) Pour oil into the filler pipe, about one pint or until the oil begins to flow at the drain cock. (5) Close the drain cock and replace the breather cap and fitting.

Now, here's how to put oil into the engine of the auxiliary generator: (1) Turn the cap of the engine filler pipe. (2) Pour oil into it, about three and a half quarts. (3) Put the top-bush on the filler pipe.

Just to make sure, stop around and check under the tank before that the drain valve is in the "off" position, and that there is no foolish pool of oil under there.

## MAYER FUNCTION BOX

There is a master junction box on the MAF made through which just about all of the model's electrical controls go. It is mounted in the rear of the frame between the two air cleaners. The best advice that anybody can give anybody is: keep your wiring-junkies' fingers out of this junction box unless you're got experience, because in three feet longer what you're doing. Our take alone and you won't be a real electrician either then, and you'll definitely be in action on your own and completely on your own, and it won't mean hardly.

We're not discussing this. It's been happened.

The thing we are especially talking about are the points on the polarized relay assembly. There are two of these assemblies, each with its set of points.

Authorized mechanics can change a bunch of things in the master junction box such as the carbon-pile voltage regulator, the relay switch being used for the battery (optional), and the polarized relay assembly. But trying to do with the points, however mentioned a diagnosis. They are two, very sensitive and if you should ever so much as touch them the wrong way, you'll knock them out of shape.

Here's another thing: The points are magnetized. If while you're playing around with them, a single of metal particles or even dirt should fall down on the points, they may stick them and cause a short across the points.

Above everything in the MAF works by electricity. This kind of short puts the tank out of business. Be careful.

One last.



Here's how the junction box will look to you with the cover off. The two regulators are shown in black. The top one controls the battery and the bottom one controls the battery. The two regulators are shown in black.



## HOW TO WIRE THE VOLTAGE REGULATOR IN THE MAC MASTER JUNCTION BOX

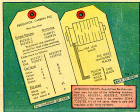
Some people have been wondering whether the two voltage regulators in the MAC Master Junction Box are identical, therefore leads to the main generator. The other leads to the auxiliary generator and these TMR-120C have their different part numbers. You can assemble your box and leave the whole question to the wiring chart (Fig. 1) printed here. It connects the leads and insulation colors for you and has been going out to the front of a card-top, with all regulators and junction boxes shipped since 15 Feb. 1954.

The regulator—the identical because there is only one type regulator for both sets in this junction box. The reason for the different part numbers being is that the regulators leads up differently as required by the card requirement shown

(Fig. 1 and 2).

As you look at the junction box question in the rear of the manual, the regulator on the (marked 22) in Fig. 10 having page 144 of the manual) connects ground from the auxiliary generator, and the one marked 23 is the same effective regulator the main generator.

So all you have to do in wiring a regulator is to wire to define the chart showing which colored leads on the regulator lead to which number—in the plastic terminal blocks (or cable terminals) in the junction box. Connect the white and wire to A, the yellow and wire to C, etc. And so to wire your regulator the wiring was wired up. The diagram in the back of the card (Fig. 2) shows which is the red lead and which is the pig lead.







ground down to the diameter shown in Q4 before the diameter in Fig. 3, and make the water flow again.

Only use with the Sprayer and (Fig. 4) get shipped without washers. Full-trip and line are complete.

### AIR COMPRESSOR TILT

Are you bothered with Q7's who like to make around the water pump with your probably anemometer while it's in operation? The latest better compromise was made an AR which makes tilt-bowed member with a blunt, simple two-schedule for such offense. However, if you're concerned about this practice, some morning, some you'll find a hole in the engine case big enough to toss a rat through.

You can turn the writings in for an older unit (Please I didn't say "modified new unit")—but the replacement may not be as good as your present outfit. It may not start as easily; starts of will not continuously from parts that have been welded, thereby making it a great deal and the collector, and you a great collector of the Old Man's wrath at inspection.

Now here's how you can add more healthy minutes in the life of your present air plant.

Change the machine all other way, very often. The first and not mounted in 2 wings of the Sprayer. Needless to say, keep the oil in its proper level always.

Next, you should look over the head with your 14-in. shaggy top PM but you wish using the engine by holding the machine wide open against the effects of the pressure to close it. Maximum pressure for using the ridge is one eighth revolution in the area, plus a 1-inch lower.

Keep the compressor always used when running. That's one of the limitations of this baby. Remember, it's the great or right above the horizontal will mean as full as

engine failure. A connecting rod driving into an oil pan and finding no oil pan as big a headache as a full driving into a dry swimming pool.

Here's a dirty gadget to tell any attempts to run the unit while it's tilted. I suspect the mechanics of it from the pinball machine in Joe's Barroom. Get your, tilt a piece of "W" strip metal about 4 inches long and 1 inch wide, as expanded .30 cal. cartridge, and a steel ball that will just fit in or roll down within the cartridge case. Now force the cartridge case inside strip metal so that it lies on a flat, tilted plane with the engine head. The open end of the cartridge case should be located so that it is just out of splash-jumping range from the splash plug. The rear head-but is an ideal fastener. The ball does the job from now on (see Fig. below).

As long as the plant is kept level, everything is the king; but when the head is tilted, the ball runs over to the plug and grounds it out. When the engine sets the machine back down again, the good little ball rolls back out of the way.

The versatile use, of course, elaborate as this little the addition of both timing, figure, finding on the word "TILT" is even a device to shut out (back open to all offenders. My primary interest is in stopping the engine when it's tilted above the horizontal.



## EXTRA DANGEROUS WHEEL BEARING AT LARGE

### MINI SHORTCUTS

My phone fan in Detroit found this warning with word that a short run of M18 to-Ten-Three-two shipped minus their spare suspension on the right front hub, and none without leader shorted-out-again.

These items were not available at the time of shipment, but will be sent along to you shortly if you have any of the four vehicles that got shipped.

If you too have received the results of reassembling the two examples... when they're to be had you'll get 'em automatically.

OK, Detroit, now that my penny rack is out on this premise please don't see me. I want to be loved in September as I was in May.

### WASH BATTERIES BEFORE TEMPERING

That's about all there is to it. Wash batteries before you put on Tempcoat 118 waterproofing compound. (As listed on GORDI BBL-SC1 Nov. 1948, Tempcoat 118 is currently to be had only in temporary case under BBL Number 11-C-1094-004.)

The reason is that you've got to get off all the mud in the your battery will do change itself and you'll wonder why. Once you and it under waterproofing pack, the corrosive residue makes a path between battery parts that in time will cause a smaller permanent short.

You don't need any fancy chemicals or anything—just plenty of plain water and enough scrub to remove all the dirt you can see.

This will save you looking for shorts that don't exist elsewhere.

SEE LATE BULLETIN ON PAGE 28



### BETTER TAKE A SECOND LOOK AT YOUR 3 1/2 TON M18 BEAR ABE WHOLE BEARING

A few thousand air-borne wheels out of the 180 and 180th Cavalry (later 1st Cavalry Div.) M18 (see the 18th Section 11 of the 11) announced the change in all later orders which make the interval to change wheel-bearing grease 15,000 miles instead of 10,000. (From now on, usually to annually.)

These M18's were lubricated with less grease than they used to cover the long pull, and you may think have some of them in your own back yard right now. The best way to find out is to check the rear wheels on all your M18's and get in the right amount of grease.

After you push the bearings and cover, you should get about a half-inch-thick mass in the ball. To save measuring for thickness of the mass, I can tell you that it takes about an even pound of grease per ball to do the job.

(Ed. Note: Basic Administration policy for all vehicles is now being checked as a result of the new 15,000-mile interval. You'll get the word again in P's Magazine from the engineers.)

Then, when you re-assemble the job, be sure to adjust these wheel bearings. Pull 'em up snug... back off to turn... and lock them tight.

And take it from a friend, too, you'll be well to look into this little detail before those wheels run many more miles.

● P. S. Run M18's after 1943-44, and 180th Cavalry M18's after M18's—have been taken care of at the factory.

**JOE  
DOPE**

# HOW TO LOAD A TRUCK

ADAM: HERE'S A SUPER-IMPORTANT  
TIP: THE TRUCKS ARE IN TRUCK  
BY THE WAY... SHOULD WE STOP?  
RESPONDING TO ADAM: YES, YES, YES,  
BUT IT'S A LONG WAY AND  
OUR TRANSPORT, ADAM!  
DON'T GO! IT'S A LONG  
WAY... GOING TO  
A POINT HERE'S HOW.



WROUGHT  
HOW TO LOAD  
A TRUCK  
TIP



ADAM: YES,  
A GOOD... PLAN  
THINKS BY IN?

MY BOY  
LEAVE ME THE  
YOU SOME  
THINGS THAT  
WOULD BE  
TOLD YOU  
ABOUT  
LOADING  
TRUCKS

TRUCKS ARE BUILT TO TAKE A LOAD A CERTAIN WAY. PLACING THE LOAD JUST A LITTLE FORWARD OF THE REAR WHEEL SPREADS THE WEIGHT OUT EVENLY.



Adding more than a little weight, so I am not in.



NOT ONLY HE IS A PEEK IN THE ASSE BUT IT MAKES THE TRUCK HARD TO STEER!



PLACE THE LOAD JUST BEHIND OR TO THE REAR SIDE, THE LONGEST SIDE ON THE FLOOR, IF POSSIBLE.

WRONG

RIGHT





NOW LOADING  
A TRAILER IS  
A ART... O  
...HEY??

HEY  
GONE??

HE SHOULD  
LOCKED/  
NOTO I DO  
WRONG?

STOP/  
STOP??

SCREECH

YOUR BRAKEN  
LOCKED ON  
THE LIGHT  
SIDE... SO  
YA SKIDDED!



**WHEEL**  
LOCKED  
ON THE  
LEFT SIDE  
OF TRAILER.



**WHEEL**  
LOCKED  
ON THE  
RIGHT SIDE  
OF TRAILER.







DISTRIBUTE TRAILER LOADS EQUALLY BETWEEN REAR AND FIFTH WHEEL. THIS TRANSFERS THE LOAD TO THE TRAILER.





MILITARY TRUCKS ARE DESIGNED FOR CROSS-COUNTRY WORK.

SO USUALLY, YOU CAN EXPECT THAT AS A "ROAD" LOAD—SUCH AS A BUS, A MILITARY TRUCK CAN DO A LITTLE MORE.



BUT, RATE IS NOT LOADSOME LOADS MAY BE AS MUCH



OVERLOAD  
SCALE BY  
PERCENTAGE

TRUCK	%
ANY ALL WHEEL CROSS TRUCK UP TO 20% OR 20%	20%
TRUCK CROSS TRUCK	40%

# REMEMBER !!! OVERLOADING MEANS

MORE STARTING-MORE STOPPING  
MORE GEAR-SHIFTING.

BE CAREFUL  
IN PICKING  
UP THE LOAD  
WITH THE  
CLUTCH...



UP HILLS, THE  
ENGINE WORKS  
HARDER  
PULLING THE  
LOAD...



STAY  
OUT OF  
TRUCKS  
ON  
HILLS  
OR  
STEEP  
GRADE

FOR  
YOU  
CAN'T  
THERE  
HILL

AND  
BE  
CAREFUL  
ON  
STEEP  
GRADE.

## OVERLOADING NOT ONLY HURTS YOU:

TRAILERS,  
EXCEPT  
WHEELS  
ETC...



25 TON BAR  
CAR WITH 10  
TONS OF  
TANK AND  
FLUORINE  
BATH...

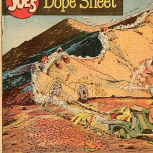


BY VEHICLE  
OPENING  
CROSS-COUNTRY.





# Dope Sheet



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

FOR ANY BUSINESS IN MASSACHUSETTS ... SEND US \$1.  
AND SEND YOU A PRIVATE SUBSCRIPTION TO P. S. MARACCHI, PRES.

A cartoon illustration depicting a military truck being crushed by a giant, orange, hand-like shape. The truck is green and is being pushed down into a red, rocky landscape. In the background, there are soldiers and a tank. The scene is set against a blue sky.

**H**e yearned to pilot a jet  
But a truck was all he could get.  
So he drives on each mission  
like nuclear fission  
They're picking the pieces up yet!

**IPMENT...Take care of it**

...IT'LL SURVIVE AND FULFILL THE BEST OF YOU  
... WE'LL MAKE SURE OF IT SO YOUR CHANCES ARE GOOD.



MFO Grid GMS-81 provides instructions required to modify the installation of larger size tires. Paragraph 1A of MFO lists parts required to accomplish this modification. Paragraph 1C gives source of parts supply and Defense Stock number for requisitioning.

Read the whole MFO—Order parts if required but order them as directed in the work order.



**4**

#### DIDN'T GIVE ADDRESS

Result: Delayed or lost shipment.



Fifty modifications kits were packed and waiting for this company, but the Depot didn't know where to ship them. Henry Field wasn't listed in the current Postal Guide, and its nearest railroad post office number was.

Give the railroad and post office address, especially if you're located at a new camp.



**5**

#### DIDN'T EXPLAIN UNUSUAL REQUEST

Result: Delayed or delayed shipment.

UNUSUAL REQUEST	DATE	STATUS
1. 1/2\"/>	10/10/50	100
2. 1/2\"/>	10/10/50	100

If these quantities are authorized say so. Detail your interests. Always give the basis for requirements. TM 11-514 tells you on what basis quantities may be ordered, then you put this information in your requisition so there will be no doubt about your need. Also give your standard load on load, day-in, and day-out information.

**6**

#### DIDN'T LIST ANY PART NUMBER

Result: Delayed shipment or wrong parts.

REMARKS	UNUSUAL REQUEST
1. 1/2\"/>	10/10/50
2. 1/2\"/>	10/10/50

What this request needed was Grid 1 Index. This publication identifies every major item: trucks, tanks, guns, gas tanks, cranes, etc., and tells you which DPM parts Supply Catalog carries the item numbers.

REMARKS	UNUSUAL REQUEST
1. 1/2\"/>	10/10/50
2. 1/2\"/>	10/10/50

**7**

#### DAVE WRONG KIND OF STOCK NUMBER

Result: Delayed shipment.

REMARKS	UNUSUAL REQUEST
1. 1/2\"/>	10/10/50
2. 1/2\"/>	10/10/50

This gentleman obviously doesn't want to waste money but's got numbers. Only trouble is the Depot hasn't checked the basis this way for years.





# CONTRIBUTIONS



## WATCH THAT NOISE BLADE

Pls. John R. Esperson, 178th Regt., (Col.) Inf., Eng., says "so many" vehicles in his outfit were running around noisy or with stopped windshield-wiper blades. Reason is the trouble was too long, hanging between, through blade brackets, or under the wiper arm, so windshield wiper or blade used as field gadget.

To save power, boys getting caught without a blade when you need it had, says Private Esperson, lay out and take a look at the blade everytime any such obstruction strikes it. Look for the wiper's effort to be lost or for the blade to be bent enough to drop off. Or you can get a drop of solder where the blade hooks to the wiper arm. That ought to hold the blade in place.

## CRANKSHANK SHIRT BINDING

Sgt. E. Baumann, APC 118 writes:

In design of shirtless engines, the whole moral of the crankshaft seems very flat when the flat (flat-head) and lower (overhead) goes through. I've had good results using a piece of brass disk stuck as a bearing. This also keeps the oil from leaking in at this point, which makes the motor run better.

(Ed. Note: In the picture, this fits in R. Did it seem satisfactory that the gear, replacing it in your best bet.)

## JEP—SHOOK TOOL

Capt. Kenneth F. Bessy, 108th Col. MAM Co., sends this tool to compare (see sketch above) looking for any removal and replacement of outer pins, which he says was invented by E.P.C. John R. Ward. Captain says the most important thing about the idea is that the pins in the dog need to put the job back up with an underbar pin that would let the wheel lock off, which is too good the same looking proceeded apart long before its time.

P.S. Magazine has found some people using a length of clothed pipe and a brick for the same thing, but Sgt. Ward's tool is the real thing. A free personal subscription for P.S. to both you professors.



It goes against the tire for long holding—the hooking when for the horse.

## ROAD-MADE THROUSE LIGHT

By R. A. Millard of Ford Del. College, Detroit, Mich.

Just company has been on the market but for 4-volt flashlight bulbs for so long that we've developed a very effective home-made "Glow-bulb."

Here's the recipe: Two universal clips, a length of single conductor wire, one 4-volt flashlight bulb, and a small tin can.

Mix together quickly as follows: Clip, wire, bulb, stand (can), clip—just in that order (Fig. below).

If carefully used, so you don't strike sparks with the clips and create a fire hazard, it's swell. Gets into all kinds of tight places where the big boys can't go.



## BRACE CYLINDER WRENCH

THE M. Y. Brown, ABB 1818 offers something that's saved him many a dollar and trouble and improved my disposition. It's a simple tool for removing the crank plug in the better master-cylinder on the Dodge (Dodge and Chrysler GMC).

For the Dodge, take a piece of 1/4" iron pipe about 10" long. Heat it and hammer one end into form a square under of the proper size to fit the plug. Flatten the other end so it can be gripped easily by comfortable wrench—and there you have it.

To make the one for the GMC, get a 5" length of 1/4" pipe. Do the same thing you did to the other, but square only one

end. Drill a hole through the other end and insert a pin for a handle—as a master always will do just as well.

Master starting leader find a pleasant subject.



## REPAIRING SLIDING PINS

From Ego, Robert E. Fenton, Service Co., Los Angeles, comes this temporary repair for broken sliding pins, when new pins aren't available.

Push out the piece of clean pin that's left in the valve gear shaft and cut the piece in half. Use a round closed bracket the two halves of the pin as shown in the diagram. A little friction tape over the ends of the clean pin sections will keep them in place.

The repair is only a temporary one and should be used only in an emergency, when your last spare clean pin is shot. If the pins are sliding too often, you're probably overloading the valve cable.

## ARE TRACTOR DIAGNOSTICS

We've got some low HP, High-Speed Tractors with an average of only 15 cylinder hours on them, and the rubber diagnostics in the low-pressure indicator houses aren't holding up. Two of the original diagnostics have broken in the same place—the air pressure seems to be too much.

I figured a thicker diagnostic might be the answer. There weren't many parts available here, so I had the diagnostics from other tractor-cylinder caps. By leaving out two of the three windows, the last one was out of 41 lbs., which is within the



IF YOU'VE GOT TO  
DRIVE 'EM ROUGH  
HERE'S HOW  
TO FEEL YOUR

# GMC SPRINGS

**O**NE of the biggest advantages of the Kenworth effort, next to the Elkhart, Kansas and the Chicago, Colorado, air-locked truck springs, (have you got all the main trademarks of which there aren't any to begin with, the truck usually features multi-advancements in wheels, rims, bolts and dishes.) Add to this heavy and modern overloads on wheels, and speedy driving and the result is lots of better springs.

But that's not the whole story; springs don't just up and decide to break. In many cases, it's a matter of something else in the suspension system that leads to broken springs. Like the instance when an loose spring shackle, spring arm, or worn bolt or pin where the spring is fastened to the frame hangs. The frame hangs itself may crack loose from the frame.

Any or all of these conditions let the spring flap around loosely, making the truck a make for a broken spring or at least increasing the chance that the next hole you hit will mean trouble in the suspension department.

But just look at the heavy spring assembly and find it hard to believe that such hardware could be described as "flapping around loosely," but not find

you're riding around of a 240-ton six by six, none your place in the suspension. You'll see what you thought were heavy rigid springs flapping like the wings of a bird.

There's a standard test you can make of the spring system which will help you catch trouble before it starts. All you need is a heavy iron bar, your good right eye and a little know-how which you will quickly get from experience. Go out for business in the shackle, or wear in the bushings, bolts and when have you, stick the end of the bar under a frame side member which the bar rests on the spring close to the end. Work the spring up and down alternately pulling down and releasing the bar. Watch for vertical movement between the shackle and dropping. This is the sign to wear or loosen in the shackle. Some shackles have rubber bushings, don't mistake compression of the rubber for wear.

Now there are different kinds of shackles and an different kinds of trucks such as flat shackle, U-type shackle, V-type shackle and rubber-block shackle. The pictures on the next page show some of these, and the caption indicates what due to watch for in your inspection.

our son. For instance, in checking the right-side fork shackle, if you get any side play, tightening of the shackle is called for.

Notice also that these shackles are plentifully sprinkled with grease fittings. There are not just got on there for pretty. Keep after them with your grease gun and let the grease take the wear instead of the part.

### SPRING HOLDING CLIPS

The spring retaining clips were got on the springs to keep the leaves from separating and breaking. If these have worked loose, trouble's coming. The clips must fit the spring strongly enough to prevent side movement or separation of the leaves, and still let the leaves slide on each other.

The clips are usually wrapped around and clamped to the spring leaves so they may be held together with a spacer, lock and nut. Examine the clips for looseness. If they are at least that, you can shake them with your finger, tighten like so:

If it's the wrap-around type, support one side of the clip with a large business or bar serving as an anvil. With another business, bang lightly on the opposite side. When this side is tight against the spring, put your anvil on the other side of the clip and again bang lightly on the opposite side until it's snug against the spring.

If the clip is the spacer and bolt type, just tighten the nut until the clip is snug. Don't over-tighten—too tight will retard the spring action.

#### Over Riding,

We've had quite a few (and) springs break on the hot, normal, or cold test. They generally break from 17" to 18" away from the center bolt.

We made a clamp out of two pieces of steel, 1/2" thick, 1 1/2" wide, and 12" long. We drilled the holes about 1" apart, so when we put the bolts in they would fit snug against the side of the spring, like Fig. 1. Then we bolted them together. Of course, we jacked up the vehicle and lifted the broken ends of the spring together before we put on the clamp. This way, we were able to get our machine when we had to.

There's also been some trouble with bushes locking on our QMC. We fixed the trouble by a clamping master-cylinder-pull hole.

Instead of leaving the master cylinder apart, we drilled it with a center gun. Then we got a piece of fine steel wire and put it down through the filler opening, worked it through the pull hole, and clamped it that way. It was saved a lot of work.

Sgt. Anthony V. Belmont  
AND 718

Ed, then ... That clamp won't hold a broken spring together for long, or replace it when you can.

When you're pushing in that wire in that a clamped master-cylinder-pull hole, make sure the piston's fully retracted so you won't cut the piston tip. Better use a fine needle sharp awngun, too, since some air pistons are pretty sure to work under the cap and cause feelings later.



Read from T-4 George B. Fisher, correct this field for his Jackson spring leaves. Recently we have experienced a good deal of trouble with Jackson's coil springs on GPH's beds. Not being able to obtain sufficient replacement, caused me to resort to welding Jackson made leaves. To date the repaired leaves are giving good service—they are holding up as well as whole springs should be original leaves.

The welding procedure is as follows: The only practical place to weld them is as close to the center hole as is near to the U-bolts as possible. If the bed is broken on outside this area, then two leaves are used to make one. The leaves are not so the weld comes in the right place, then:



The spring leaves are leveled with a double "V" on an anvil wheel after being cut with an oxyacetylene torch, then fixed up accurately, like this:



The welding is done with 40' stainless steel 1/4" (1/8" chrome, 3/16" nickel) electrodes applied with the electric arc. The heat is kept as low as possible consistent with a good weld. The beads are applied thirty feet out of a time (see Fig. 1). Enough time must be allowed between beds for the weld to cool completely, at least until you can hold it in your hand.



**• P. J.**—When you're done, remember that spring O-bolts ought to be tightened when the metal is under normal load.

The next join is applied opposite the first, and so on in this way:



Welding can be completed by applying two beads on the outside of the many before applying any to the inside. Again the beads should be allowed to cool separately and completely. This will straighten it out as shown in the next sketch.



Before the beads will fill one side of the bed, twice for the whole weld as you see here. The surfaces are then ground back:



Some reinforcement may be applied at the ends. However, extreme care must be used not to cause any cracks or cracks at the ends of this reinforcement. Good and bad reinforcement look like this:



By "good welding" in this way, the natural bonding effect and resistance caused by our welding high-carbon steel is maintained.

The stainless steel rod makes a very difficult weld and has all the time to struggle needed. This same procedure would work on most spring leaves and brackets, rods and parts.

Four to six hours may be allowed for the job. A sleep can be worked as fast as one because of the necessary cooling time.

**YOUR DRIVING WILL  
TELL YOU THAT...**

## **GOOD DRIVERS ARE MADE... NOT BORN**



**Does *drive* *drive*?** If *know* you've been all through TM (1-800), you've studied our deep in classification cards, and as *soon* you're even got them driving your wheels.

Now, would like to ask, have you given any thought to the plain human being that pushed your leader and decides, the little acts of wisdom and heart that breathe the leader of the big double track and makes it go?

If not, and you'll check down all your laws for a minute, we'd like to bid your car.

If you're a real *Shine* Officer, you'll go into the Shop, check and get your hands going, just to see what kind of maintenance your men are giving your vehicles. Not higher vehicle stuff, either... we're talking about that old and second-station maintenance - preventive maintenance.

There's a couple of other ways too, among which are wisdom and money. It's a lineup which never fails.

### **Feet of Wisdom**

It isn't hard to get sentimental over a piece of machinery when you're constantly with it. Now know its strength and weakness, its good muscle and bad. You've followed it through hot-weather, spring floods, and dusty seasons. And it still takes you there and brings you back. Give your driver his truck and try to keep him

on it. Let him give it a name.

Remember the *Jeep* you used to love when you were a kid and kid, and the name you gave it? We called *our* *Ferry* after a girl we knew. The guy next door also called his *our* *Ferry*, for reasons we *could* never figure out.

It's legal for the Old Man to collect a system of painted vehicle names, provided government-owned plates is used in marking them. And if it makes the boys love their vehicles, *well* for us.



### **A Hit in the Pocketbook**

When a driver does a good job, just call around him in top of a truck - put him on the back, give him a medal or get him a letter.

The last way we like, but perhaps best. They're both well-spoken in your wallet. And we'd like to see how many drivers get more of them.



Best part is, ratings are already outstanding. Take a look at your TVSM: if it's like most of them in line, you just stepped on the shores of truly legendary truck drives.

See what these ratings, when you do your job right. It's enough to make a truck all day. Nothing any kind of brown and say kind of numbers, and do all the possible maintenance and emergency repairs needed to keep it running. Here's hoping you drive out all you're entitled to.



For me believe, as you want, that this had helped...*rehabilitation*...can help

a lot of third and fourth-generation work. It has even more the spare parts and then you as a vehicle.



We need to know your lot of 'your' about "keep the ratings".... you know what your job is. If you do it half-heartedly or not at all, the whole system will suffer.

If you do your job well, what reward? The GPO Mail might even make you a major!

P. S.— Obviously, the new for the new changes to your strategy! What we say now?

Now that it's cheaper to fix 'em

## YOU CAN START SAVING USED BEARINGS

Hold on! Here to share more old bearings. There's a lot more ought to be some good use for all that weight of the steel and non-ferrous of machinery. Well, there is.

Delmar's *Keep The Used Bearings* (2007) 10 now tells of a program to replace all automotive bearings that aren't correct or not properly tested or worn. The new steel covers rollers and results as well as ball bearings, and is already under way to using dozens.

In fact, now on, more testing, instead of bearing them in the hand sets that allow your vehicles or vintage jobs, you can work your used bearings (only for the *Keep* man in a pull or a 10 min.

See it:

1. Check the whole assembly that you intend to use them again.
2. Check them every 1000 miles (what pull, take a 100 grams per 1)
3. Arrange some devices around them to prevent slipping damage.
4. Cover with with engine grease (or oil) (or Grease) (it and some to the new through the new channels that need 'em).



## HOW TO STOP A JEEP \* IN A HURRY

WITHOUT BEING WHIPPED  
DOWN A SIDE ROAD

Occasionally, Bumblebee's a pretty slow and sleepy driver. One time he got in a spot. He had to stop fast or not, said the captain. For a second there, Bumblebee moved like a rocket. A fast flow out to the brake, stomped down the pedal, he braked up and yelped the wheel hard, till finally the truck settled to a stop.

That's pretty much the way most of us stop in an emergency stop.

Take an honest thought when stopping a '44 jeep by that same system will give you a surprise. When you jam on the brake you'll feel the jeep drive to the left. The captain's statements making the wheels on you. Nothing to get your intention to an urgent about. It's just one of the facts of the jeep's driving life. The last thing a back-up driver will do is stay still, that's why it happens, and how to use control the pull to the left.

Here's the "how" part: Just make your emergency stop the same with a jeep as you do in any other truck, except for one thing. Don't brake the steering wheel. Let it have a little play. Still keep a firm grip, but hold your arms loose enough to give with the wheel's tilt, and

to your right. Another thing, if you have time during the stop—jump the brake at least once, instead of giving it one long push all the way down.

Those two things sound easy. Don't test yourself, they take a good driver. You've got to remember that when you're in a tight spot—when it's the most natural thing in the world to kick out at the brake and grip the wheel hard. You'll have to practice and keep the right way to mind, so that in a pinch you'll automatically relax your grip and pump the pedal.

It's a case of knowing your jeep, too. Even here the driver must know others, and some conditions make the pull more noticeable. We heard the pull strong when the stop was made on a smooth hard road. The worst pull . . . a pull that nearly moved the jeep into the left lane . . . happened when the brakes were applied going around a left curve. That's not surprising though, because putting on the brakes on a curve is knock-off driver practice with any truck. Hold your high or low range—brake, the attention to the left more than any other gear. But the pull is likely to happen on any road,



Missing all jeeps before MCB sales.

in one spot. The important thing is, it does happen. And the blame all goes to the loop steering set-up.

It's due to the greater combination of axle and arms that rotate your rear-end. The steering wheel down in the front, wheels. When roads as you know have a steering system that looks like the geared parts in Fig. 1. There's a one-plane tie rod connecting the steering knuckles. But the jeep is different. It has a ball crank on the front axle (black pins in Fig. 2), and a two-plane tie rod up front. It's different for a good reason. To leave more space between the subframes of the truck and the ground. The regular set-up with the one-plane tie would hang down too low if it were used on the 1½-ton jeep. You'd tear off a piece of the rod everywhere you drove across a rutted field.

As the jeep rotates in a stop, something awful happens once on with the steering. When you turn around the front axle and wheels.

The knuckle starts to fold, the tie-rod, just then you'll feel yourself twist forward a few degrees. The twisting action makes the axle twist forward a little. You'll see the ball crank dip forward and down, because it's mounted right on the axle. Watch it—this is where the pulling happens all most. As the crank rotates forward, the end in the steering connecting and tries to pull the rod forward. If the rod stands put, you'll see the crank pivot and swing the tie rod and wheels to the left (Fig. 2). Finally the jeep stops, more in the left lane sometimes.

You can see now why it's wrong to attach the steering wheel where the jeep's coming to a stop. Giving the wheel a little play to the right before you tie the steering system. Then the steering connecting and it has to move forward with the ball crank instead of standing put and holding back the end of the rod. The rod moves forward and the crank doesn't pivot and the jeep rolls to a straight stop.



Fig. 1. A regular steering system on a truck. Top. Notice front two rods to the other. Notice the tie rod. That's the conventional steering on most trucks. You can see how the loop steering arrangement is different.



Fig. 2. Notice the steering wheel is at an angled stop, just when you expect to a full stop. The ball crank goes too far—because it's stuck in gear—tied to the tie rod, which is a ball.



Fig. 3. Notice how the steering wheel is straight. Notice how the tie rod is in the right place. Notice how the ball crank is holding back the end of the rod.

The Army didn't hang the responsibility for the job of controlling the pull entirely on the driver's hands. Almost seven years ago the engineers stepped up with a mechanical spring arrangement to add on the left front spring. This Torque Reaction Spring was put on in production, and put on in the first 1941 M. It did cut down the axle roll and make the pull much less violent. But because it's still adjustable, some of the mechanical problems have been remaining in with single lanes to make the pull smooth completely. One little hint is it was just a simple matter of moving the brake shoes on the left front wheel. Another GM stopped demanding of Stahel a few nights to dream up a way to take some of the pay out of the left front wheel cylinder. Then the cylinder would have a rubber push on that side and the jeep would stop less straight line. What about those things do make the pull less noticeable. But even, that's reducing the braking power of the jeep. In an emergency stop, you'll need more space to stop in. Any car that lanes with the brake is worse than the driver of a left-pull.

That all the suggestions were off the fact it few wanted to go back to the regular truck steering with a single tie rod, take the left axle off the axle and which it came close to the frame. No question. That would move the pull to the left. The Army's Ordnance engineers know Stahel—after all the engineers know it and even Hal. Most know this would be the trick.

But there are two good and practical reasons why the step isn't being taken officially. First, any change would bring more time under the jeep when there's not too much space time between the underpinnings. Second, any modification to the steering shaft. If these early jeeps would be run easily in time and outside—hundreds of thousands of tons of modification, the parts would be needed in nearly all the jeeps that are showing around the world. And it would take millions of mechanic-hours in the field and factory, making and putting on the fix. All this for what?

To correct a little discomfort that happens only when the jeep is forced to make a hard lane stop? To correct a quick good driver notice only once in a while? No. That wouldn't be sensible. Instead of the impractical costly modification to all 40,000 that's the Army's put the problem up to you. Multitask—there's depending on you to give more attention to the Primitive Mechanisms on jeep steering systems. Steering linkage that isn't adjusted isn't make the pull stronger, enough to make your jeep hard to the left. Follow your vehicle TM and keep the steering in line and adjusted. Drivers—there's depending on you to know the pull is normal and nothing to get excited about. And, to learn the little trick of controlling is by relaxing your steering and pumping the brake during an emergency stop. The whole deal's in your hands. Your good gray hands.



WIND OUT THE OLD AND BOUNT IN THE NEW

## ALL PURPOSE...ALL-WEATHER GREASE



### THE NEWS

The news is almost too good to be true. Every year now, you'll have only one kind of grease for all automotive and utility bearings and loading surfaces, except wheel bearings and water pumps. Your instruments too get special treatment, but that's another matter.

It's called GAA for Grease, Automotive & Automotive, and is a latest development of your present 00 (Double-0) grease. The OTCuser and Petroleum Industry made finally found the right "middle" and whipped up a better than best's run-out at high temperatures and will also, as they say, "... maintain its lubricating performance characteristics..." at very low temperatures.

The GM is buying GAA right now from a number of different suppliers for use in all organizations as general stocks of all-weather grease are used up. The first shipments, of course, will go to OUT-FILE OPERATING IN EXTREME CLIMATES.

### THE ANGLES

What this means to you is that you'll have to reckon with only one kind of grease for all purposes, in all weather and climate conditions. Instead of buying around two different ones, you'll buy one. Instead of switching five different kinds of grease you'll order one, and instead of changing grease with the seasons and with each move to a different climate, you'll be able to sleep up the time you are now so busy in Over-Engineering.

Best of all, you'll know what you're got in every grease jar! No more wondering what's coming out when you push the handle or whatever you push up off the

grease tank.

In order to save yourself aggravation, check a few things you get to sleep in mind about any changeover as big as this new grease program.

Number One is, you shouldn't replace the old one until you've used up what you've got on hand, and whether you do or not, the GM will send all the old stuff but's got on hand too.

Then, when the GM gets the stock of GAA, he'll supply it on all requisitions automatically whether you ask for GAA or not.

From Two is, when you get GAA you won't make much unusual changing over every truck in night office. Unless, that is, the local electric power runs on 117°F or below, or at the regular take-order intervals.

And if you start using the GAA after you've had some the first time, keep in mind that the Dept may not always have it... so for a while at least, until all old stocks everywhere are used up, it's a good idea to give a substitute one that you can use until the GM can deliver what you want every time.

•P.S. Some parts that will be packed in GAA are marked "Prepared With Proper All-Temperature Grease." Use them right out of the package without re-lubricating!

Continued from page 10

And somewhere out in remote channels there are about ten replacement sales that need the same treatment. Forget your four-wheel wonder GM-10-1111. How rare four-wheel wonder GM-10-1111. They'll likely come out of Laboratory or America.



Dear Half-Mast,

This suggested comes up every time we have a monthly check-up. It's about adjusting or resetting the rotor to close the contact and I say the rotor goes shorter all the time even if only a few thousandths of inch sagging or rising. The TWT's don't give me special setting for the clearance between the rotor and distributor cap, so my contention is to fit the rotor good and close and to use an old distributor cap with the part of the cap not cut to maintain the clearance. If the clearance is too big, the lower contact end of the rotor could be built up with solder or it could be lit lightly with a flame while running on a rise of something solid. It always set the clearance between 24° and 26° and got very satisfactory results—smooth rotor and good spark. It takes only a few minutes to check and may save a lot of trouble later.

Ph. J. B.

Dear Ph.,

Your idea of setting a disassembled distributor cap to maintain the distance between the contact end of the rotor and the sparkplug wire contacts is valid. The gap setting of 24° to 26° is okay, too. But when your monthly check-up comes around, it'd be better to close the contact and rather than file or stone it. Filing it with a hammer to make up for the material lost in filing is pretty foolish.

If the rotor has badly bent and there's no new rotor in sight, building it up with solder will work but which is a replacement as well as you can. Half-Mast.

Dear Half-Mast,

We're having some electrical trouble with our radio and believe it's in the regulator. We have a hunch that we should adjust the regulator to where it will burn up. How often does it happen? Maybe it'll help some other boys, too.

Cpt. P. P.

Dear Corporal,

The voltage and current regulator are hard to be set accurately. Like you say, setting the current regulator too high will put an overload on the generator and may burn it out. Setting the voltage regulator too high will overcharge the battery and the cause a very high fire-voltage, burning out lights and ignition points.

But sometimes what tests the regulator trouble lies in the regulator at all. To check down the real cause, run the motor a few simple tests that don't call for instruments—except your portable trouble-shooter's aid.

You can't make this test when your battery is in a fully-charged condition because the voltage regulator will let down the charging rate too much. If that's the case, stop on the starter for a

five seconds. To make sure the armature's working, turn on the lights to see if it shows a change.

First check the charging circuit—find it from the generator-actuator circuit, then to its connection on the regulator, from the battery connection on the regulator to the connection on the armature, and from the other armature connection to the starter-switch connection. Look for any loose connections and tightened points between them, and check the condition of the wires. Also be sure all cables between the battery and engine are in good shape; if you've got rubber engine mounts, bend the engine and run it at about 1500 rpm. If the armature still doesn't show any change, go to the next test.



These trouble can be in only two places—either in the generator or in the regulator and everything that affects them, the current regulator, and the voltage regulator. Test the generator next. Remove the engine to bring speed. Then run a test wire, connecting one clip to the armature connection on the generator and one to the field connection on the generator. Slowly increase the speed of the engine. If the armature now shows a change, you'll know the generator's okay. But if the armature still shows no change, there's one more test to prove the trouble's in your generator. Remove the armature wire, field wire, and regulator wire from the regulator and connect them together. When making this test, turn the belt wheel on the generator connections—this cuts the magnet relay out of the circuit. Now if the armature still shows no change,

you can be sure that the generator is your troublemaker.

However, when you put one clip on the armature connection of the generator and one on the field connection of the generator, if the armature registers a strong charge—that proves there's something wrong in one of the regulator wires.

*Walt Morgan*

Dear Phil Mann:

Now October was just out an SBC in organizational space plans for Ford, Inc., Inc., 1-4-55, Vol. C.O.E., American University. We have it of the date things and don't know what to check in 1st section to be safe from our friends the Engineers.

Is there a modification on the air-cum-pressure transfer on Hercules HEC engine? The function have a habit of working here on the engine and the oil consumption time on all other cases.

One last question and I will sign off, then about the exhaust valve clearance on the HEC-1 engine model, HEC. The maintenance manual calls for .020 to .025 when cold. We have tried this and found the valve is in the cylinder head, that valve is trying to prevent the way out and striking the top of the cylinder head.



WALT MORGAN

Dear Phil C.,

The publication you cited for the 3-5 ton, 44, distance is the SBC version of SBC Q-11 117 Jan. 45.

The exposure on your Hercules also compresses brackets shouldn't know up if you keep them properly tightened and lubricated—but since you're having that trouble, you might notice them by

drilling holes in the uppermost bands and wiring the line to aircraft engines.

About the exhaust valve clearance—Boschman THOMAS (11) that changes things for the better. The new clearance, which he's, is .0015 to .002 inches.

Hall-Mark

Dear Hall-Mark,

I'd like a little advice on Model 1944-45 Tamiya Type compression.

My master has told me about the most faults on the main engine valves. They show at inspection holes we have no gas in your holes after about 100 miles of operation. My own religious them because the clearance are close. Tried all Premature were possible and even used them right with when, but it didn't work.

We're stuck, boys.

Sgt. A. E. H.

Dear Sergeant,

My little advice is to do one of two things. When the engine valves have worked loose and damaged both the compression threads and threads in the bolt (1) Drill out the damaged threads and tap the bolt for a larger size stud. Or (2) drill all the way through the bolt and install a bolt secured by a nut. There isn't any other way when the threads are that far off.

Like you said, Premature wouldn't help much. The remaining work on the valve should always be safety valued when they've been tightened.

Hall-Mark

Man, why go to the shop with your motor problems? Write to me, Sgt. Hall-Mark McCauley, P.E. Magazine, Aberdeen Proving Ground, Aberdeen, Md. I'll not only answer you, but I'll send you a personal subscription, FREE!

Dear Hall-Mark,

What are your recommendations on the grade of oil to use (Bosch)? According to the boys who are getting gipped, the ones that are doing good right-takes say all clearance are to have .0015 to .002 in there and I don't see why. It's all right to have in there what is there in the others, and they talked with us for using .0015 to .002 in there. Also, according to the TMI's and some others that have not been inspected, all (other) are as good as the same grade as in the engine is to be used. I'll agree that the oil clearance that are up high, like the GMC or the T-34s, Dodge, make .0015 to .002 because it won't splash out as all over, like the others.

Sgt. G. E. H.

Dear Sergeant,

If the boys are using the grade oil in the clearance that's specified on their vehicle take notes, they shouldn't really get gipped. Whatever oil they're using in the clearance is what they should be using in the air clearance. But you said. The LO's the last word, please use lubrication, it's an order.

HALL-MARK





# BETWEEN THE LINES

## LETTER FROM KOREA

Dear Editor:



We've seen a lot of action up here since this old note that *Cpl. Lawrence* is telling us, thing started and I want to tell you that whether he knows it or not, is that if somebody like him is a real professional. I believe those two Cadillac's would take us up a perpendicular at the end of a hundred hours or two hundred if we could get the location. Only thing we had hours of operation or even after six hundred to stretch our legs after two continuous hours nearly nine hours of operation, the transmission between the brake and the shaft. And I don't think that would have happened only the transmission from the hull, there would have been no transmission from the hull. The shaft would still be in one mounting and caused a lot of vibration. We just, and they wouldn't have had to blow kipped a rock so neither do we get our tactical this eighty-fourth-dollar back to tell air boys to get a hold on our tank as the Cam and connect under fire. They were back when couldn't get any spare parts. My men said that tank alright—they just didn't to see her go because we were loved that tank. know!)

Cpl. Hank Lawrence

43

P.S. What's the last time you sighted moving-balls?

## THE NEW TRIP TICKET

**S**UBORDINATE HALF MUST have been long in from a field trip the other day when she had reports that not very many people use the Trip Ticket like it's meant to be used.

Some guys think that if their mission is cancelled, they get a free room to goof-off on the little paperwork that a Trip Ticket needs.

That is the words of of Matt Olson, "It doesn't operate would rather kill you and then argue with the doctor afterward, who will not admit."

It not only shows your trip was enjoyable, but it's a heads-up to a man's last friend. This ticket is given off-duty and is non-transferable.

about 1000 of every mile and every aggregation. Then when the vehicle gets to the repair or service, the gas who does the work has a ready reference list of all the action & location points tied to these major miles.

If you don't do the things that bother you in your life, you may go untroubled and ahead. There's a lot of stuff that shows up only over the long haul . . . like failure, what it's real like, go (twice) / odd things they might not answer in a matter important. Besides, you get a long process. You get more important things like show all your mind, naturally you might not remember to make these things

[illegible]

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at inspection time.

Say for example you got a three-hour week order. Well, that means you're stuck with tape, so when you go to the "assembly" and ask for a new one... you are referred to the Chaplain. But if, when you first entered it, you had said some-

thing along that which-says is the very perfect wisdom of the Institute of a 1914, that now-which-order would be on the shelf waiting for you.

Get the point?

I like him.



### ...AND SOME OLD TAP TIGHTS

What is generally called the Tap Tight is officially known as a "Tactical And Equipment Operations Record" and is still being around in several forms but with the same kind of appeal for attention. One is numbered 100, the next one is 100, 100, and then there may be some old 100's still being around.

## ...BY THE NUMBERS



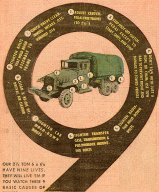
If you're the bright young Ordnance Officer we think you are, who regularly reads *AF Magazine*, you'll be entirely at ease when a leader calls from the middle of the night to say, "Goodness, what are the four articles of the War Of Britain?"

You'll click your heels, straighten up, and look right back, "Sir, my mission as an Ordnance Officer in the field is:

1. The inspection of and instruction in organizational improvement.
2. The supply and replacement of organizational equipment of spare parts.
3. The repair and return of Ordnance equipment to delivery.
4. Proper replacement of unworkable Ordnance equipment to the hands of troops by a like workable item if repairs are unable prolonged."

Having thereby shown your qualifications, you may then add, "It would be nice to be a Captain, Sir."

**SOMEONE'S BEATIN' UP  
OUR GMC'S!**



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