

# ARMY MOTORS

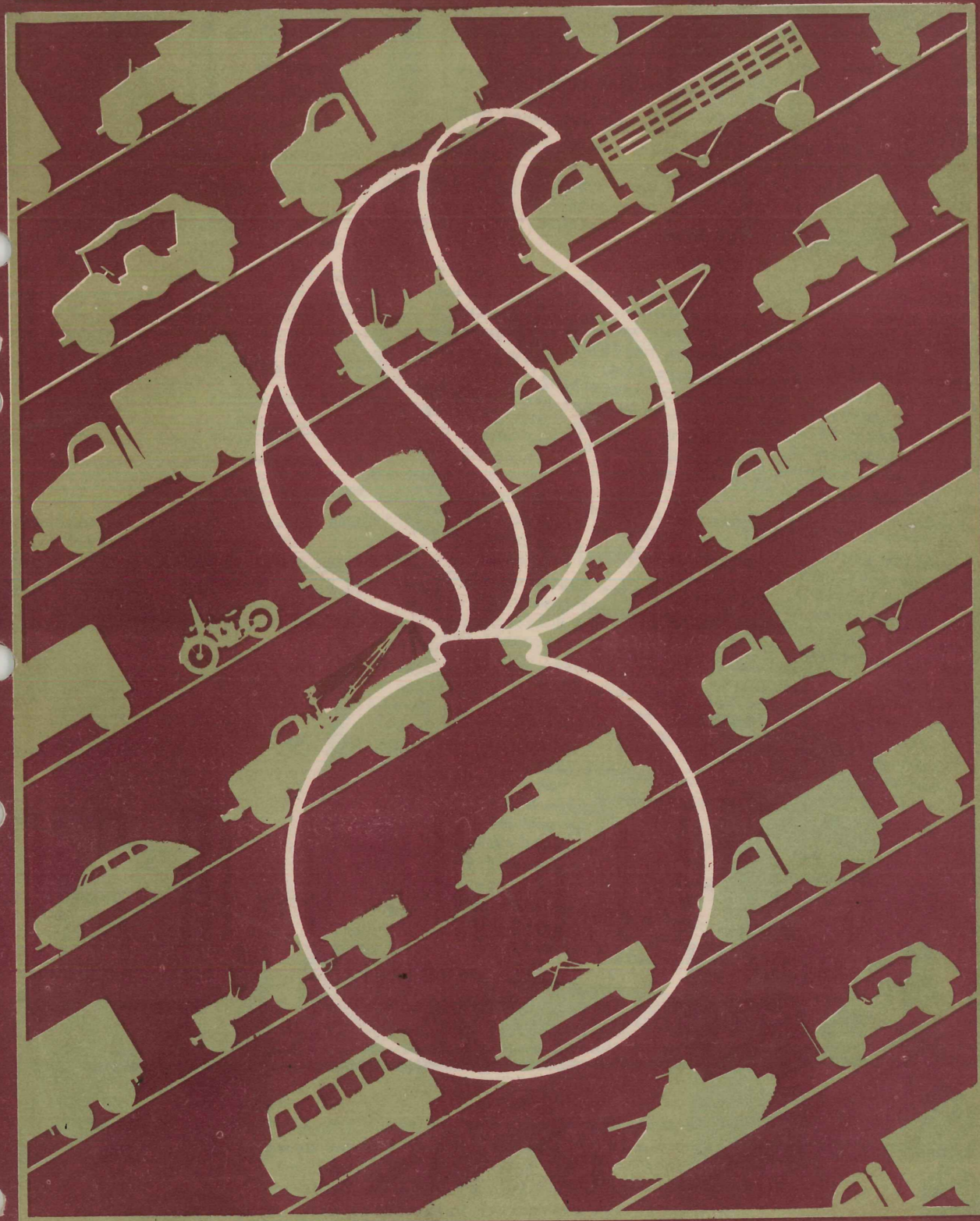
VOLUME-3



OCTOBER 1942



NUMBER-7





# Steering Wheel

What's the most-neglected piece of equipment on your vehicle?

You are.

Never mind you. What's the next most-neglected piece of equipment on your vehicle?

Inspectors' reports declare that maintenance manuals are. Kind of hard to believe, isn't it? Maintenance manuals - the mechanic's Bible - like the reference book to the doctor or scientist. But if it's being neglected, it just is, that's all. And there must be a reason.

Maybe the guys in the field can't read.

No, that's wrong - we've been watching the sale of girlie books in the Post Exchange. They can read all right.

Well, what is it?

It's a strange thing - it's just that the guys in the field 'have already read a book.' Once upon a time they read a maintenance manual; in their experience they've handled every piece of hardware that goes to make up a truck. Now they're resting on their - shall we say - laurels? Now they know everything.

In a cat's ear, they do. War stimulates every science: medicine, chemistry - automotive science. The grueling necessity of keeping abreast or ahead of your enemy demands that new and clever ways be found of doing old things.

That's what's happening in Motor Transport. The inventive geniuses, the best brains in this country, are bending over drawing boards, engineering guts and power into our vehicles.

Carburetors are changing, engine design is changing, body and chassis design is being turned inside out. This is the automotive revolution!

Over in the Holabird Test Section the other day, we saw the strangest things in trucks these old eyes have ever seen. Ton-and-a-half and two-and-a-half-ton trucks - squat, huge and ████████; some fierce and ratlike. Fighting trucks - as different from today's trucks as a mongoose from a mole.

Like trucks, maintenance manuals change too. In the past months, small but vital changes have been slipping in - even as we speak, radical changes are being made.

And any man who tries to handle or work on our evolving trucks without the maintenance manuals is a fool. You can't use yesterday's knowledge on tomorrow's equipment. Don't try.

Read - study your maintenance manuals - stay at the top of your profession. We can't afford backsliders - there's not enough safety margin in this war.

## Contents

### October 1942

	PAGE
A NEW WATER CAN	193
OPEN CABS	194
DISPATCHER'S CABINET	196
VEHICLE MARKINGS	197
CONNIE RODD'S BULLETIN BOARD	198
RUMORS	201
RECONDITIONING ANTI FREEZE	202
A NEW RIFLE BRACKET	205
HANDLING BALL BEARINGS	206
CONTAMINATING POISON GAS	208
JEEP STEERING GEAR	210
FRONT AXLE U-DRIVE	212
CONTRIBUTIONS	215
DUTY ROSTERS	218
SGT. HALF-MAST	219
MOTORCYCLE TOOLS	222
NEWS FLASHES	

Inside  
back cover



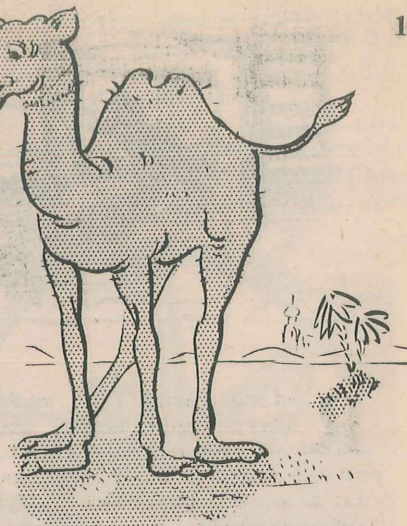
ARMY MOTORS is published monthly for the Motor Transport Service by the Maintenance Engineering Unit\*, Holabird Ordnance Motor Base, Baltimore, Maryland. Your contributions of ideas, articles and illustrations are welcome. Address all correspondence to the Editor, at the above address.

\*A Unit of the Preventive Maintenance Section, Maintenance Branch, Field Service Division, Office of the Chief of Ordnance.



# A New Five-Gallon WATER CAN

**A reasonable facsimile of the 5-gallon gas can - but different as night and day.**



**T**he officer who showed it to us said, "Any resemblance to 5-gallon gas cans living or dead, is purely coincidental."

He was talking about the new 5-gallon water can (Fig. 1) which has just been developed by the Supply Division of the Quartermaster Corps to meet the need for an ideal liquids container.

Speaking generally, the new water can looks as much like the 5-gallon gas can as one bald head looks like

another and is of especial interest to Motor Transport personnel because it fits the universal gas-can brackets recently standardized for trucks. This makes it as convenient to carry in odd places on trucks as the gas can itself.

It also makes it subject to cases of mistaken identity by casual or ignorant observers. Therein lies a warning: The new water can is as completely non-interchangeable in function with the gas can as rubbing alcohol is with drinking water. It's unsafe to carry water in the gas can, and it's unsafe to carry gasoline in the new water can.

The one best way to tell the water can from the gas can is by the mouth. The water can has a big mouth - three and a half inches in diameter - and a quick-acting, cam-type cap (Fig. 2). It does not resemble the screw-in cap on the gas can at all.

Why did they ever make the two cans so much alike in the first place? Because the same tools used for making the gas can could be used to make the

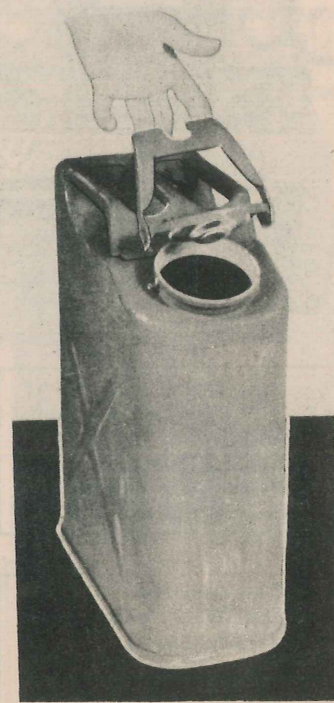
water can. Saves time, money and critical materials.

The wide mouth makes it easy to clean the new can. This is especially important since the new can will not be limited to the carrying of water - it'll be used to carry all kinds of liquid refreshments: bean soup, lemonade, bean soup, mulligan stew, coffee, borscht.....

(Continued on page 224)

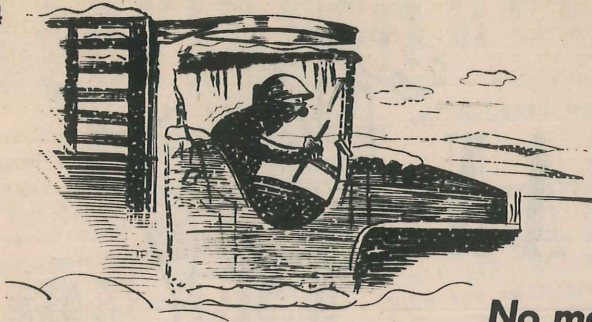


*Fig. 1 - Mike and Ike, they look alike. So do the gas can and the 5-gal. water can.*



*Fig. 2 - You can tell it from the gas can by the quick-acting, cam-type cap.*





# OPEN CABS

*No more closed cabs. In our new trucks, the sky's the limit.*

**R**iding along in a military truck today, you can see out the front, you can see out the sides, you can see out the back. But look straight up and everything goes dark.

What is this, a vitamin deficiency? No, it is simply that the top of the cab shuts off the view.

In rich, full-blooded military language, this is called,

'limited visibility'. Let the combat situation require clear vision all around and the driver is handicapped. Let an enemy aircraft fly overhead and drop a bomb — the driver and his assistant would never know what hit them.

But not any more. A new fashion in vehicle design will enable the driver and assistant driver to see clearly what hits them. And maybe even take steps to get out of the way.

The new fashion in truck design, is open cabs (Figs. 1 and 2). No more metal roofs; no more metal upper-sides and back. Instead, fresh air and sunshine, the great open spaces, and a

view of the stars at night.

The new open cabs will be used on as many types and tonnages of trucks as possible. You can expect your 1½ tons, 2½ tons, 4 tons (tractors, wreckers, everything) to come complete with open cabs.

What about your sinus trouble? What about the rain? Weather protection will be furnished on the open cabs in the form of collapsible canvas tops and side curtains.

Now, since the greater visibility of the new open cabs allows the driver and his assistant to spot an oncoming attacker, what arrangements have been made to help them fight back?

Good arrangements. A gun mount or 'ring' has been provided for on trucks with open cabs (Fig. 3). When a German

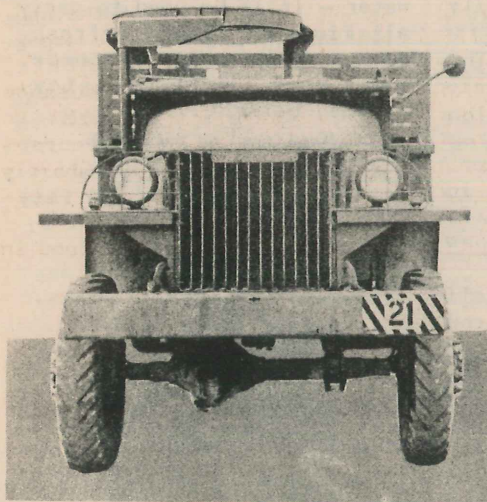
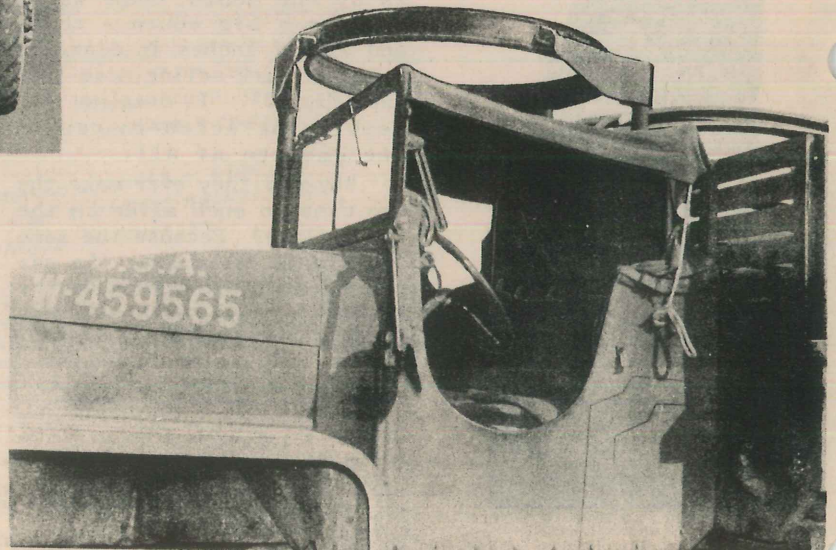


Fig. 1 - Open cab, front view. With the top down the driver's visibility is unlimited. The gun ring is low enough to preserve the "low silhouette."

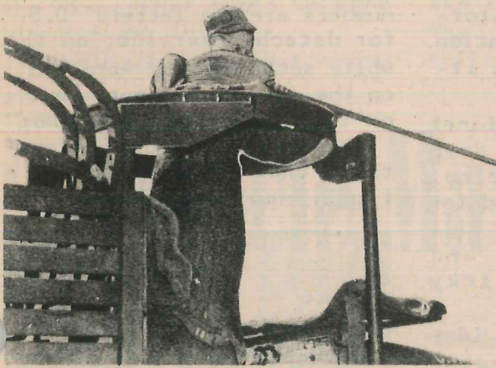
Fig. 2 - Another of the open cabs. The collapsible top and side-curtains (not in picture) shelter the driver. That's a mount for a machine gun above the top.





ME-109 roars down to strafe what he thinks is meat on the table, he'll be greeted by a hail of slugs from a 30 to 50-caliber machine gun swinging around in every direction on the gun ring mounted above the truck's open cab. When a band of green-spotted Japs break out of the jungle to courageously attack what they think is an undefended truck, they'll get the same dish: machine gun slugs.

This - the necessity of firing at both aerial and ground targets (Figs. 3 & 4) - has been foreseen by the designers and steps taken. Or rather step taken. Yank the seat cushion out, pull the back of the seat down - and the gunner has a metal platform to stand on when firing at ground



*Fig. 3 - The assistant driver manning a 50-Caliber broom mounted on the gun ring. Take out the seat cushion, fold the back of the seat forward and the ass't driver has a metal platform to stand on to enable him to fire downward at targets on the ground.*

targets (Fig. 5). Or yank the seat cushion out and throw the seat frame up - and the gunner has a cleared area of truck floor to waltz around on when firing at aerial targets.

To complete the military character of the gun rings, they've been made universal - interchangeable - with the gun rings on other trucks. The ring sits down in a couple of clamps and sockets and can be easily taken out - or simply adjusted for height. This adjustment for height preserves the precious low-silhouette of the truck.

Getting back to the canvas top of the open cab - the top is a singularly uncomplicated thing and can be put up or down in a jiffy. Furthermore, the canvas top matches the

battle-ability of the new open cab and gun ring. It's stapled permanently to the top of the windshield frame and when the windshield lies flat on the cowl (like the jeeps), it folds over the windshield and blacks-out any give-away

*Fig. 4 - Sweeping the sky clear of enemy planes. To enable the ass't driver to fire at aerial targets, the seat cushion is taken out, the seat is thrown up, and he has a clear area of floor to dance around on. The gun ring allows a machine gun to fire in all directions.*



across the opening in the side panels. On trucks above 2½ tons, there'll probably be doors on the cabs.

Among the miscellaneous features of the new open cabs, is the fact that 'the maximum practicable amount of storage

space for stowing the driver's and assistant driver's personal equipment shall be provided.'

This probably means the assistant driver will be able to get both feet into the cab. But of course we may be wrong.

Anyway, and all joking aside, we have the assurance of an officer who ought to know, that the new open cabs will be appearing very shortly in the field on many late-model vehicles.

And after riding around in  
(Continued on page 224)

reflections. (See Fig. 5).

This kills the need for the burlap bags, liquid black-out solutions, etc. that some of the boys in the field have been using as anti-reflectors.

As stated above, the windshield, like the jeep's, either stands upright or lies flat on the cowl. As an added attraction, the windshield glass can be swung up out of the frame to give even greater visibility and also allow cooling breezes to flow over both the driver and assistant.

To retain the driver personnel within the cab, the cab is provided with metal side panels. The metal side panels are cut away to allow entrance and exit.

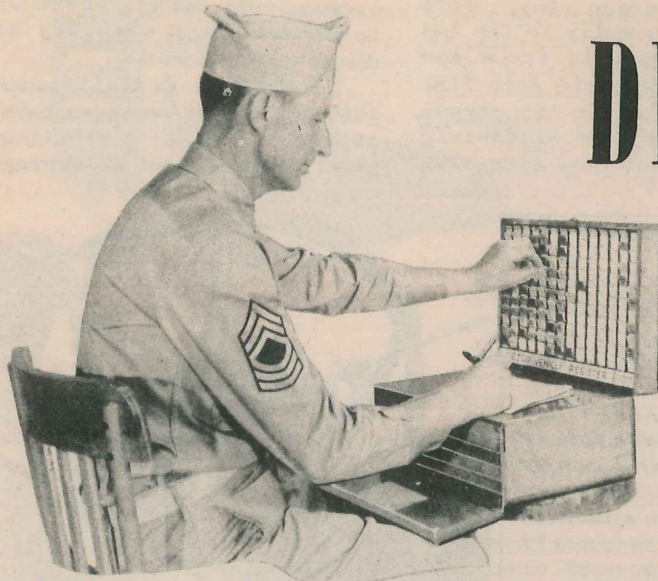
A safety belt stretches



*Fig. 5 - The metal platform that appears when the back of the seat folds forward. The collapsible top folds over the windshield to blackout reflections.*



# DISPATCHER'S CABINET



## How to keep tabs on your trucks.

With one hundred or more active vehicles rolling hither and yon, it's a smart dispatcher who can tell you where each machine is at a given time without a very large and complicated book-keeping system.

But M/Sgt. N. W. Potter, and S/Sgt. H. T. Potter can tell - and without a very large and complicated book-keeping system either. The Sgts. Potter and Potter, a brother act no less, went down into the valley of the shadows and came up with an idee which

they claim simplifies motor-transport-pool field operation 'til it practically runs itself.

The idee is a small cabinet only 17 x 11 x 7 inches deep made of 1/2-inch white pine. It has four drawers - good for holding material which we will describe by and by - and a couple of other tricky features.

But the heart of the idee is the system of 'dispatch tabs' nesting in slots in the lid of the cabinet (Fig. 1). Each tab stands for a vehicle - a quick glance with the naked eye tells where the vehicle is and what it's doing.

The dispatch tabs are merely small, oblong pieces of cardboard (Fig. 2) covered with a protective layer of scotch tape. They are divided into four equal sections - each section is of a different color: green, white, yellow and red.

The brothers Potter have given each vehicle in the company a number - this number together with the vehicle's serial number, is at the top of each colored section of the dispatch tab.

The whereabouts of each vehicle is revealed both by the color and the brief nomen-

clature on the tabs. Thus on the green section along with the vehicle identifying numbers are the letters 'D.S.' for detached service; on the white section is the word 'in'; on the yellow, the word 'out'; on the red, the word 'Shop' - which is just about everything that could happen to a truck, now isn't it?

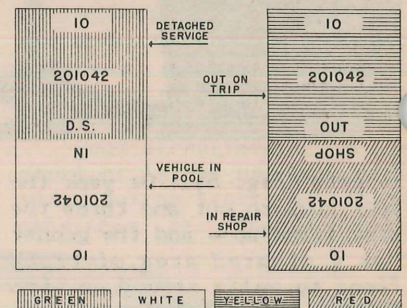


Fig. 2 - The tabs are divided into 4 sections. They tell where the vehicles are.

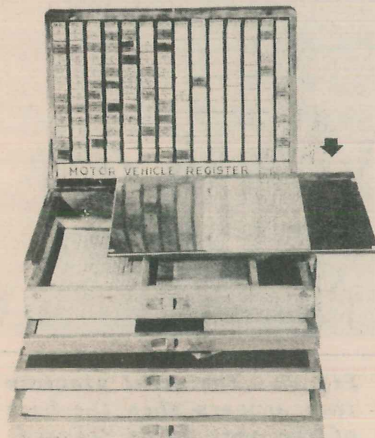


Fig. 1 - Fleet control in a nutshell - the Potter brothers' magic cabinet.

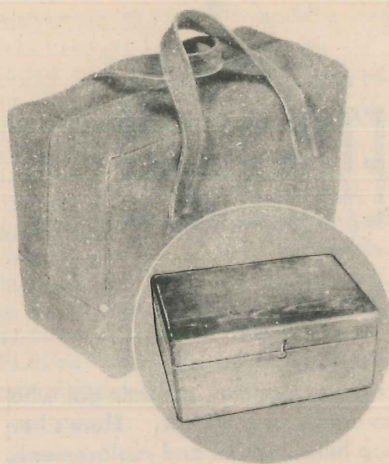
The dispatch tabs are in the slot where they can be seen and read easily. Look at them and you know where what trucks are and what they are doing. In this way, the dispatcher has finger-tip control over a whole fleet - in a nutshell you might say. He can personally handle and direct the operations of a sizeable number of trucks while sitting comfortably in a taproom or a command car.



The four drawers of the cabinet serve as handy storage space. The top drawer holds new and used trip tickets; the second drawer contains accident-report cards, drivers' licenses, gas and oil reports, and identification cards; the third drawer is the repository for miscellaneous sheets and forms — and down in the last drawer lies the Master Sheet (Daily Dispatching Record of Motor Vehicles).

The desk top (arrow in Fig. 1) serves as a cover over the top drawer when the lid is up; you can remove it by slipping it out of the brass right-angle grooves. A square of celluloid tacked to the desk top, both shields and reveals the 'table of organization' sheet and other notes the dispatcher wants to keep his eye on.

The hinged flap that covers



*Fig. 3 - It's in the bag - safe and easily carried. Inset - the cabinet closed.*

the front of the drawers when the cabinet is closed (inset Fig. 3) also has a section of celluloid to hold more notes

and reminders. Two small metal dowels at the top of this flap fit into the front of the cabinet lid and hold the flap tight when the cabinet is closed.

The nests in the lid holding the dispatch tabs are simply hacksaw cuts made in long blocks of wood. There are 14 blocks of wood each 1x7/8x10 inches. Eleven slots are made in each block and the blocks fit into the lid with section strips dividing them.

Take it from the Potter brothers, the idee works swell. Just to show you how valuable it has become to them, they've stitched up a neat overcoat for it (Fig. 3). Makes for easy carrying and keeps the wet out.

Build one for yourself and know for sure where Murphy has went with the command car.

---

(Vehicles) of AR 850-5.

On the little table at the bottom of this page, it stipulates that the USA Registration Number is to be stenciled on the 'outer surface of the hood, both sides.'

In other words, the USA number is not required on the rear of TRUCKS at all. The same goes for 'reconnaissance trucks.' *So if the rear USA number interferes with your white star (or anything else for that matter) ON TRUCKS ONLY, paint out the USA number.*

But be careful - under no circumstances, are you to paint out the USA number on the hood. Furthermore, passenger cars, ambulances, panel and sedan-delivery trucks are required to have the USA Numbers on the rear as well as both sides of the hood and body. Don't paint them out on these vehicles.

Motorcycles have the numbers on the rear fender only; ordinary trailers, 'in the center of the back.'

There are a couple of special cases like bomb trailers, tractor cranes, etc., so

(Continued on page 214)

# Vehicle Markings

## *Praise the Lord and pass the information.*

Don't look now, but there seems to be a bit of confusion over the placement of vehicle markings as prescribed in Army Regulation 850-5.

Stars get in your hair, gas cans get in the way of stars, and USA Registration numbers get in the way of both.

The situation, as we used to say in the Old Army, is strictly from snafu.

But it's all in the mind - there's really no confusion. No confusion, that is, that Albert Einstein, Henry J. Kaiser and Don Ameche in solemn conclave assembled, couldn't easily patch up.

However, after long and vigorous investigation, the Army Motors magazine has

landed and the information is well in hand. Without further ado, here's the story behind the story of vehicle markings:

Scattered over the exterior of the vehicle, there are four separate and distinct types of markings, authorized and mandatory - as the case may be.

First, there are the USA Registration numbers. These are originally stenciled on trucks by vehicle manufacturers in blue-drab lustreless enamel.

Answering the complaint of all those who point out that the white star painted on the rear of the 2-1/2 ton GMC trucks and Diamond T Wreckers, interferes with the USA Registration Number on the rear of these vehicles, will the congregation please turn to the first page, Section III





Step right up and ogle at Connie - the little gal who wields a wrench as neatly as a lipstick. Here's her October crop of shop hints, repairs and replacements.

## Warped Manifolds

You may have had some trouble trying to get the exhaust manifold of the 2½-ton GMC back on the head after taking it off to check the gasket. The trouble is you can't get the manifold to fit back onto the studs. (Fig. 1)

The root of the trouble is distortion - distortion caused by excess heat. And behind that is the fact that somebody forgot to adjust the manifold heat-control valve (Fig. 2) for summer driving.

This little heat-control valve consists of a lever and a butterfly valve in the exhaust manifold. It directs the flow of the hot, exhaust gases through the heat chamber of the intake manifold and helps to vaporize the fuel.

But in the heat of summer operation, this arrangement is unnecessary; and if somebody forgets to turn it off, the excess heat distorts the exhaust manifold.

In all innocence, you take off the exhaust manifold to check the gasket, and then when you try to put it back on, the holes at the ends of

the manifold won't fit over the studs. You hammer and bang a little bit - but still it won't go on.

Well now, adjustment of the heat-control valve would have avoided the trouble in the first place - but if the damage has already been done, it's been done. To get the exhaust manifold back onto the head, you'll probably have to re-surface the manifold to get a proper flush fit when it's installed on the engine head. Somebody suggested filing the stud holes to make them fit on the studs. But Detroit got wind of that suggestion and let out a roar, saying it

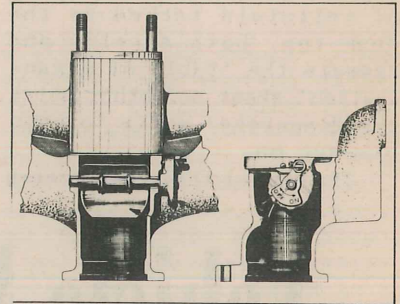


Fig. 2 - The heat control on the GMC. Neglect of it warped the manifold.

would cause an improper fit resulting in consistent burning of the manifold gaskets.

They're right - don't do it. Re-surface the manifold. Better be safe than sorry.

\* \* \*

## Seals Soaking

We don't know of any good supply sergeant who doesn't keep a bunch of oil seals soaking in light engine oil.

That's *leather* oil seals. Soak your felt oil seals in *glycerine* - the way they do on factory assembly lines. (Glycerine is not in our Parts Common book - you'll have to make a local purchase).

It's the best practice on the market to prevent dry seals from being installed in helpless trucks by inexperienced characters.

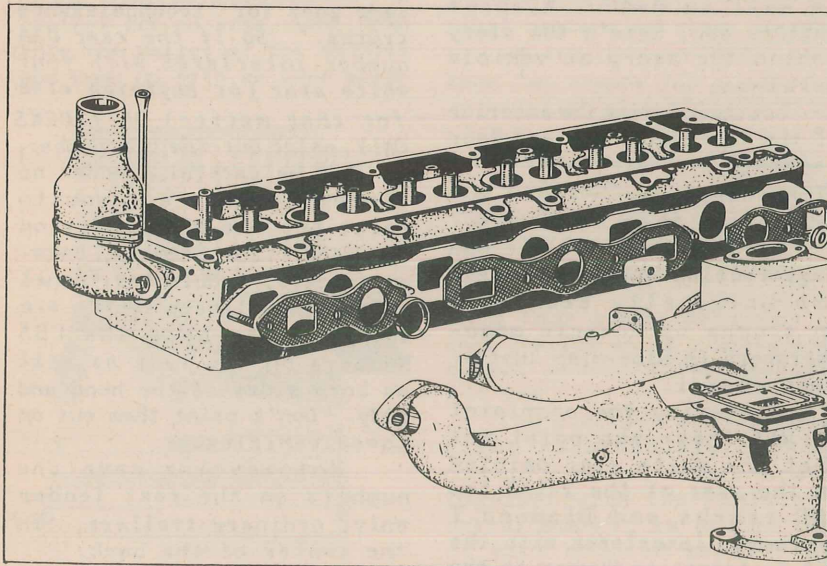


Fig. 1 - If the holes and studs between the exhaust manifold and head won't line up - blame it on the guy who forgot to adjust the heat control for summer driving.



## M'cycle B.O. Lamps

You motorcyclists with a copy of TM 10-1175 on hand may run across the statement that all Harley-Davidson motorcycles above the USA Registration Number of 621317 have been equipped with a Blackout Driving Headlamp.

Then maybe you'll receive or - have received - a shipment of motorcycles bearing USA Registration Numbers between 626000 and 626449 inclusive. And lo and behold, they don't have Blackout Driving Headlamps.

Well, just consider it all in the day's work. Those particular motorcycles were shipped without Blackout Driving Lamps for a very good reason which must remain a military secret.

So don't fret yourself - just be calm and order enough Blackout Lamps to take care of your motorcycle needs. The July ARMY MOTORS magazine gives you full details on how to order. If our memory serves us, you'll need Kit No. 7 for the Harley-Davidson motorcycle and you'll have to requisition from Holabird Ordnance Motor Base - which we believe is still the only depot stocking motorcycle driving lamps. Your requisition should contain (1) Number of kits you'll need (by kit number); (2) the make, type, and USA Registration No. of the vehicles to which the kits apply.

*Sample Requisition: 20 B.O. Driving Lights, Kit No. 7 - Harley Davidson, USA Registration Nos. 626000-626020 inclusive.*

\* \* \*

## Governors

From what we hear, you won't have to order and stock many Handy governors in the future. They are making one governor to take the place of different groups of governors - in other words, the one

governor can be used on a number of different models of vehicles. For instance, the Dodge parts No. 920528 will be Handy governor No. V65s-145D, and will take the place of about 'steen different Dodge governors. Handy's 1942 supplement to their Vari-speed governor specification sheets lists a number of these changes. So don't be surprised to find your order for several different governors to be filled with as many of just one type.

\* \* \*

## Ignition Coils

One ignition coil will now just about cover the field in GM and Chevrolet vehicles built since 1940. Delco Remy parts No. 1115142 will replace 1115141, 1115143, 1115145 and 1115146.

\* \* \*

## Rough Welds

Some of the boys in the field have been snapping at Chevrolet because the joint welds on the body hinge pillars (you know, the thick uprights at the sides of the windshield) are rough and look unfinished.

Well, by cracky, they are rough and they are unfinished.

It seems that because of the shortages, the lavish use of solder in certain operations has been frowned upon - so the finishing-off of these welds has been discontinued.

Furthermore, the welds are not being disked off since disk-ing off weakens these joints.

So if you don't like it, you can lump it - nothing is going to be done about it at the factory. And don't take the trouble of finishing these welds off in the field. They won't hurt anything.

\* \* \*

## Battery Care & Radios

Drivers and mechanics who drive or work on scout cars or other vehicles equipped with radio receiving or sending sets, will now have to give their diamond-studded attention to a little item that too often got so-so servicing.

That little item is the battery.

The battery is the primary source of power for both sending and receiving sets. So you can understand why the shape it's in affects radio performance.

Or maybe you can't understand it - or maybe you haven't given it much thought.

For that reason, the Communication Dep't of the Armored Force school ran a little test. Using fully-charged and partially-charged batteries, they checked the sending power of the radios in radio-equipped vehicles.

They found that partially-charged batteries cut down the effective range of radio transmitters to about one-fourth of normal.

Furthermore, since the current regulator limits the generator output to 50 amps to protect the generator - and considering the amount of juice the radio transmitter drains out - the battery may be run down from 20 to 30 amps all the time the radio set is operating, and the engine is running.

You guys in radio-equipped jobs, might give this matter some consideration - especially with battery-beating cold weather cranking now upon us.

\* \* \*

## Overhaul Policy

If you're concerned with such things, you'll be very interested in Motor Transport's official policy in engine overhaul. That is, do we bore and rebore cylinders until we get a fine spray into the combus-



200 tion chamber from the water jackets or do we stop a little short of that?

The whole policy is nicely set down in Technical Service Bulletin M-15—we just thought we'd remind you.

## G.M.C. Tips

*A couple of GMC factory representatives stopped in the other day to chew the fat, and in the course of the conversation, gave out with a couple of tips you might be able to use.*

They reported that leakage at the rear-main bearing on GMC 270 engines can sometimes be corrected or avoided by smearing a little shellac on the mating surfaces of the rear, main-bearing cap and the block before the cap bolts are drawn down. That's the way they do it on the assembly lines at the factory.

The boys also advised that the clutch-pedal free play of one inch on the GMC 270 be increased to a 2-inch minimum — 2-1/2 inch maximum. They say that with this new adjustment, the clutch diaphragm spring is not compressed excessively when the clutch is disengaged. Which is as it should be.

The boys made some cute remarks about the guys who have to learn things the hard way. Like finding out that some bolts are longer than others. It seems that the GMC bearing-cap bolts on the center-main bearings are longer than the ones on the front and rear mains — but instead of measuring the bolts to find this out, some mechanics put the long bolts in the front or rear mains. The result is that they've got a cap that can't be pulled down snugly, or else the long bolt breaks out the boss in the block when it bottoms.

Like my old Aunt Cora used to say about putting bags of mash in the home-brew, "Measure 'em, don't experiment."

## Dodge Technical Manual Corrections

From Fargo comes the request that we please broadcast a correction of an error just discovered on page 01-30 and page 01-35 of the second edition of their maintenance manual TM 10-1531. (That's the 3/4-ton, 4x4 manual).

It concerns the crankshaft main-bearing-bore dimensions in the cylinder blocks. The incorrect size quoted in the manual is 2.6565" to 2.6770". Change this to 2.6565" to 2.6570".

\* \* \* \* \*

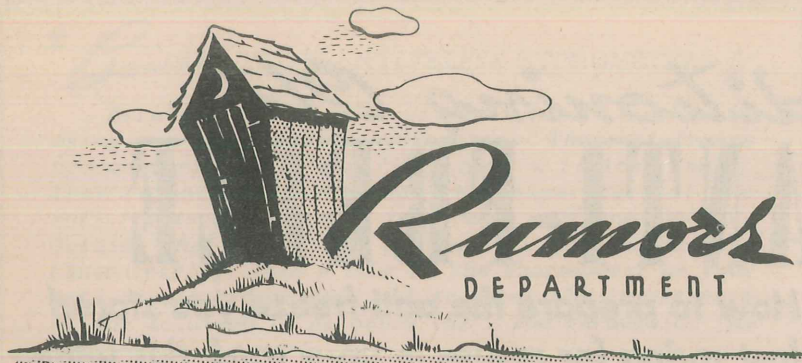
Fargo further reports an error in Parts List TM 10-1534 (Contract W-398-QM-12572). That's the 1 1/2-ton, 4x2, Dodge truck Parts List.

The propeller-shaft parts list under Group 0901 and 0902 are incorrect for this model. Substitute the following list:

PART NAME	VENDOR'S NAME AND NO.	PART NO.	PER CAR	LIST PRICE
GROUP 0901 PROPELLER SHAFT				
PROPELLER SHAFT ASSEMBLY				
Note - Complete assembly will be serviced on special order only - otherwise order from list of detailed parts.				
PROPELLER SHAFT ONLY				
Tube	Cleveland Steel Products No. R-96	579731	1	\$10.50
PROPELLER SHAFT SPLINE YOKE				
Assembly	Cleveland Steel Products No. R-96-44	575956	1	3.05
Plug	Cleveland Steel Products No. 290-14	557254	1	.15
Cap	Cleveland Steel Products No. R-96-9	575958	1	.15
Dust Washer	Universal Products Co. No. 51616	599258	1	.10
Oiler		145433	1	.06
GROUP 0901 PROPELLER SHAFT COMPANION FLANGE (OR YOKE)				
COMPANION FLANGES AND YOKES				
Flange (transmission end)		575942	1	2.50
Nut		562536	1	.25
Washer		578994	1	.05
Flange (axle end)		587558	1	2.50
Nut		595988	1	.20
Washer		571301	1	.10
GROUP 0902 UNIVERSAL JOINT				
PROPELLER SHAFT UNIVERSAL JOINT				
Cross assembly (includes washer retainers and lubricator)	Cleveland Steel Products No. R-96-35	575946	2	2.00
Washer (or dust seal)	Cleveland Steel Products No. R-96-25	575951	8	.05
Retainer	Cleveland Steel Products No. R-96-26	575952	8	.10
Bushing and roller assembly	Cleveland Steel Products No. R-96-45	575948	8	1.50
Bushing Lock Plate	Cleveland Steel Products No. R-96-6	575953	8	.10
Cover (lock plate)		575954	8	.05
Screw (cover) (1,4-20x1,2)		120706	16	.02
Lubricator		566980	2	.10
UNIVERSAL JOINT SERVICE PACKAGE				
Package Consists of:		947552	2	7.95
Cross Assembly		575946	1	2.00
Dust seal		575951	4	.05
Bushing and roller assembly		575948	4	1.50

The Master Parts List will carry the corrected information.





What's more, the manhole cover of the trailer is made of the same metal as the body — and two pieces of the same kind of metal rubbing together generate sparks easily: Pow! goes the trailer full of gasoline. (On gasoline trailers, the manhole cover is made of a different material from the trailer body).

And as a last straw to break the camel's back, the water trailer has none of the safety equipment that's put on trailers that carry gasoline. There are no fuse plugs which melt in the event of fire and let the gasoline pour out thereby reducing the danger of explosion; and there are no expansion vents to release excess pressure should the trailer carrying gasoline turn over.

That ought to be enough to convince you — don't use the 250 gallon water for hauling or storing gasoline.

It ain't right.  
\* \* \* \*

Some shops have been buying olive drab, black or brown imitation leather to re-upholster the worn seats of their command cars, truck cab seats, back rests, and interiors.

This reminds us of a very funny joke which we will not attempt to recite at this time — but the point is that extensive tests down in the lab reveal this imitation leather to be unsatisfactory for the purpose and shouldn't ought to be used.

Use No. 3 extra-dry duck (treated in accordance with specification CCC-D-746), or genuine leather.

Another thing: some shops are using 'Topping, Command Car, 54-inch olive drab, No. 614' to replace the worn tops of command cars. Tsk, tsk, everybody knows this material has been replaced by a No. 10 pre-shrunk duck (treated in accordance with CCC-D-746).

The old topping material had scarce rubber in it and furthermore was only dyed which made it lose color quickly.

\* \* \* \*

wouldn't hurt).

But seriously, it took a lot of high-priced engineers a long time to figure out just what pressures would get the most wear out of the little bit of rubber we've got left. For a bunch of guys with soft shells to go ahead and reduce the pressure in order to get that sofa-pillow sensation — well, it just ain't right. (Here boy, rush out and get me another dozen marshmallows for the seat of my chair).

\* \* \* \*

Here's a rumor that was printed in part on our News Flash page in August. It has to do with the simple-hearted practice of using the 250-gallon water trailer for carrying gasoline.

Not only does this create the danger of an explosion — but when the trailer is again used for water, the guys who drink it will probably get sick.

First of all, the water trailer has what is called a 'bitumastic' lining which is a chemical coating that keeps water sweet. This lining is soluble in gasoline and soon after gasoline hits it, it disappears.

Then again, once the trailers have had gasoline in them, nobody knows of any way to get the tetraethyl lead out. And even if most of the lead is out, the gasoline odor lingers on.

There's a big danger of explosion when this trailer is used for hauling gasoline because it's not equipped with static-discharge chains.

We hear that it's a widespread practice among the wretches who dismount tires, to anoint the beads of the tires generously with engine oil in order to make them come apart easier.

What happens to a rubber tire after oil or grease has been on it a comparatively little while, shouldn't happen to a dog. Oil attacks rubber and turns it into stuff that looks like scar tissue — scar tissue like Tony Galento wears over his eyebrows.

So if you don't want your tires to look like Tony Galento, don't use oil or grease to make them come apart easier. Use a soap solution — you know, soapy water. Keep a bucket with a solution of 5 parts of neutral soap and 95 parts of water around where the wretches are busy mounting and dismounting tires.

Don't let them use oil.

\* \* \* \*

And talking about tires, we hear that a couple outfits have been letting some of the air out of the tires on their jeeps and 3/4-tons, to make the ride softer.

They say if the tires are fully inflated to regulation pressure, the ride is too hard and wears out the men.

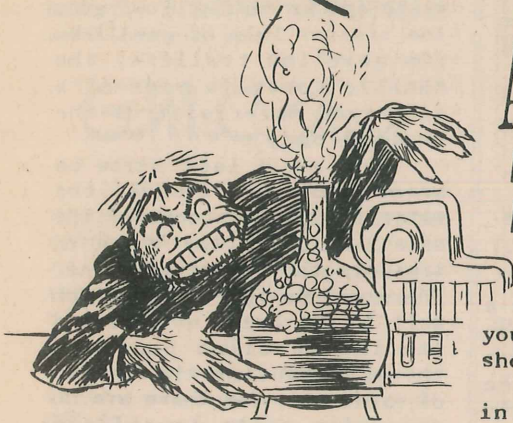
But on the other hand, if the tires are underinflated, it wears out the tires.

Now the question is, which would you rather wear out, the men or the tires? (Glancing at the rear profiles of some of our drivers, we say a little wear in the right places



# Reconditioning Old ANTI-FREEZE

How to prepare the anti-freeze you stored last spring for re-use in your truck this winter.



**I**t warmed the cockles of our heart to learn of the noble response to our little article (and Tech Service Bulletin Z-16) last April exhorting you to drain and save the old ethylene-glycol anti-freeze in your vehicle cooling systems. You were supposed to separate the clear solution from the rusty, put them both up in drums, and deliver to the nearest Post Quartermaster.

Well, as we say, the response was noble - and possibly averted a serious shortage - and today, six months later, you're ready to learn how to recondition this old anti-freeze for re-use.

Quick like a fox, we have for you the answer.

In a nutshell, before re-using, you will have to test your old anti-freeze for condition and strength (if practical, you'll make it stronger) - and add a new dose of inhibitor. Why? As we explained last spring, a good anti-freeze does two things: It protects your cooling system from freezing up, and it contains an 'inhibitor' which protects your cooling system against rust and corrosion.

This inhibitor gets used up after about six months in the cooling system - so naturally if you want to use the old anti-freeze over again,

you have to give it another shot of inhibitor.

The inhibitor is already in the Supply Depots: Requisition 'Inhibitor, Anti-Freeze Compound, Federal Stock No. 511 136-85.' Now don't make a mistake - this is not the same inhibitor used for cooling-system protection during the summer. This is a special inhibitor for use in anti-freeze.

But we're getting 'way ahead of our story. Let's go back and start at the beginning. Step by step, here's the way to reclaim old ethylene-glycol anti-freeze (Prestone, etc.) solutions for use in cooling systems:

First of all, remember the old anti-freeze is *in solution* - it's already a mixture of concentrated anti-freeze and water. You'll fill up your cooling system with it - there's no necessity of adding water as you would with brand-new, concentrated anti-freeze.

Secondly, reclaimed anti-freeze should be used as far

as possible in administrative vehicles. When we've filled up all our administrative jobs, we'll pour what's left over into the tactical vehicles still in the USA. Under no circumstances is reclaimed anti-freeze to be put into trucks in foreign service (or about to go into foreign service).

This is no reflection on reclaimed anti-freeze - we're just not taking any chances.

Reclaiming or re-inhibiting of anti-freeze can't be done in the drum - you've got to re-inhibit it right in the cooling system of the truck it's to be used in. This means the Post QM won't be able to go ahead and fix up a batch of the stored solutions he's got on hand, then ladle it out to truck organizations. It's strictly a truck-by-truck procedure.

Anyway, here's chapter I - How to inspect and strengthen the old anti-freeze you've taken out of storage:

Heave a drum of the stuff up on a rack and install a

Solution Strength	Pints to be Added to Make One Gallon					
	Desired Strength					
	10	0	-10	-20	-30	-40
+20	1	1-1/2	2-1/4	2-3/4	3	3-1/2
+10		1	1-1/2	2	2-1/2	3
0			3/4	1-1/4	1-3/4	2-1/4
-10				3/4	1-1/4	1-3/4
-20					3/4	1
-30						3/4

Fig. 1 - If the old anti-freeze solution tests to +15 and you need protection to -30, the chart says to add between 2-1/2 and 3 (2-3/4) pints of new anti-freeze.



★ Beware THOSE ANTI-FREEZE HYDROMETERS ★

Here's a little note of caution to remember in using your anti-freeze hydrometer: The anti-freeze hydrometers now in the field have a limited range. They're only accurate when the temperature of the anti-freeze being tested is between +60° and +160° F. Outside that range, the hydrometers are inaccurate. (When testing, take a look at the thermometer on your anti-freeze hydrometer. If it shows the temperature of the solution to be below +60°, you're outside the hydrometer's range).

How are you supposed to test your anti-freeze when it's colder than a monkey's red tail out your way? Well, all the good commercial shops we know of, take a specimen of the anti-freeze solution out of the truck's radiator and heat it in a can with a blow-torch. When it heats up to within the range of the hydrometer, they go ahead and test it.

Suck up about a pint of the anti-freeze solution out of the radiator with your hydrometer. Take it inside and warm it. A pint's enough to give you a reading.

Next year we'll all have hydrometers with a range of anywhere from -50° (below zero) all the way up to +160° (above zero). The boys in Alaska and other cold places will get these hydrometers sooner - about in July, we expect.

tap. Grab up a hydrometer (see above) and test it for strength (to find out to what temperatures it'll give protection). Throw away any and all solutions which will give protection only above +20°F.

Strain a sample of the solution through muslin or a couple thicknesses of cheese-cloth into a clean, glass container. The solution should be green or blue. If it's brown or rusty, throw it away.

About the strength of the solution: If it tested above +20°F, you threw it away. Below +20°F, it can be economically strengthened to give protection at still lower temperatures by the simple addition of certain quantities of new anti-freeze. For instance, if it'll give protection to only 10°F. above zero, you can strengthen it to give protection to zero by adding one pint of new anti-freeze to enough old anti-freeze to make one gallon. (Put an even

pint of new anti-freeze in a one-gallon container then fill to one-gallon level with old anti-freeze).

Our little chart (Fig. 1) shows you how to do this - how many pints of new anti-freeze to add to your present solution to bring its protective value down to whatever temperature you think your truck's going to run into.

Use a clean container in doing your measuring. Strain the old solution through muslin or a couple thicknesses of cheese-cloth into the container. Add as much new anti-freeze as the chart calls for to bring it to the proper strength. Use this same container to pour the solution into the cooling system of your truck.

By the way, straining applies only to the old solution - don't strain the new anti-freeze.

Before you go ahead and pour your strengthened anti-

freeze into the radiator, be sure your cooling system is clean and free of rust. If you took our advice (in last April's article or in TSB C-4) and spring-cleaned and inhibited the truck's cooling system, all you'll probably have to do now is drain the system, refill with clean water and drain again. But if you didn't clean it last spring or if you discover that the system is rusty (by examining the drained coolant and the radiator top tank) then you'll have to clean it out according to the directions in TSB C-4 or our April article.

Do everything in the C-4 cleaning process except add inhibitor. The inhibitor you're going to add to the old anti-freeze will take care of protecting the cooling system.

Anyway, whether cleaning or just draining, be sure to follow through on heaters, water-cooled compressors, etc., connected into the radiator and block. And for Pete's sake, don't forget to drain the blocks which in most vehicles drain separately. Consult your vehicle's maintenance manual to be sure the system's completely drained.

While you're at it, inspect all the cooling-system hoses - replace if deteriorated. Don't forget that a hose that looks good on the outside may be shot to hell on the inside. If something about it makes you suspicious - age, feel, or something - take it off for inspection.

Inspect all connections, plugs and petcocks - make them watertight. Look for

Fig. 2

Vehicle	No. of Containers
Car Passenger	1
Truck 2-1/2 Ton & Smaller	1
Truck 4-Ton	3
Tractor 4-5 Ton Autocar	2
Tractor 4-5 Ton Federal	3
Tractor 5-6 Ton Autocar	2
Truck 6-Ton Corbitt	5
Truck 6-Ton White, Brockway	4

Fig. 2 - Adding re-inhibitor: one container to each 4 gals. of cooling system capacity.



evidence of exhaust gas or *air leakage* into the cooling system. Exhaust leakage may make the coolant smell like burnt oil. And you may be able to see smoke bubbles in the radiator. Exhaust leakage is usually due to a blown head gasket - or maybe the head needs tightening down. Air usually gets sucked in at the water-pump resulting in aeration of the coolant. Check for air bubbles. Correct by repairing the pump or any point between pump and radiator responsible for the leak.

Finally, when you've got the cooling system and connections all right and tight, pour in the old anti-freeze solution of the proper strength.

Now comes the important part - the re-inhibiting of the old anti-freeze.

This is done, as we said before, right in the cooling system of the truck. You fill your cooling system to the proper level with the old anti-freeze, then add inhibitor. Pour the inhibitor into the radiator while the engine is idling and at normal operating temperature (so the thermostat will be open) to guarantee thorough mixing.

The amount of re-inhibitor to be added depends on the capacity of the cooling system. Let our scale (Fig. 2) be your guide. The scale is reckoned on the basis of one can of inhibitor to approximately four gallons of solution. If your truck has a greater capacity than shown on the scale because of additional accessories, you'll need more inhibitor. Figure how much for yourself.

That's just about all there is to it - except maybe you'd better get out that hydrometer again and test the solution while the engine's warm. If it needs it - strengthen with new anti-freeze as before.

By the way, if you should run into a situation where delivery of your re-inhibitor is delayed but the weather's cold enough for your engine to need anti-freeze protection,

go ahead and install the old anti-freeze solution without inhibitor - but procure and add inhibitor at the earliest possible moment. There's a rumor that anti-freeze without inhibitor actually promotes rust and corrosion in the cooling system. So hurry it up and get the inhibitor in there.

## *Installing* NEW ANTI-FREEZE

For the rest of you guys at the tail end of the line, who'll arrive just as the last of the old anti-freeze solution is passed out - well, you'll just have to use new anti-freeze and miss all the fun of reclaiming the old. The same goes if you're in a tactical unit overseas - you'll have to use new anti-freeze.

Installing new anti-freeze is child's play but *you* can do it if you'll just put your mind to it. Prepare your cooling system as described for installation of the old solution. If the cooling system is dirty, clean it!

Fig. 3.

Protection To	Pints to be added.
+10° F	2
0° F	2-1/2
-10° F	3
-20° F	3-1/2
-30° F	4
-40	4-1/2

*Pints of ethylene glycol (or Prestone) to be added to make one gallon of solution.*

Check hoses, gaskets and tighten all connections, plugs and petcocks.

Now add new anti-freeze according to our table (above).

Best thing to do is put about 3/4 of a gallon of water into the radiator, pour in the necessary amount of Prestone and then fill with water - leaving enough room below the

filler neck for the solution to expand when warmed up. Water, Prestone, water -- a Prestone sandwich.

Let the engine warm up, add more water if the level in the radiator has dropped, and test the solution with your hydrometer. Strengthen if necessary.

Now whether you're using reclaimed old solution in your cooling system or brand-new solution, you'll only enjoy peace of mind if you test weekly for strength and color. Just like any other part of the vehicle, the cooling system is subject to trouble - if this adversely affects the coolant, you'll wake up in the morning with your engine froze up tighter'n a drum and maybe busted wide open.

If your weekly check ever shows the coolant to be rusty - drain it and throw it away. (But don't be fooled by the rust-flecked foam which lies on the top at the filler neck. Look deeper). Inspect and clean the cooling system and install fresh anti-freeze solution.

As a parting shot, since you'll be checking solution strength so often, maybe we ought to tell you how to test your hydrometer for accuracy. Simply make a solution of one part new Prestone and two parts water. This solution has a freezing point of - or gives protection to - zero. If your hydrometer reads the solution otherwise, it's a liar and ought to be done away with.

This is the first season we're reclaiming anti-freeze. Severe laboratory tests show that if the above procedure is followed, old anti-freeze will perform as well as new anti-freeze. Still, that was laboratory testing - conditions in the field might turn up something else.

Check weekly, check carefully.

★ *All factory-delivered vehicles are protected to 0° F. If you're in a colder climate, strengthen immediately.*



# A New RIFLE BRACKET



**It replaces the old leather boot -  
it's universal, it handles any rifle.**

**Y**ou've got your hands full driving your truck - so when they toss you a Springfield rifle about eight yards long, weighing 60-70 pounds, it's kinda hard to figure out what to do with it. They might just as well give you a dozen loose eggs to take care of.

Of course, if they issued you an extra lap, you could just lay it across that while driving. But with the lap situation what it is today, they had to figure out another angle.

The other angle is a new Universal Rifle Bracket which will be mounted in convenient and sometimes bizarre places on our various trucks to take care of daddy's rifle while daddy is busy driving his truck (See pix).

The new Universal Bracket replaces the old leather boot which has been annoying truck personnel since World War I. The old boot could be attached to a truck only after a struggle and could handle only one

type of rifle. It was reckoned by many to be good for only one thing.

But the new Universal Bracket clings easily to the nuttiest places on a truck,

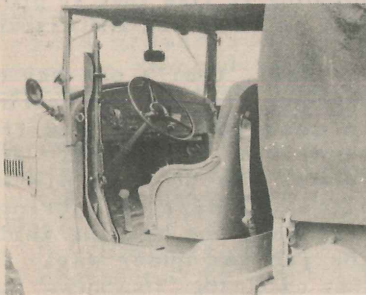
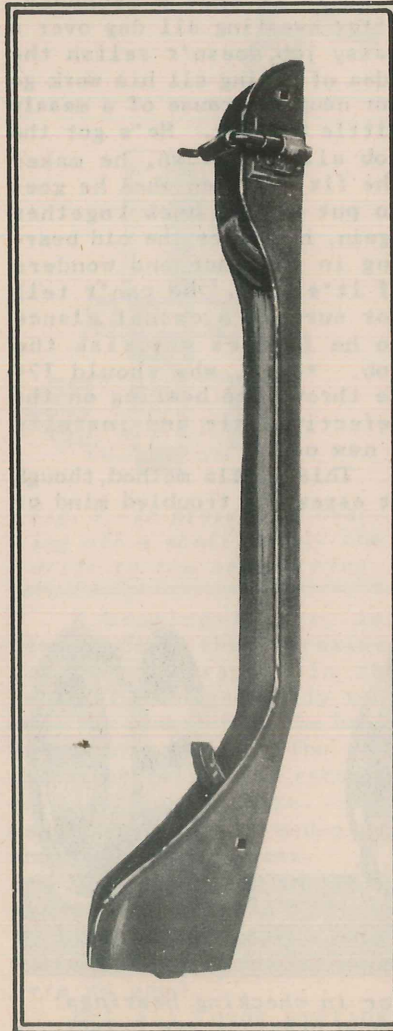
and handles any one of five standard rifles with the greatest of ease: the Springfield; the U.S. Caliber 30, M1 Garand; the U.S. Caliber 45; Thompson Sub-Machine Gun; the Browning Automatic, and the carbine.

They all fit snugly in the bracket thanks to a simple leaf spring at the top of the bracket and two other leaf springs at the bottom. These compensate for the difference in shape and size of each of the rifles and keep them from rattling loose. A small latch catches the rifle at the underside of the hand guard and holds it against the springs.

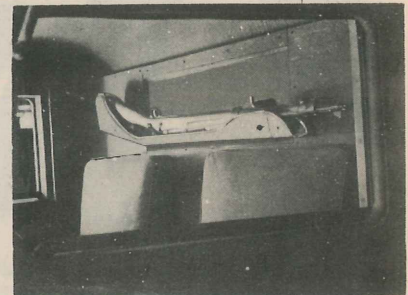
Although the new bracket offers very little in the way of weather protection for your rifle, it will usually be mounted in the truck cab out of the way of wind and water.

Suggested mountings for the new rifle bracket are contained in a Technical Service

(Continued on page 224)



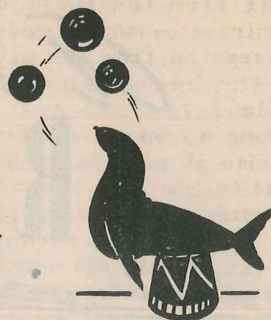
*The new rifle bracket ready for a quick snatch by the driver of the 1/2-ton Dodge.*



*The rifle bracket is safely out of the way of the hard head of the 4-ton, 6x6 driver.*



# Handling the BALL BEARING



*How to tell a good one from a bad one;  
how to keep from making good ones bad ones.*

**W**hat's the first thing you do when a transmission or transfer case starts jumping out of gear? If a differential gets noisy? If a generator stops charging? Don't tell us — let's ask the Z-5 man, the man who handles 'Defects and Deficiencies of New Vehicles, Parts and Assemblies.'

"Sure, I'll tell you," fulminates the Z-5 man, "the sons of guns pull out all the ball bearings and send them to me as defective."

Of course he didn't mean you — he meant a couple of other yahoos — but he sure had a stack of bearings to back up his story — some good bearings, some bad, but mostly good. It was the stack of good ones that had him close to a hemorrhage. A factory man had examined them, pronounced them all okey — had even opened up a couple to prove it.

"I don't want to butt into

the mechanic's business," said the Z-5 man, "but there must be some other way of fixing trucks besides taking out all the ball bearings."

Purely and simply, the trouble is that a mechanic, after sweating all day over a messy job, doesn't relish the idea of having all his work go for naught because of a measly little bearing. He's got the job all torn down, he makes the fix and then when he goes to put things back together again, he stares the old bearing in the face and wonders if it's good. He can't tell for sure at a casual glance so he figures why risk the job. "Sure, why should I?" He throws the bearing on the defective pile and installs a new one.

This little method, though it eases the troubled mind of

the mechanic, is just another bag under the Z-5 man's eyes — you can't blame him for complaining that it's an obscenity shame to replace a bearing just because it happens to be in a unit that needed service for some reason other than bearing trouble.

What it all boils down to is this: The mechanic must know his bearings. He's got to know how to tell a good one from a bad one, and the kind of care it takes to get the most out of them. Bearings are critical material.

Unfortunately — and strangely enough — the most natural thing a man will do in handling a bearing is usually wrong. How many times have you seen a mechanic pull a bearing out of a job and start spinning it with his hand — or maybe with the air gun? Like a kid with a top.

Then he feels of it, pronounces it 'rough', and chucks it on the discard pile. After spinning it like that it probably is ready for the discard pile.

Well, that's one way of checking it — but the bearing in question never got the benefit of the doubt. Who knows? Maybe a couple of pieces of dirt or cuttings fell into the bearing while the job was under way. In that case, the 'roughness' was probably nothing more or less than a hunk of trash imbedded in the race. Wash the bearing in clean solvent before re-

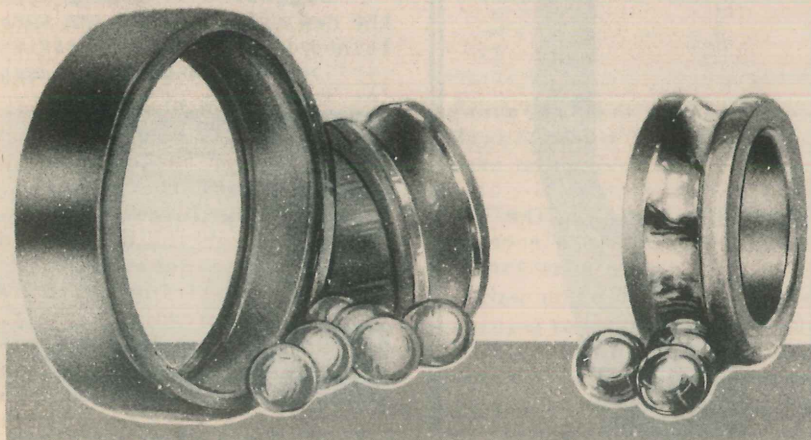


Fig. 1 - One thing to look for in checking bearings: worn bearings are dull gray; good bearings are bright.



moving it from the shaft or even turning it - and imbedded dirt is removed from the picture - the bearing gets a square deal.

Blowing a bearing out with an air hose is all right, BUT - and this is important - *don't allow it to spin*. We know the impulse is hard to resist. As we say, give a man a bearing and a hundred pounds of air pressure and you got the same juicy set-up as a kid, a bean-shooter, and a nearby bald-head.

Use the air hose only to blow out the solvent and old grease. There's no better way of scratching and scoring the balls and race than by spinning. Scratched and scored bearings are dead bearings.

When you've cleaned and blown out your bearings, give them a squirt of engine oil before turning them in your hand to check for roughness. Lubrication, you know.

Dirt in a bearing is poison. Don't jerk out a shaft with bearings on it and toss it on a dirty bench or floor, intending to 'clean them later.' Or after cleaning - don't lay bearings aside unprotected, feeling that just because they were clean once they'll stay clean.

Having nothing better at hand, wrap bearings - on shafts or unattached - in clean newspapers until you're ready for them.

If the cleaning operation itself is not thorough, an innocent bearing may get a one-way ticket to the junk heap. We mean that particles of hard grease sometimes cannot be removed from the interior of bearings by ordinary means. You hang the bearings on a wire and slosh them around in the solvent and the hardened grease won't budge.

In this case, heat some #10 engine oil to about 170 degrees, and soak the bearing in it - this'll usually do the job.

Sometimes sludge deposits

stick tight to both balls and races - making the bearing feel rough. Tough deposits like these may require the use of carbon tetrachloride. But have a caution - when carbon tet or any other highly-volatile fluid is used for cleaning, the surface of the bearing is left entirely denuded of oil - the slightest moisture - from your fingers on from the air - will quickly rust them. Lubricate bearings after such cleaning.

So much depends on 'feel' when judging bearings that some mechanics squirm in making a judgment. But a little study and reasoning makes every man his own expert.

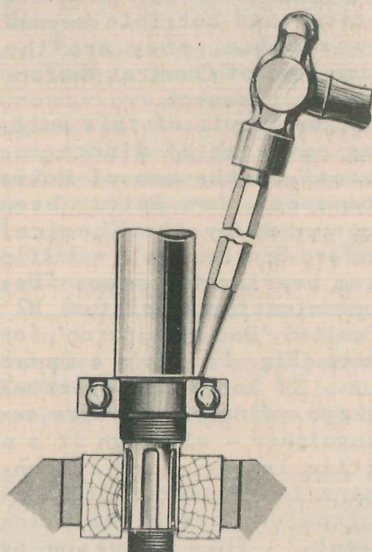


Fig. 2 - In pressing a bearing off a shaft, apply the drift to the seated ring.

A bearing-feeler, 1st class, knows that abrasives can become trapped in the retainer, and gradually wear down the diameter of the balls by lapping action. The same abrasives get in the raceways and alter their size. This makes for a lot of end-play, and general looseness.

If all bearing looseness was due to wear, you'd be safe in throwing away all loose bearings - assured that they were no good.

But all loose bearing:

are not necessarily worn bearings - some bearings are manufactured loose. Single-row bearings, for instance, are made for a heavy press fit on a shaft and they're built loose to take care of the natural expansion that takes place when they're mounted.

To check whether looseness is intentional or is simply due to wear and abrasive action, look at the color: The balls and race of a bearing *loose due to wear*, are dull gray; a normal bearing is bright and mirrorlike (Fig. 1).

In checking a *loose-built* bearing, examine for brightness as above - and in addition check for roughness this way: press the inner and outer races towards each other to make sure you're getting contact at the point of pressure, then roll it around gently and 'feel' for roughness.

Side-play is not permissible in a double-row bearing. Remember this while checking a double-row bearing for roughness. Roll the rings around in your hand or on the shaft. If you feel roughness, the bearing is shot; if you feel side-play, it's likewise no good. Replace the bearing.

Bearings probably get most abused during removal and replacement on a shaft or in a housing, or through carelessness in examining the surfaces of their seat. Never allow the pressure from the arbor press, or the blows of a hammer on a soft, steel drift to be applied to the bearing ring which is not seated. *Always apply force to the ring that's seated.* (Fig. 2).

If a bearing is tightly seated in a housing, the outer ring should receive the pressure. Otherwise the force is transmitted through the balls, and they will be damaged.

When a bearing is to be installed on a revolving shaft, a tight or press fit is absolutely necessary to keep the shaft from spinning in the bearing ring. Slippage will result in scuffing and abrad-

(Continued on page 224)



# Gas attack and the use of the

# DECONTAMINATOR



**There'll be a "Decontaminator" mounted on every truck. Here's how to use it.**

*The Spartans used it back in 431 B.C., the French general Pelissier used it in 1845, the Germans introduced it to modern warfare at Ypres on April 22, 1915...*

**T**he American soldier in this year of war, 1942, is being groomed to expect a taste of it as the last bitter effort of the beaten and desperate enemy.

Poison gas.

Roughly, there are two kinds of gases: respiratory irritants that work on the nose, throat, and lungs; vesicant, or blistering, gases that bite externally (as well as irritate the nose, throat and lungs).

To take care of the respiratory irritants, the gas

mask is a complete and positive protection. But the blistering gases - mustard and lewisite - are another thing, the stuff that nightmares are made of. Vicious and horrible beyond description, they are the prime goal of Chemical Warfare Service research.

One result of this anti-gas research of direct interest to the men of Motor Transport, has lately been announced by the Chemical Warfare Service. It's a little item bearing the name, 'Decontaminating Apparatus, M2' - called 'Decontaminator' for short (Fig. 1). It's a squirt gun. It looks and operates like an ordinary hand, fire extinguisher - although it's a little larger - and it contains 1-1/2 quarts of 'non-corrosive, decontaminating agent.' This solution is ideal for neutralizing mustard

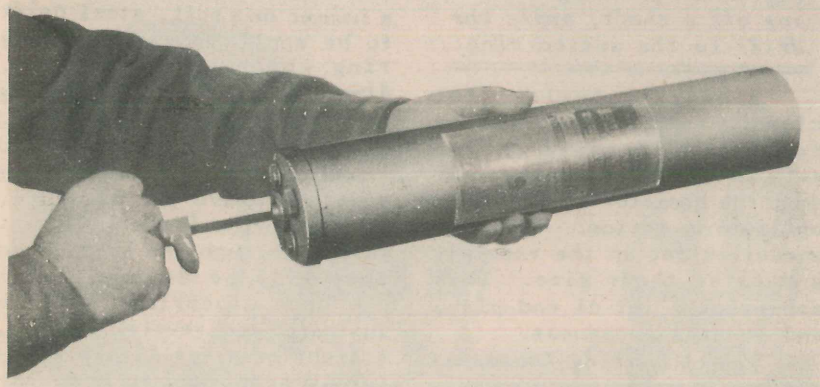
gas (the gas expected to be used most in gas attack) on metal surfaces and, of course, is effective on the fabric parts of trucks - seat cushions, side-curtains, etc.

Every vehicle (except motorcycles) will carry at least one of the new decontaminators and a new Technical Service Bulletin, in preparation, tells how and where to mount it on trucks.

The job of decontamination itself has been broken down into 1st, 2nd, and 3rd-echelon decontamination. The new decontaminator prepared especially for use by drivers, is the instrument of 1st-echelon decontamination.

Second-echelon decontamination requires the use of a 3-gallon spray gun - which handles all but the most intense decontamination. Third echelon - very intense - decontamination will, if the situation allows, be handled by Chemical Warfare Service troops - the decontamination companies attached to Field Armies. Services of these companies can be procured only by orders of the Commanding General of the Field Army concerned.

There are two important items of care attached to the use of the 1½-quart decontaminator. First, the non-corrosive, decontaminating solution deteriorates after about three months in the gun and has to be replaced; second, the decontaminating solution removes paint. Following the



*Fig. 1 - The new 'decontaminator' for use by drivers in neutralizing poison gases clinging to their trucks. There'll be at least one of them mounted on every vehicle.*



removal of heavy mustard contamination, a repaint job is in order.

But as we see it, this is little enough to pay for protection against a gas like mustard gas - of which a droplet the size of a pinpoint causes dangerous blister as big around as a quarter.

Rear-line gas attack on motor-transport troops and trucks will come from the air. Front-line attack can be expected from ground weapons as well as from the air. Enemy artillery, chemical mortars, livens projectors, and gas-cloud projectors will make things hot for you. And although gas masks will, as we say, take care of the respiratory gases, the blistering gases are another matter.

One of the chief worries of motor transport units in this connection will be the movement of vehicles through contaminated areas - protecting vehicles and troops before such a run and decontaminating them afterward.

When a driver finds himself in an emergency so extreme that he's got to hightail it through a gassed area, he should slip on his gas mask, close the windows of the truck cab and go - fast. As soon as possible after passing through the danger area, if he has the least suspicion that he has been personally contaminated, the thing for him to do is pull off his clothes; the place for him to go is the first-aid hut.

His next thought should be of his truck. Contaminated with gas, it is poison to whoever so much as touches it. If no other arrangements have been made, it's the driver's job to perform 1st-echelon decontamination upon it using the 1-1/2-quart decontaminator.

In most cases, decontamination will be necessary only around the body, fenders and tires. Remembering that mustard gas is not a gas but a heavy, oily liquid and remembering too, the painful effects of even a tiny droplet cling-

ing to the skin, the driver will keep his distance and play the spray from the decontaminator as shown in Fig. 2. The stream is directed first at the highest parts of the vehicle then gradually worked downward.

Two or three applications are necessary on the outside of the truck - with 15 to 30 minutes between applications

The solution will evaporate in about 30 minutes. When it has evaporated, following the last application, scrub the truck down with soapy water, then rinse with clear water and dry thoroughly.

If possible, give the metal surfaces a light coat of oil or grease to complete the job.

Fabric seat covers, pads and other parts of vehicle upholstery that have been exposed to poison gas, present a special problem. The contamination here is deep-seated - and we don't mean to be funny: Canvas or fiber upholstery absorbs gas like red-cross cotton.

But fortunately, as a result of a series of tests carried on by the Chemical Warfare Service, the following procedure will do the job on

gas-poisoned canvas, fiber, or leather (genuine or artificial) upholstery materials:

*Heavily-contaminated canvas or fiber materials, genuine or artificial leather:* Apply three spray treatments to the surface of the material - thoroughly wetting the surface and allowing a ten to fifteen-minute interval between treatments.

*For medium to light contamination of canvas or fiber materials:* Apply two spray treatments with a five to ten minute airing-out period between treatments.

Don't try to shortcut the job by applying one very heavy treatment of the decontaminating solution - it won't work. The two or three treatments described above, with ten to fifteen-minute airing-out periods, are absolutely necessary.

After decontaminating vehicle upholstery, keep away from it for about four to six hours - it takes that long at a temperature of 80° F. for the acetylene tetrachloride solvent (the decontaminating solution) to evaporate. At temperatures lower than 80°, it takes longer. Exercise your judgment.

(Continued on page 214)

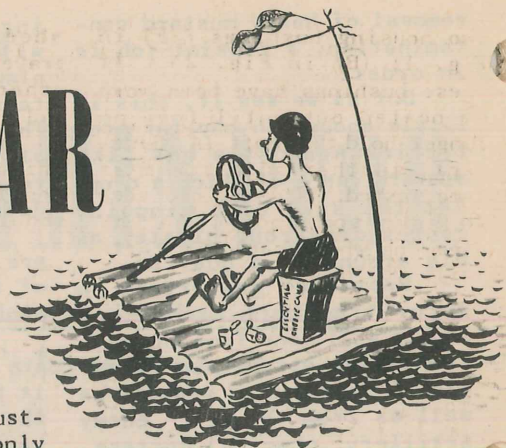


Fig. 2 - A driver all dolled-up in a Baby-Bunting (gas-proof) suit, decontaminating his poisoned truck. Chemical Warfare Service will supply the suits as needed.



# Jeep STEERING GEAR

*There's really no trick to adjusting it if you'll take care of first things first.*



As often as not, the simpler units on trucks are more misunderstood than the complicated ones. For instance, you won't have to snoop around a shop long where steering-gear adjustments on the 1/4-ton jeep (Ford GPW or Willys MB) are under way before you find a mechanic pretty much in the dark about the adjustments he's making.

But there's no good reason for it. Actually the mechanic should be concerned only with the relationship of two shafts — the cam-and-wheel-tube assembly (Fig. 1 **A**) and the lever shaft **B**. And if he will consider them one at a time, and make the proper settings, he can't help but come out on top. But let him half-adjust one, then go to work on the other — and he'll get so balled up he'll never get a proper adjustment.

Nor will any good come from trying to adjust-out trouble in the front-axle mechanism, such as misalignment, unbalance, or steering geometry inaccuracies, by working on the steering gear itself. This is a common practice that plays hob with the steering-gear mechanism. Your ordinary — or chuckle-headed — mechanic will put excessive drag on the steering gear to keep shimmy from being transmitted to the wheel, instead of correcting the shimmy at its source.

The same specie of mechanic will compensate for bent tie-rods, drag links or steering arms by throwing the steering gear off the high point. When

the mechanic screws up adjustments like these, he not only puts himself behind the eight-ball but the driver as well — the guy who's supposed to try to keep the vehicle between the fences on the highway.

Remember, the steering gear is the tooth you're working on — forget about the other units until you come to them. Then put the right English on them too, before you tie them in with the corrected steering gear.

The jeep steering gear is the cam-and-twin-lever, variable-ratio type. The cam-and-wheel-tube assembly turns in a steering-column bearing in the upper part of the steering column, under the wheel (Fig. 1 **C**) and in two ball bearings **D** in the housing at either end of the cam. The cam thrust is taken up by these bearings which are adjusted by removing and replacing the shims **E** on the upper-housing cover.

Before starting your adjustments on the ball thrust bearings on the cam, you have to relieve the assembly of all load. Disconnect the steering connecting rod from the steering arm, loosen the instrument-panel bracket and steering-gear frame bolts to allow the assembly to aline itself. Then loosen the housing-side-cover adjusting screw (Fig. 2 **A**) to free the pins in the groove. Remove or add shims under the housing cover (the shims are of .002", .003", and .010" thickness) so that you get a barely perceptible drag on the steering wheel — yet you should be able to turn the wheel freely with thumb and forefinger lightly gripping the rim. The shims can be clipped so they will slip over the shaft, for removal or replacement.

With this shaft properly adjusted, forget it — and start concentrating on the adjustment of the lever-shaft assembly.

The lever shaft turns in

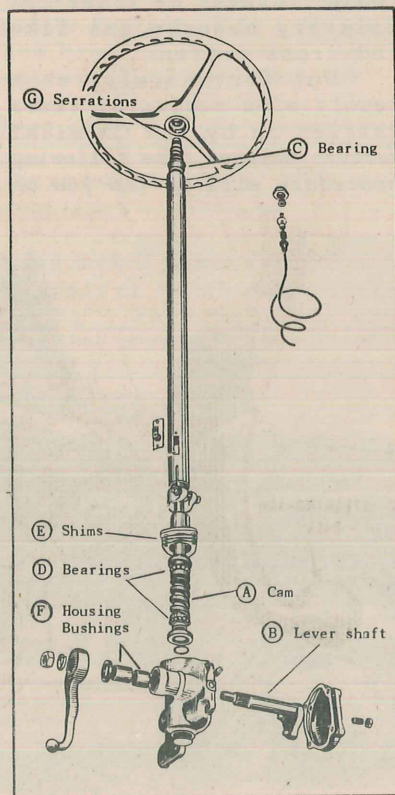


Fig. 1 The jeep steering gear (exploded view).



two housing bushings (F in Fig. 1; B in Fig. 2). If these bushings have been worn or beaten out until they no longer hold the shaft in alignment, further adjustment is time wasted. It's a good idea to have somebody turn the steering wheel back and forth while you hold the end of the shaft (with the con rod still attached) and check side movement of the shaft in the housing. Unless the fit is really sloppy, you can't feel the play by merely moving the shaft with your hand.

Anyway, if the bushings aren't a good fit, remove the assembly and replace them.

If the bushings are snug, then you make the adjustment of the tapered pins (C in Fig. 2) into the cam groove. You adjust so that a very slight drag is felt through the mid-position when the steering wheel is turned slowly from one extreme position to the other. Adjust by turning the side adjusting screw — then lock it with its locknut.

The groove in the cam is purposely cut shallow in the 'straight-ahead' driving position for each pin. This allows a close adjustment for the straight-ahead position (where the wheel is held most of the time) thereby avoiding sway on the road. It also permits the take-up of backlash from wear in this most-used position without causing bind in the lesser-used turning areas. You adjust within the high range through the mid-position or high point of the pin travel.

Backlash of the pins in the cam grooves shows up as end-play of the lever shaft, also as backlash of steering at the ball (D in Fig. 2) on the steering-arm. *Don't confuse this normal movement with the movement of a shaft in worn bushings.* Backlash in the 'turned' positions is not objectionable.

To locate the high point and straight-ahead position of the steering gear, turn the

wheel through its complete travel from one extreme to the other — then set it at one-half these turns.

With the steering gear in this central position, the front wheels on the vehicle should be straight ahead, the gear on the high point, and the steering-wheel spoke with the brand mark on its underside, should point downwards to the driver's seat and in line with the steering post. The wheel can be repositioned if necessary by removing it and shifting it on its serrations (G in Fig. 1).

In some cases, poor steering adjustments have been made because the mechanic used this wheel-spoke location as the central position. He'd take for granted that the wheel was in its proper position on the

shaft, and then make his adjustments to the front end without further checking. However, with the wheel not in the proper position he'd be making adjustments with the steering gear off the high point. On the road, the vehicle would wander like a keg of beer. Though you know the wheel should be correctly positioned, you can't be sure it is until you check it. And as we said before, if it isn't centralized, take it off and shift it on the serrations.

After you've completed all adjustments, tighten the dash and frame bolts and turn the wheel around a couple times to be sure no bind has been caused by the tightening.

If the front wheels are in their exact straight-ahead

(Continued on page 224)

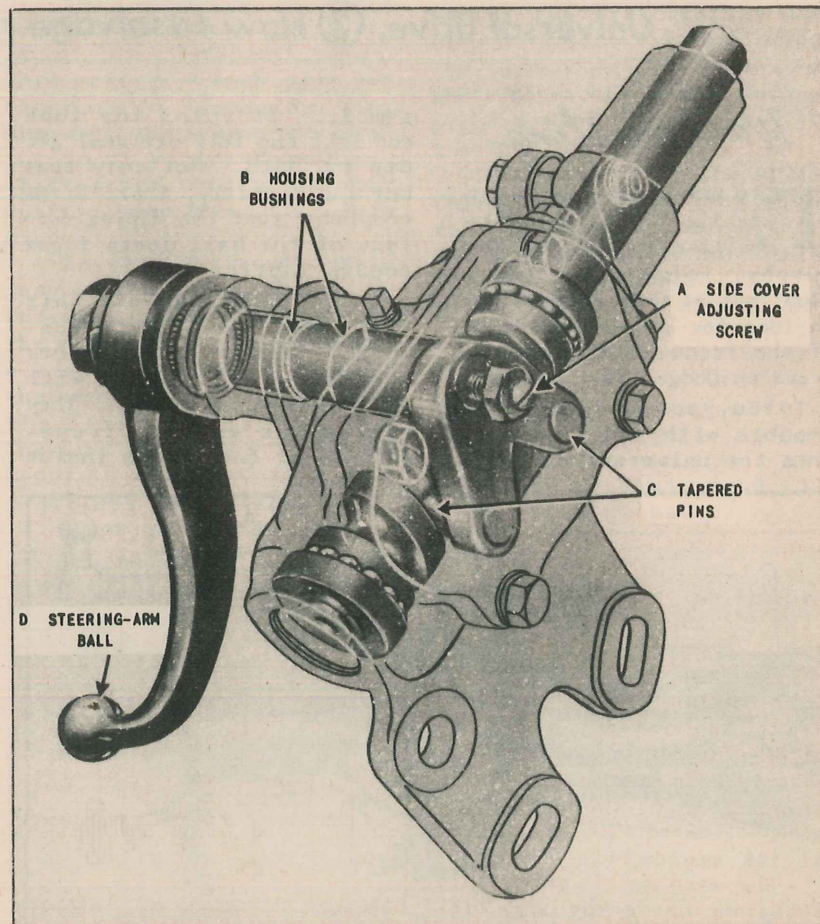


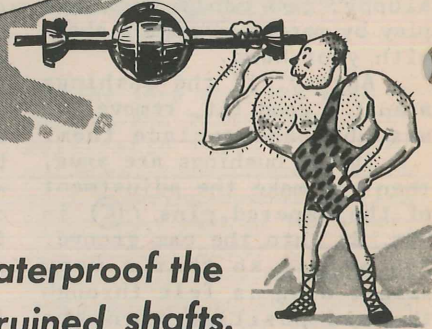
Fig. 2 - The naked heart of the jeep steering gear (assembled view). Adjust one thing at a time and stay happy.



The 33rd Division out at Camp Forrest, Tennessee, has what it calls an 'Edison Club'. Anybody who builds a better mousetrap, figures out a better way of doing things or invents something, becomes a member. Following are a couple products of the club.

*Front Axle*

# UNIVERSAL DRIVE



Two bright ideas: ① How to waterproof the Universal drive, ② How to salvage ruined shafts.

## *Waterproofing*

Two more of the faithful, one 'Mollie' Williamson and one John Murphy, joined the 'Edison Club' out at Camp Forrest with an idea for keeping water out of the front-axle universal-drive on Dodge 1/2-ton trucks.

You, too, may have had trouble with water sneaking into the universal-drive as-

sembly. It ruins the lube and lets the felt oil seal get dry and hard. Not only that but incidentally, there's the complaint that the wiping surface of the ball doesn't get enough lubrication.

Well, to stop all this nonsense, the Williamson-Murphy combine got together and did a few tricks with No. 4 water-pump grease. They filled the entire circumference of the recess inside

and behind the front-axle, steering-knuckle-flange oil seal (Fig. 1-A) with the water-pump grease. This was to stop water from sneaking in past the seal. Then they went over to the other side and smeared some water-pump grease on the front-axle-steering-knuckle bushing (Fig. 1-B). This was to stop the water that creeps along the axle shaft and into the universal-drive assembly.

The drive assembly itself was, of course, filled with the regular recommended lubricant.

To make the test strictly scientific, they filled the other front knuckle on the same truck with the regular lubricant but didn't protect it from water with the water-pump grease.

Here's the way they tell it:

"We then ran this vehicle into a creek, submerging both knuckles - leaving them submerged for 30 minutes. After that we came out and ran through water and slush, making it a point to give it as severe a treatment as we knew how. At the end of a week and

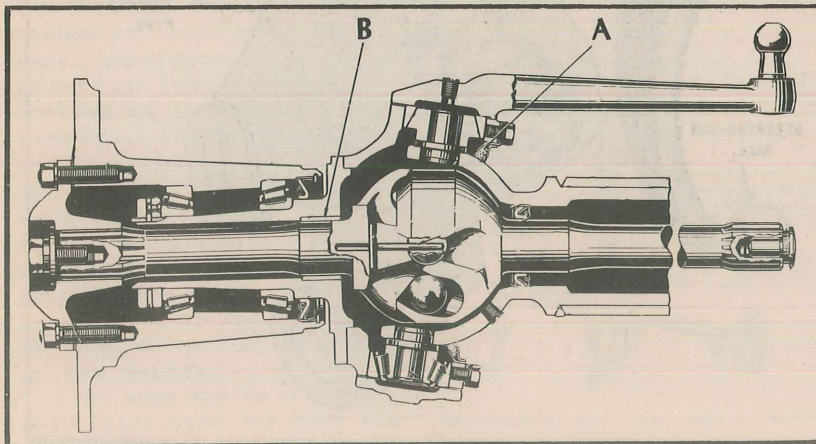


Fig. 1 - To waterproof the U-drive, fill recess (A) with waterpump grease and smear some on bushing (B).



a hundred miles of this sort of thing, we pulled down both front knuckles and found that on the side that had not been protected with water-pump grease, the grease in the universal-drive assembly had begun to turn yellow, the soap base of the grease had started to dissolve and had deteriorated greatly. On the other hand, in the U-drive that had been sealed with water-pump grease, the lubricant was free of water - and just as perfect as when it had been removed from the container."

More tests at Holabird confirmed the first tests, "The procedure kept the felt seal soft and pliable, furnished a film of lubricant on the steering ball and did not allow water to enter the axle housing. We are happy to recommend it."

A Mr. Moran, Chief Lubricating Engineer of the Texas Oil Company, declared himself "agreeably surprised" upon viewing the tests, and said that the water-pump grease would not mix and run together with the regular lube in the universal-drive assembly.

And the Army Motors magazine in a fit of high spirits is glad to pass the idea on to you.

## Salvaging Shafts

Front axles of Dodge 1/2-ton Bendix-Weiss universal drives have been making their way to the scrap pile in droves. Seems that the spline shoulders at the end of these axle drive shafts have been getting chipped where they contact the driving flange (Fig. 2). Why? Well, first it might be because the drive-shaft screw is being tightened too much. As a matter of fact, Fargo found that the screw washer had been cupped on many of these ruined axles.

Don't tighten the drive-shaft screw more than necessary to compress the lockwasher - say about 30 foot-pounds.

Then secondly, it might be that the drive-shaft screw is not being tightened enough. This permits enough play for the driving flange to bang pieces off the spline shoulder.

So if you're the drive-shaft-screw checker in your outfit, keep these things in mind.

Anyway, confronted with many ruined axles, Mr. H. H. Burnett, Civilian Advisor to the 33rd Division, worked out a simple salvage operation that evoked this outburst from the Fargo Division of the Chrysler Corporation, "We are happy to recommend this very practical correction."

Here is Mr. Burnett's

procedure: (a) remove the front-axle drive-shaft screw and the lockwasher; (b) remove the front-axle drive flange; (c) machine a stepcut washer 3/8 inches thick from cold-rolled steel to fit the recess in the front-axle drive flange - the hole in washer to be 1/64 inch larger than the front-axle-drive-shaft screw.

Weld the washer securely in place in the recess in the front-axle drive flange. Remove enough metal from the front-axle drive flange to prevent contact with the spline shoulder.

Reassemble the unit and check clearances in accordance with the maintenance manual.

In review, what Mr. Burnett did in this procedure was to eliminate the destructive thrust of the drive flange against the spline shoulders on the axle, by bottoming the end of the axle against his stepcut washer. By replacing the lockwasher under the drive-shaft screw with a thin shake-proof washer, he was able to use the same screw.

And as we say, the whole thing makes Fargo so happy, they've changed the design of this assembly on their later-model trucks.

Editor's note: We sincerely feel that two swell ideas like these - one Preventive Maintenance, the other ingenious repair - do as much for the war effort as a stick of bombs laid in the right place.

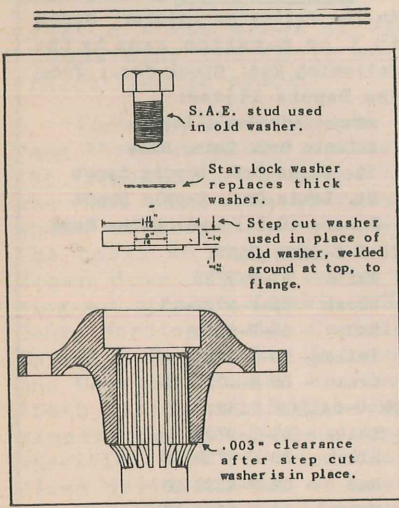


Fig. 2 - Mr. Burnett's cure for axle shafts chipped from banging the driving flange.

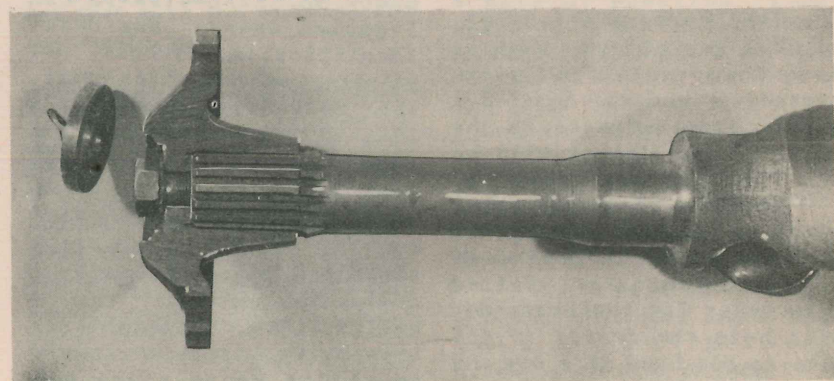


Fig. 3 - A cutaway of the axle shaft after the repair. The little, round thing off the end, is the stepcut washer.



## DECONTAMINATION

(Continued from page 209)

To use a vehicle - in the event of an extreme emergency - before complete evaporation has taken place, an 'impermeable' cover must be placed over the upholstery. Since rubber or a rubber-treated material won't do, the question of where such an impermeable cover can be obtained, is still questionable. Don't bank on it.

But in any case, to use a vehicle or sit on upholstery insufficiently aired after decontamination is to invite trouble. And we don't mean heartburn. Furthermore, the decontaminating solution is toxic (poisonous) when breathed or contacted by the skin. Be careful.

We can't say too much about the danger of blistering gases and the cautions necessary when near them. Depending upon the climate, the amount used and the method of discharge, they remain dangerous for anywhere from several hours to several weeks after being released. They permeate any material which is at all porous (including the very porous lustreless enamel on your truck) and render such material dangerous to the touch until decontaminated.

For this reason, intense decontamination is and will remain, a ticklish job - and in most cases will be handled or at least supervised by Chemical Warfare personnel.

But gas attack, when it does come, will come unexpectedly - and the new 1-1/2 quart decontaminator in the hands of the driver will be the first line of defense.

And, as with any other piece of vehicle equipment, practice drills in the use of the decontaminator (filled with water for the occasion) will help the driver to act like an old hand at a new and important job.

## VEHICLE MARKINGS

(Continued from page 197)

you'd better be sure - get ahold of AR 850-5 and proceed accordingly.

The second kind of marking on the exterior of vehicles, is 'automobile plates, other than registration.' Everybody seems to know this simply means a 6x9", sheet-metal plate identifying a general officer's car, etc. Let's skip it.

The third kind of marking is the 'unit markings': Here we have (1) the national symbol - a white star to be marked as indicated in AR 850-5 on all tactical vehicles; (2) the 'Unit-Identification Symbols.'

If -- as in the case of the 1/4-ton jeep - the star to be painted on the rear, is hidden by the gas can, *put the star somewhere else on the rear! Don't paint it on the gas can!*

On the older-model jeeps, paint the star - a 4-inch star - below the rear reflector in in the right-hand corner of the rear. On the newer-model jeeps, paint the 4-inch star above this rear reflector.

There doesn't seem to be much question about the Unit-Identification Symbols - just put them where AR 850-5 specifies.

As we said last month, to paint on your star, requisition 'enamel, white, lustreless', Fed. Stock No. 52-E-4199 (in 1-gallon cans); Fed. Stock No. 52-E-4199-15 (in 5-gallon cans). For Unit-Identification-Symbols, use gasoline-soluble white paint. (For Fed. Stock Numbers and list of depots stocking gasoline-soluble paints, see Fig. 1).

We've seen some outfits running around with yellow stars and yellow Unit-Identification Symbols - they'd better change over to white in a hurry - the AR clearly specifies white stars and symbols.

Of the fourth kind of

vehicle marking, 'tactical markings', AR 850-5 says, 'Divisions, separate brigades, combat commands, combat teams, and similiar separate-unit commanders and higher-unit commanders may prescribe a system of tactical markings for units of their commands. This may include the naming of individual vehicles.'

For these 'tactical markings' you can use gasoline soluble paints in colors (Fig. 1). The AR has a couple of special notes on this subject, so we'd advise you to consult them.

But the naming of individual vehicles! Shades of my college days!

There's a fifth kind of marking - 'special markings' for recruiting-service vehicles, ambulances and veterinary ambulances which we won't attempt to go into. If you're driving a wagon that requires these special markings, take a look at AR 850-5.

In any case, this particular AR contains practically all you have to know about vehicle markings - if we were you, we'd give it a quick study. Add to it our interpretations as above, and you can't go wrong.

<p><b>Gasoline-Soluble paints come in the following colors. Order in 1 or 5-gallon cans by the following Fed. Stock Nos., from the Depots listed:</b></p> <p>Schnectady Gen'l Depot          Atlanta Ord. Motor Base          Ft. Wayne Ord. Supply Depot          St. Louis Ord. Supply Depot          Pomona (Cal.) Ord. Motor Base</p>	
<p><b>IN 1-GALLON CANS:</b></p>	
White	52-P-2731
Black	52-P-2729-15
Red	52-P-2730
Yellow	52-P-2733
Green	52-P-2729-75
<p><b>IN 5-GALLON CANS:</b></p>	
White	52-P-2732
Black	52-P-2729-35
Red	52-P-2330-20
Yellow	52-P-2733-50
Green	52-P-2729-95

(Figure 1)



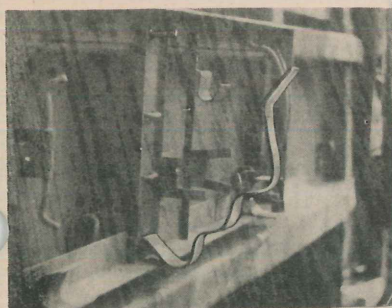


# CONTRIBUTIONS

Got a good idea? Have you invented something lately? Got a gripe? Jot it down and shoot it along to the Army Motors. Maybe you've solved a problem everybody else is worrying about. Pass it along to us and we'll buck the news to the rest of the boys in the field. You'll get a personal subscription to the Army Motors if we like your idea - you lucky stiff.

Our lofty observation in the June issue, that of a certainty there must be better ways of tightening the Pioneer equipment than by wrapping baling wire around it, receives hearty support from our friends in the field.

Lieutenant Walter H. Nast says that the Cavalry Board suggested using web straps with the slip-type buckle, rather than the leather strap that is prone to stretch and weather.



*Fig. 1 - The metal strap loops over the tools and holds them in place.*

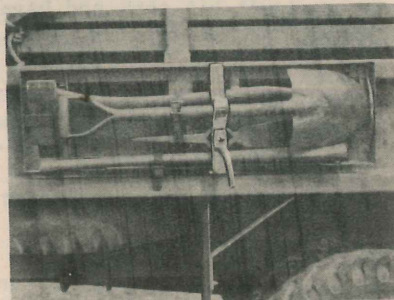
Then -- almost as one -- came three excellent schemes for clamping the equipment to the rack with a metal clamp which was shaped to fit over the tools so they could be drawn down tightly with a wing-nut or pin. Captain M.K. Gant, Harding Field, Captain Harold A. Beavon, Ft. Jackson, and Captain Abraham Vernon, 105th Field Artillery, sent almost identical plans and specifications for the metal clamp device. (Now we know why they always say, 'In case of a tie, duplicate prizes will be awarded').

On one of these contributions (Fig. 1) the hold-down

strap is hooked into the lower-strap loop, then shaped to loop over each of the tools. A hole drilled through the other end allows it to fit over a 5/16 bolt that has been welded into the upper side of the rack cross-piece. Turning the nut down on the bolt tightens the strap, locking the tools into place.

In the other two contributions, the strap crosses the tools from a position between and parallel to the two cross pieces on the rack. One of them (Fig. 2) is held down by a wing-nut turned down on a bolt welded into the cross-piece under the pick mattock head. The other is pinned into place at each end through loops fastened to the bracket. One end is hinged -- the other end is slotted and fits over a loop like a hasp, so it can be secured by a harness snap or padlock.

They all seem to be effective, since they have been installed on a large number of vehicles in each outfit. Just choose the one you like best, and that fits the material and facilities you have at hand.



*Fig. 2 - It must be good -- here's another variation of the idea in Fig. 1.*

We can think of a lot of worse uses for a 2 1/2-ton GMC than this mobile shop truck complete with drill press, lathes, grinder, valve refinishers, and power-driven hand drill. It was rigged up for field service by the mechanics and welders of Hqs. & Service Co., 46th Engineers.



*Built for service where Yank ingenuity often pinch hits for modern equipment.*

Its builders say the power generator that drives the tools also furnishes electric power and light for the entire camp at night. Spacious built-in tool kits, a portable electric drill, a bench vise, and a pair of powerful floods round out this fine piece of homemade equipment. Lieutenant William B. Allen, who sent us the idea, tells us they carry along an acetylene-welding-outfit when they go out on a job....just in case.

Dear Editor:

I don't mean to be a wise guy, and this idea isn't original with me but I saw a couple darned good army mechanics in a 3rd echelon shop who didn't know about it - so thought it might be of help to others.



These two mechanics were tugging and wrestling with a couple big dual wheels they were removing to repack the bearings - and they were really making a job of it.

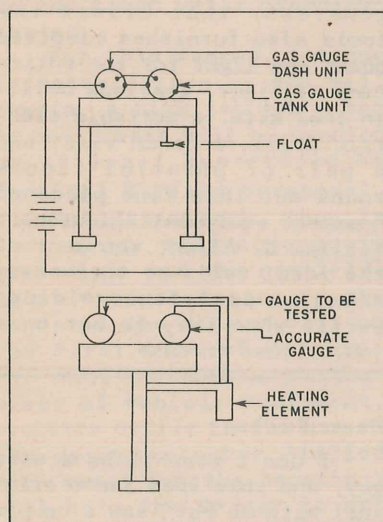
My suggestion to them was to place a small, greased\* board under the wheels after the wheel-bearing nuts were removed, then lower the truck until the tires rest on the board. It is then possible for one man to slip the wheels off or on by sliding them over the slick surface.

Sergeant Shorty  
204th QM Battalion  
Compton, California

\*Ed Note - A dry board on top of a greased board would keep the tire out of the grease.

The 3rd Echelon shop at his station had lots of complaints about the performance of gasoline gages and heat indicators on some of its vehicles. That is, until Private William Arntz (harking back to his private-life occupation as an electrician) built two test stands to check the unit's condition.

The gasoline-gage tester consists of a dash unit and a tank unit that have been tested



Wiring diagram of Private Arntz' homemade tester for gas and temperature gages.

and approved. He mounted them on a stand and connected a storage battery to produce the same results as in actual operation.

When you run into a faulty gas-level reading on a vehicle, you remove both its units alternately and test them in comparison to the opposite unit on the stand. This way you discover the bad unit, or if they both prove to be okay, examine the circuits on the vehicle.

To check a temperature gage, mount a proved heat-indicating gage on a stand so you can read it easily, and immerse its bulb in a small can of water. Mount the questionable gage alongside and put its bulb in the water. Heat the water with a blow-torch, and match the performance of the two indicators throughout the heat range.

Dear Ed:

Two of our Jeeps came in without brakes after maneuvers over rough terrain. We found the front brake-line leading from the T, across the axle housing and to the right-front brake was chewed to bits on both of them.

A quick check-up showed us that the starting-crank-nut assembly on the lower fan-pulley had been smacking the line on hard bumps and had finally cut through. We placed the new lines in a more forward position on the housing so the nut couldn't hit them and have had no further trouble.

1st Lt. Robert S. Vogt  
169th Infantry Motor Pool  
Camp Shelby, Miss.

Capt. Alfred J. Villeneuve reports that Tech. Eberhard C. Ziegler has found a good way to remove a brake-line hazard

on the Ford 6. Tech. Ziegler drills a new hole two inches above the original one in the frame and moves the rear hose assembly so the hand-brake cable won't rub against it.

*Watersmeet*★

Dear Sir:

I just want to add a few words to the Beltsville story.

Being one of a group transferred from Camp Lee to this neck of the woods, where the Watersmeet CCC camp has blossomed into a thriving Motor School, I find the men enthusiastic about learning to be mechanics in such pleasant surroundings.

Our school is in the north woods, in the upper Michigan peninsula - far removed from densely populated centers and yet not isolated - a land of many lakes and deep woods, teeming with wild life.

The camp borders Bass Lake. Our barracks, school rooms, and mess hall, all look out on a natural setting that many a civilian would envy.

Never have I seen a group of students pitch more whole heartedly into a task. Within a few days after arrival most of us were firmly convinced that the day of departure would be a sad one.

If this place doesn't make crack-mechanics of all those fortunate enough to be sent here, then certainly no other type of school can hope for perfection.

It was a great day for the Army when CCC camps were converted to Motor Mechanics Schools.

Pvt. Samuel Cohen  
Motor Transport School  
Watersmeet, Michigan



# CONTRIBUTIONS dep't.

## Short 'n Sweet Division



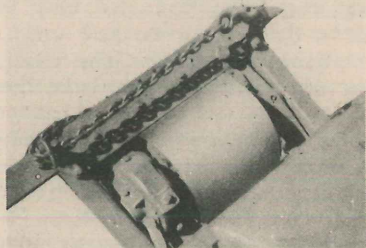
Lt. Harry R. Buckley of the San Francisco Port of Embarkation wishes people would stop painting out vehicle registration numbers. This cute stunt is usually pulled when trucks are repainted. Every time he gets one, Buckley has to lasso some poor, overworked Liaison Officer, trace down the number, check it with the serial number, the motor number, and a lot of other numbers before the Registration number can be put back on. He says once or twice wasn't so bad, but when they had to do it on several hundred vehicles, it sort of clogged up the Port of Embarkation.

Automotive Advisor, Don H. Holbrook at Camp Bowie, Texas says it's easy to keep condensation in the new Zenith carburetor air-horn from rolling over into the manifold and killing the engine: Remove the air cleaner, wrap a rag around a screwdriver, and mop out the accumulated water.

Warrant Officer Gerard J. Grogan, at Governors Island, forwards the following suggestion from Corporal Slawson, of Headquarters Company: To comply with AR 850-5, directing that the national symbol be displayed in specific positions on all vehicles, he finds it necessary to paint some of the stars where the gas cans should be installed. To keep from obscuring the star, he suggests painting the star on the gas cans and adds it could be camouflaged very easily by just turning the gas can around in its bracket. A couple objections and the official solution to the problem appear on page 200.

If you could get a punch in the nose by mail, we'd have a beauty. Lt. Walter J. Zoellner, commanding Company "C" of the 86th QM Battalion says the winch-cover idea on page 60 of the *May Army Motors* was strictly his idea. He sends pictures to prove it.

Well, Lieutenant, we'd never even have seen your idea if Sgt. Joanitis hadn't sent it in.



Mr. LeRoy Bethel, head of the Carburetor and Ignition Department of the Stockton Ordnance Motor Base suggests that a slight change in the wiring on the 12-volt jobs would permit the use of many, standard six-volt units such as starters, coils, and light bulbs. He feels that a sizeable decrease in initial cost and stockage of special equipment would result. He says the change could be made by installing a post on a cross bar of the 12-volt battery (to draw only 6 volts out of the battery) and hook everything to it but the generator and the radio units needing 12 volts.

Lt. James W. Compton says he finds that a few drops of Prestone in locks prevents them from freezing.

The manila tags, (used to identify parts) are often lost, obliterated, or in the way during shop operations. Automotive Advisor Ira C. Larkin in the reclamation section at Camp Stewart invented a cure. When a part comes in for examination and classification before it goes into the shop, he removes the manila tag, numbers it, puts a metal tag on the part (bearing the corresponding number) and hangs the manila tag on a board. The board they rigged up has about 80 numbers corresponding to the numbers on the tags. When parts come back from the shop, repaired and ready to go to the warehouse, they reverse the procedure - remove the metal tag, put back the manila tag they hung up for safe keeping.

Many transfer-case oil seals have died like a dog in the last few months because heat from improperly adjusted - or not fully released - parking-brake drums, travels up the shaft and burns them to a crisp. Thus reports Advisor Jesse Edwin Davis from Fort Benning, Georgia.

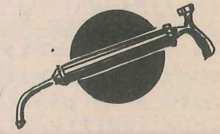
Private V. I. Horn, a jeep-jockey in the 91st Reconnaissance Squadron at Indio, California, provides the answer to deep-sand driving problems. He suggests using only track-laying vehicles for desert operations.

Getting right down to earth, Lt. John R. Pippart, commanding the 638th Engineer Camouflage Company at Fort Ord, advises camouflaging reflective surfaces simply by smearing a little mud on windshields and bright work. Mud he says, is best made by mixing water with dirt. A sure way to eliminate glare from door windows, he continues, is to roll down the windows.



# How to keep Preventive Maintenance Records on...

# DUTY ROSTERS



On July 10, War Dep't Circular 223 came out with the announcement that Motor Vehicle Service Record Books were discontinued. You weren't going to get them any more, you weren't going to use them any more.

And, lest the primates among us be deluded into thinking that the announcement meant the end of regular, scheduled, preventive-maintenance operations, the Circular went on to say that necessary maintenance records would 'be kept in the form of duty rosters.'

Now although the Army has used 'duty rosters' (W.D., A.G.O. Form 6) for years, the question of how they were to be used as vehicle maintenance records, furrowed many a brow in the field.

But as far as we're concerned, the question doesn't deserve all that worry. It's too simple.

Take a look at our little chart. That's a duty roster - a duty roster doing duty as a maintenance record.

There's nothing complicated about it, is there? (Yes). Well, let's look at it closer. The first column headed 'No.' is numbered down from 1 to 14. In other words, 14 vehicles will be listed on this particular duty roster. The second column is headed 'Vehicle #W', and it's got the

subhead 'GMC, 2 1/2-ton, 6x6' - the make and model of the vehicles to be listed on the roster. All the way down the column are listed the USA Registration Nos. of the 14 GMC's belonging to the unit.

Glancing across the card, you see that each vehicle has 31 spaces - or days - allotted to it. In these spaces will be noted the preventive-maintenance operations performed on the particular vehicle: 'W' (weekly), 'M' (monthly or 1000 mile), 'S' (semi-annual or 6000 mile). A numeral - 1, 2, or 3 after the W or M - notes whether it's the first, second or third weekly or

W2 W3 S. The mileage at the time of the operation should be entered after each symbol: for instance, M2 3014.

Here's a couple more symbols to be used whenever they apply:

P -- Deadlined for lack of parts

A -- Deadlined because of an accident.

O -- Deadlined in an Ordnance shop.

Now with these keys in hand, the duty roster ought to read as easily as 'Breezy Stories'.

Of course, you've got to remember that one preventive maintenance operation doesn't

No.	VEHICLE #W G.M.C. 2 1/2-ton 6x6	MOTOR VEHICLE P.M.S. ROSTER. - MONTH <i>May</i> YEAR 1942																															No.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
1	434561							W <sub>1</sub> 3612							W <sub>2</sub> 3832																			M <sub>1</sub> 4350	1
2	435531				W <sub>1</sub> 4327										W <sub>2</sub> 4569						W <sub>3</sub> 3985											M <sub>1</sub> 5289	2		
3	436521	W <sub>1</sub> 2580						W <sub>2</sub> 2850							W <sub>3</sub> 3275									M <sub>5</sub> 3589								S 3828	3		
4	437231				W <sub>1</sub> 4267							W <sub>2</sub> 4537									W <sub>3</sub> 4962					M <sub>1</sub> 5268							W <sub>1</sub> 5354	4	
5	434251	M <sub>2</sub> 3379						W <sub>1</sub> 3815							W <sub>2</sub> 4057								W <sub>3</sub> 4409									M <sub>3</sub> 4681	5		
6	436321	W <sub>2</sub> 7221						W <sub>3</sub> 7994							M <sub>3</sub> 8366									S 8802									W <sub>1</sub> 8913	6	
7	438911	W <sub>3</sub> 5280						M <sub>5</sub> 5530					A A A A										S 5572								W <sub>1</sub> 5845	7			
8	433291						S 4223						W <sub>1</sub> 4310									W <sub>2</sub> 4746									W <sub>3</sub> 4995	8			
9	437421							W <sub>1</sub> 4223							M <sub>4</sub>																		W <sub>2</sub>	9	
10	439241	W <sub>3</sub> 3847		O	O	O	O	O	O	O	O			M <sub>3</sub> 4030								W <sub>1</sub> 4166									W <sub>2</sub> 4739	10			
11	437651	W <sub>3</sub> 2215						S 2606						W <sub>1</sub> 2837									W <sub>2</sub> 5255									W <sub>3</sub>	11		
12	436715							W <sub>3</sub> 5278						M <sub>4</sub> 5502								W <sub>1</sub> 5843									W <sub>2</sub> 5905	12			
13	438765					M <sub>2</sub> 3642								W <sub>1</sub> 3818									W <sub>2</sub> 5944		P	P	P	P	P		W <sub>3</sub> 3969	13			
14	437772	W <sub>1</sub> 1842								W <sub>2</sub> 1915					W <sub>3</sub> 2068									M <sub>2</sub> 2110								W <sub>1</sub> 2255	14		

monthly operation; Thus 'W1' means it's the first weekly operation since the preceding monthly operation; 'M2' means it's the second monthly operation since the preceding semi-annual operation.

The schedule will run along like this: W1 W2 W3 M1, W1 W2 W3 M2, W1 W2 W3 M3, W1 W2 W3 M4, W1 W2 W3 M5, W1

cancel out the others. For instance, if a truck is getting the monthly checkup, there's no reason why the driver shouldn't at the same time give it the regular weekly checkup. And in the same way, you don't have to wait a week to give a truck the weekly operation. After a particularly

(Continued on page 224)



# Sgt. "HALF-MAST" McCANICK'S

Question Dept.



ARMY MOTORS

Dear Reader,  
There just ain't any disputin' it - "Half-Mast" is the man with the answers. The flood of letters - from privates all the way up to major-general - proves it. So if you've got something bothering you, stop fretting. Shoot your questions in to Half-Mast - he'll answer 'em all: technical, procurement, procedure. Half-Mast is the answer man, he knows which way is up. Ed

opposite the lip. Though it does seem logical that the conventional location with the lip towards the lubricant is the better seal.

If this doesn't answer your question, let me know, and I'll see if I can do any better.

*Half-Mast*

Dear Half-Mast,

The enclosed small, battered object was found in the flywheel housing of one of our Ford jeeps. It is the second one of its kind we have found floating around in a flywheel housing, and take it from me, it makes one heck of a racket when the flywheel teeth hit it.

We can't find a place for this little object in either the clutch or transmission, and it is not listed in the parts catalogue. Is it part of a jeep - or are we being sabotaged?

S/Sgt/T A.F.

Dear Sergeant,

The bit of metal you sent me was a jeep part, before the flywheel teeth got hold of it. It's the oil-retaining cup that goes in the front of the transmission just above the main-drive-gear bearing, at the end of the high and intermediate shifter shaft. Its Ford part number is GPW-7056. If those you found dropped out of their respective transmissions, you'd better replace them. If they're spares - I can't figger how they got in the flywheel housings.

*Half-Mast*

Dear Sgt. McCanick,

We've been washing the engines on our vehicles about once weekly with kerosene. They look good, but they smell bad, and some of us think this practice is the cause of a

Dear Half-Mast,

Since I too am a mechanic in the Armed Forces, I guess it's okey to ask you a question. What interests me at the moment is the position of the outer axle-shaft seal on the Ford and Willys 1/4-ton jeeps. The lip of the seal points toward the steering knuckle instead of toward the differential. I understood these seals were to keep the differential lubricant out of the steering knuckle and joint, but if turned with the lip toward the steering knuckle, they allow the differential lubricant to get into the steering and universal-joint units.

As you know, the 1/2-ton is of the reverse type. The lip of the seal is turned toward the differential, which I consider correct.

Please explain the advantages of the 1/4-ton jeep's retainer position, if any.

T/Sgt. J.D.L.

Dear Sergeant,

Boiling your question down, I get this: *Why are the outer front-axle lube seals on the 1/4-ton jeep turned with the lip toward the universal joint and steering units, while on the 1/2-ton vehicles, these same retainers have the lip turned toward the differential. Right?*

Well, strictly between us girls, I never gave it much of a thought before. Engineers sometimes suffer from differences of opinion. So if one figures one way - and another figures another way - and both ideas work - I just let sleeping dogs lie and that's the way it seems to be with these seals.

But it happened we had a couple new jeep front-axles out for overhauling on the stands, so with your question in mind, I decided to see if there was any rhyme to the jeep engineer's reasons. From what I saw on these two axles, this must be the explanation: Besides the outer retainer in question, there are also *inner* retainers in these housings. They're located one on each side of the carrier. They are placed with the lip towards the differential, which leaves the outer retainers to be concerned only with the holding of lubricant in the universal joint. In that case the lip is turned in the conventional way. On the 1/2-ton there is no inner retainer, so the outer retainer is positioned to retain differential lubricant, with the universal lubricant being held incidentally.

I am not sold on the idea that a retainer or seal will freely by-pass a lubricant approaching from the side



local mystery.

It all came about one dark night about two weeks ago when one of our ambulances short-circuited a wire - or something - and caught fire. We had just about charged it off as one of those things, when last night the alarm sounded - and another ambulance was afire. It looked like we had a fire-bug in the outfit, so they've posted a guard to keep an eye on the vehicles at all times.

Naturally all of us barracks Sherlocks got our heads together and solved the mystery, but not having a Dr. Watson handy to salve us, we decided to write you, and see if you agree with our solution.

Our deductions are as follows:

1. The wires get soaked from the frequent kerosene baths.
2. Our ordinary vehicles run around more than our ambulances so the heat of operation dries out their kerosene - soaked wires.
3. Remaining in the ambulance wire, the kerosene finally rots the insulation and allows the wires to ground - causing a short and starting a fire.
4. Elementary - no?

B. R.

Dear Private,

Your outfit must believe in that old adage about cleanliness being next to godliness. A weekly kerosene bath certainly should keep the engines slick - if not aglow.

Don't tell anybody - but I belong to that old school which figures that in 9 cases out of 9½ - a good motor wash does a lot more harm than it does good. It used to be I could predict a shot generator-bearing, a grabby clutch, and water in the electrical units, wires, air cleaner or the engine itself, and not lose my reputation as the champ prognosticator in the shop.

All you hadda tell me was

that the engine had been washed.

An occasional engine bath is okay if everything that could be harmed by cleaning solvent, steam or water, or the accumulation of dirt and grease that is loosened on the engine during the wash, is protected. But the job of thoroughly protecting all these units is a tough one and I wouldn't want the responsibility where the engines are washed so often.

If you have any ambulances left - or when you get some new ones - take a look at the battery cable under the body, and see if the insulation has been damaged between the body and the frame. (It's been happening in assembly at the factory). That's one cause of ambulance fires that's been reported.

Also examine all electrical connections under the dash and at other points where the current is in danger of reaching ground and starting a blaze. A good detective doesn't stop with the first and most obvious clue. And you guys look like good detectives.

*Half-Mast*

Dear Half-Mast,

We are having trouble with the steering boxes of the Ford 1/4-ton jeep. They came to us with the gear box packed with chassis grease. Then the bushings started to flake and mix with the lube causing the steering wheel to bind. We tried substituting gear lube, but the condition still exists.

Also, on the same vehicles and on the Willys, the spare tire holders are breaking out the rear panel of the body due to vibration.

S/Sgt. J.F.M.

Dear Sergeant,

You must be a mind reader, I've been nosing around for the last couple weeks trying to find out the answers to

jeep steering and spare-tire carrier difficulties. As a matter of fact, I'm not sure I have the right answer yet, but I'll tell you what's been found to date, and maybe the discussion will bring in some more dope from the field.

Your steering trouble is a little different from ours - are you sure the flakes are from the bushings? We found a few cuttings, but they were of a different material than the bushings, probably came from the gear. But our lever shafts loosened up in their bushings at a very low mileage. Whether they were originally fitted too loosely at the factory, or whether the bushings are made of a too-soft material, I'm not sure. But we experimented by making some bronze bushings, and I'll let you know how they work out.

In your case, I'd say the steering unit should be overhauled if the binding is serious. An inspection of the parts may show you where the chips came from, and if they were due to improper lubrication.

All sorts of spare tire reinforcement schemes are coming in from the field, and we understand that the factories have been asked to supply a device to support the jeep spare with some extra support from the bottom - like having it sit on a couple blocks. As this stuff shapes up we'll keep you informed.

These are both good questions, and I'm sorry we haven't the best answers worked out on them - but you jumped the gun on us.

*Half-Mast*

Dear Half Mast,

Why can't you put vents like those on the axle-housing on Chevy and GMC transfer cases so they won't get water and sand in the rear-extension housing? The regular vent seems to allow them to by-pass.

Lt. J.C.D.



Dear Lieutenant,

The axle-housing vents are spring-loaded, and if they were used on the transfer case, they'd allow too much pressure to build up. So we'll have to get by with the original vents until the engineers dream up something better. A sheet-metal shield bolted over the old vent will help keep the moisture out.

*Half-Mast*

Dear Half-Mast

We've found the new stationary-intake oil pump doesn't cure all oil-pressure ills in our GMC's. With engine warm and running at governor speed the oil pressure fluctuated from 20 to 40. We dropped the pan twice looking for trouble, and finally decided that an air pocket forms in the high side of the oil-pump pickup (the screen housing). We drilled a small hole at the highest point of the pickup, and after that the pressure held steady.

A driver doesn't have to have a neck like a giraffe to see the oil gage while driving our GMC's - by exchanging the oil gage and the gasoline gage on the dash, we put it where he can watch it.

It. V.E.H.

Dear Lieutenant,

I can't see anything wrong with your idea about changing the location of the oil gage and the gasoline gage at the dash. If I had to choose which one the driver was to look at - I'd choose the oil gage every time. He won't get in any mischief if the gas-gage needle hits bottom. But no oil pressure is something else again.

Drilling a hole in the pump pick-up, or screen housing, however, isn't a healthy practice. And the fact that it cured pressure fluctuation

is pretty doubtful. The chances are you shook the by-pass plunger loose, or cleared a bit of dirt, during the hole-drilling operation. That - rather than the hole - probably steadied up the oil pressure.

There's a little story attached to this conclusion, I'll let you in on it: As you say, changing from the floating to the stationary oil intake didn't cure all the pressure trouble. On page 75 of the June issue of Army Motors we drew attention to TSB M-10 which suggested that the relief valve with the hole in it be soldered, closing the hole, or that the new-type valve without the hole be installed. There was one other little difficulty with this early-type valve. It would occasionally stick in its operating chamber due to expansion when the engine warmed up. The new valve was manufactured at a reduced diameter - about .0015 undersize - to keep it from sticking in the channel. So you'd better take a look at the valve mechanism in the pump, and see if it still has the old plunger. If you find it does, replace it with a new one. If you can't get a new one, solder the hole closed, and dress down the outside diameter of the valve a little with emery cloth.



You see the pickup was made the way it is so the suction of the pump would make it act like a suction bell. When the pump goes to work, the oil is drawn in through the whole area of the screen. But when you break the suction by drilling a hole, the pickup area is reduced to a point just under the pickup pipe. This reduces both the volume and the screening surface area.

When the oil is cold and stiff there would be a channeling effect just under the pickup, which would also tend to cut down on the oil supply to the system. And at any time, particles of dirt could enter the pickup through the hole at a point directly over the safety by-pass.

Better solder up that hole you drilled in the pickup, and give the rest of the pump a going over - then everyone will be happy.

*Half Mast*

Dear Half-Mast,

Do you happen to have any information on how to remove grease and gasoline spots from the lustreless paint on army vehicles?

1st Lt. M.E.L.

Dear Lieutenant,

That's exactly what's been cookin' down in the Chemistry Lab - spot removers. And they've whipped up some good concoctions too - the only trouble is they take off the paint with the spots.

We'll have to await further developments.

But you may be able to lighten up a grease spot (or even remove most of it if it hasn't been in the paint more than a few hours) with this procedure: Rub over the spot with Stoddard Solvent (Fed. Stock No. 51-S-4345) on a cloth, then wash with soap and water.

As I say, the best I can promise you is that it'll lighten up the spots.

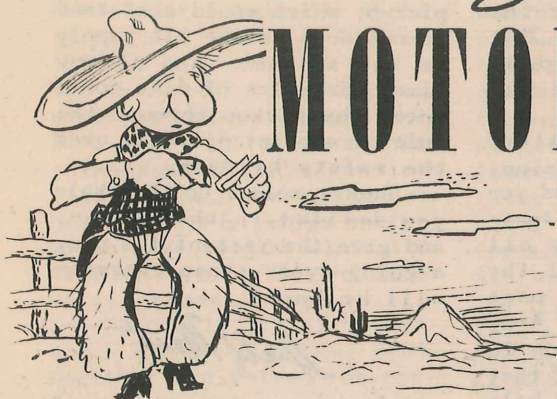
Lustreless paint soaks up grease like a blotter soaks up ink. And it's just as hard to get out.

*Half Mast*



# Home Made

# MOTORCYCLE TOOLS



**Roll your own if it'll help  
you do your job more easily.**

"I could do it if I onely had the tools," is a gripe that rings throughout the length and breadth of the land. It's an honest gripe too — strangely enough — because, as our old Uncle Flaccid used to say when sober, "A mechanic is oney as good as the tools he's got."

"Is oney as good as the brains he's got," we echo. But be that as it may, the true test of the honest-to-john mechanic is his ability to make tools when he needs them and finds himself without them.

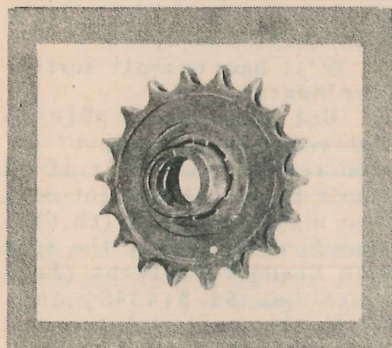
Sadly enough, the motorcycle mechanic often faces the test, often needs tools and finds himself without them. Motorcycle tools are highly specialized.

Confronted with this predicament, T/Sgt. I. L. Phillips, Mr. C. F. Valentine of the Motorcycle School, and T/Sgt. Charles Schlueter of the Machinist School at Holabird took matters into their own hands. Do they need a tool? They make a tool. Do they have enough cash on hand? They would still almost rather make the tool than buy it. Today they are past masters

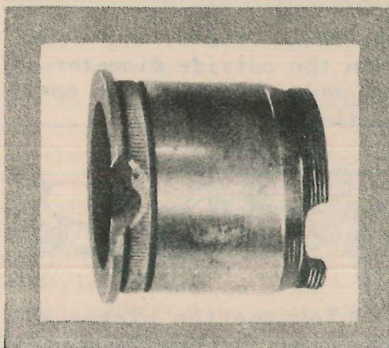
in the art of tooling a tool. Some of their tools are factory replicas made from factory blueprints. Some they invent. And they make blueprints of most of their inventions.

So cast your eye over the accompanying gallery of pictures — if any of them strike your fancy, write our READERS SERVICE EDITOR a letter and he'll send you a blueprint of what you want.

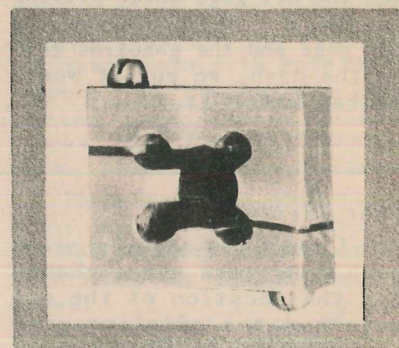
But at any rate, let our pictures be your guide — if you don't have a tool and you need it badly enough, haul out the old scrap iron and carve one out for yourself



Here's a clutch tool made out of nothing more than an old countershaft sprocket and primary-drive-case spiral bushing. They tell us it's used to relieve pressure on the clutch disc by compressing the pressure plate. Cost: a little time, a little trouble and some good common sense.

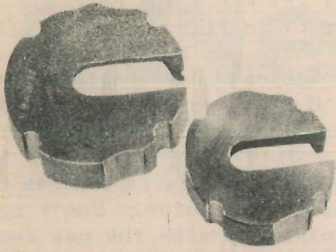


Tool for cutting and re-surfacing the crankcase-bearing housing. Made from an old housing, it cuts the bearing seat deeper so that the bearing housing can be seated deep enough to take up crankshaft end-play. It's used after other adjustments fail to take up end-play.

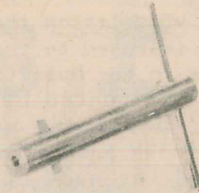


Fork-stem die for Indian, model 340 — 640B — 641. Die is split in two pieces held together by two bolts. It's used to rerun and clean up threads on fork stem. Start it where the threads are good, bolt the two pieces together and run the die out over the damaged threads.

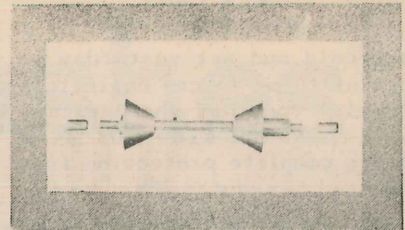




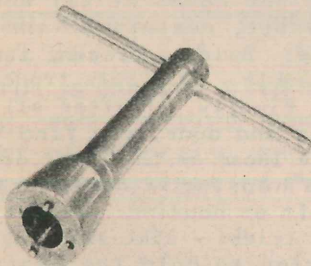
Plates for aligning connecting rods. Harley plates redesigned for use on Indian rods. Saves taking Indian crankcase and flywheel apart for aligning con rods.



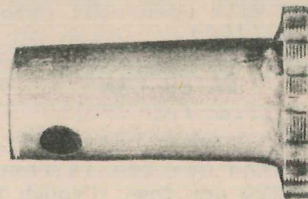
A cutting tool for cutting a ridge off of cam-gear bushings in Harley 45 WLA to enable you to check end-play accurately with a feeler gage.



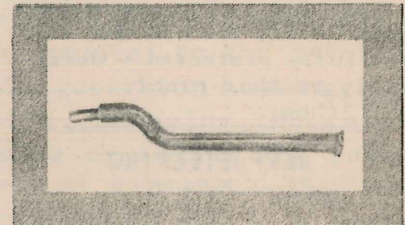
Universal hub-attachment for truing wheels. Works on any cycle in the Army. With this adapter, you can true Indian wheels in the Harley truing stand.



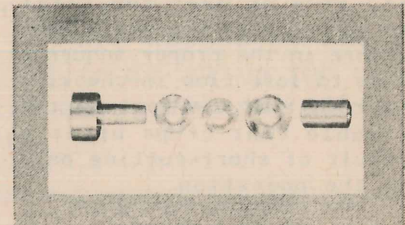
A handy tool for removing and installing the bearing in the front wheel of the Harley-Davidson 45 WLA motorcycle. Works easier than the factory's tool.



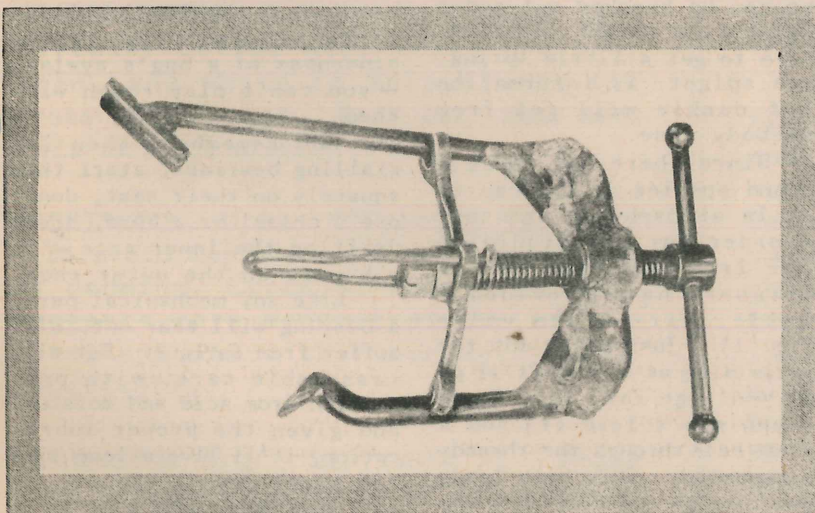
Wheel-hub tap for Indian 340. Made from a wheel-hub nut with threads cut at intervals so cuttings won't ball up. It's welded to a pipe - then tempered.



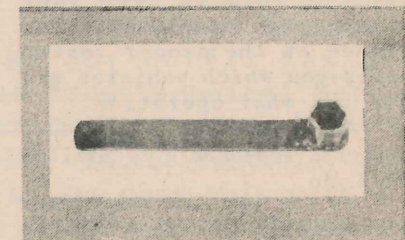
Offset drift for removing tappet guides on Indian 640B, 641, 340 and 741. Too many things are in the way for you to do the job with a straight drift.



A tool for removing and replacing lower connecting-rod bushings on the Indian 340, 640B, 641, 741, 841. It's a scrap-metal copy of a factory tool.



Front-spring-link bender for Indian 340 made from old pipe-fitters' vise, etc. Straightens or bends one link to match the other, right on the frame.



Spark-plug wrench for shop use. Use the socket from the driver's tool kit, weld a piece of strap iron to it and bore a 1/2 inch hole so the plug can protrude.



## OPEN CABS

(From Page 195)

the cold and wet yesterday in one of them, we can definitely promise you that the new canvas tops and side curtains offer complete protection from the elements. The side-curtains are good and tight; celluloid windows in the side curtains allow plenty of visibility and at the same time offer maximum weather protection; the canvas roof slopes downwards overlapping the side curtains, providing a tight seam. Take our solemn word for it, the new open cabs are fully protected - definitely weather-proof.

Achoo.

## JEEP STEERING

(From Page 211)

position when the steering assembly is in its exact central position, the steering connecting rod can be replaced on the steering arm (pitman arm).

Take our solemn word for it, it's quicker and safer to run through the whole procedure in the proper sequence than to lose time in checking back to find the root of the trouble that crops up as a result of short-cutting part of the operation.

## DUTY ROSTERS

(From Page 218)

tough run, a truck should get the weekly check immediately.

Anyway that's the story of duty rosters. Don't be afraid of them. They're just a convenient form to keep your maintenance records on. One glance at the proper roster tells you which vehicles are due for what operation.

And if you can't get duty rosters, reasonable facsimiles will do.

By the way, we swiped the information for this little piece from a revision of TM 10-545 ('Motor Vehicle Inspections and Preventive Maintenance Servicing') which ought to be on the market pretty soon.

## RIFLE BRACKET

(From Page 205)

Bulletin which is on the verge of being released to the field. According to the bulletin, the bracket is mounted by means of nuts, bolts and washers through holes punched in both sides and the back (thus it can be bolted at either of the sides or the back).

The bracket may be mounted horizontally, vertically or in the late afternoon.

What vehicles are going to get the new rifle brackets is a little secret to be revealed by the Tables of Basic Allowances. But an informed source tells us that two each of the new rifle brackets have been specified for late-model vehicles with open cabs (story on page 194).

## WATER CAN

(From Page 193)

All cookie has to do to clean the new can is thrust his furry arm down through the wide mouth and swish soapy water around.

For complete safety in carrying liquid foods the new can has a 'high-baked', synthetic lining which is not affected by chemicals in foods. For easy dispensing of liquids from the new can, a small plug located in the center of the cap can be knocked out and a spring-type spigot inserted. Where to get a little spring-type spigot, is information that cookie will get from somebody else.

Since there has to be a second opening in the can to let in atmospheric pressure in order for the liquid to pour from the spigot, the designers have provided a little, air-intake valve (Fig. 1). Just screw out the little plug as far as it'll go (it won't go far, it's stuck so you won't lose it) and a little hole through the threads is revealed. This hole leads down through the plug into the can - air is free to rush in and push the liquid out.

The new 5-gallon water can is not what you would call a

piece of vehicle equipment - that is, not every vehicle will get one. The best way we know of to find out which will and which won't, is to look in the Tables of Basic Allowances.

But the point we wanted to leave with you, is that there is a difference - the new 5-gallon water can is a horse of a different color. Don't get it mixed up with the gas can. Take a good look at the cap.

## BALL BEARINGS

(From Page 207)

ing of both the shaft and ring -- don't depend on a clamp nut to hold a loosely-fitted race.

A too-tight fit may cause the ring to crack. If you've got any doubt at all about the fit, measure it and be sure. A loose bearing isn't a gamble - it's sure trouble.

Finally, if after all is said and done, you find the race loose on the shaft or in the housing - replace the shaft or housing. Don't try any tricks - like shimming or trying to hold the bearing with a clamp nut. Replace the shaft or the housing.

If you don't get anything else out of this article there's one thought we'd like you to take away with you: Use clean hands, clean tools and clean lubricant in handling bearings - they're precision parts manufactured to the closeness of a bug's eyelash -- you can't play rough with them.

And remember, when installing bearings, start them squarely on their seat, don't use a chisel or a hard, steel drift on the inner race - or a hammer on the outer race.

Like any mechanical part, a bearing will wear out, will suffer from fatigue. But with reasonable care, with protection from acid and moisture and given the proper lubrication, it'll live a long life and happy one.

And because you're a mechanic and reap the rewards of a job well done - so will you.



# News Flashes

WASHINGTON, SEPTEMBER 8 - Change 5 to FM 101-5, paragraph 17 d., will outline for you the new rights, privileges and duties of Automotive Officers on the staffs of separate commands, divisions and higher units.

WASHINGTON, SEPTEMBER 1 - AR 55-170 says the Chief of the Transportation Corps is charged with applying, regulating, and removing embargos on the movement of property, and lists the related responsibilities of Post Transportation Officers.

HOLABIRD ORD. MOTOR BASE, SEPTEMBER 30 - The latest interpretation of the term 'emergency local procurement,' applies the term to the area served by the procurement agency.

HEADQUARTERS, S.O.S., SEPTEMBER 25 - Circular Letter 603, tells you how, when, and where to ship bronze and brass for salvage. Read it...they need this metal badly.

WASHINGTON, D.C., SEPTEMBER 25, 1942 - To avoid depletion of existing stocks of cadmium, Circular Letter No. 361 suggests more economical use of the metal and names thirteen acceptable substitutes.

WASHINGTON, D.C., SEPTEMBER 21 - Property Officers at Ports of Embarkation and staging areas will be happy to see the simplified accounting procedure (for individual equipment, organization equipment and other supplies) that is outlined in Circular No. 322.

SIGNAL OFFICE, ARLINGTON, VA., OCTOBER 22 - If any of your vehicles are delivered with the generator capacitor (which is a little condenser-like cylinder), mounted to the painted surface of the generator housing, correct the fault by removing the capacitor and scraping or filing the paint off at the area of contact. Then replace the capacitor.

SPECIAL TO ARMY MOTORS, OCTOBER 29. Because each container of Bendix Cleaner (F.S. Number 51-S-4345) has a thin layer of sealing liquid that floats on top of the cleaning solvent itself, you are warned by the manufacturer not to divide up the contents of one can among several other cans or buckets.

## *What's in a Name?*

No matter what they call the bush, the rose always has the same old smell. So don't get the screwy idea that Army Motors will be any different just because the name of our outfit has been changed from Technical Service Division to Maintenance Engineering Unit. To the contrary, along with its new name this unit will try to do even more for you than it ever has before. See the November ARMY MOTORS for a complete story on the functions, policies, publications, and services of the MAINTENANCE ENGINEERING UNIT.



# SECRET

# MILITARY

# A



TSB's (and similar technical dope) are kept buried in Headquarter's files like military secrets that'd aid and comfort the enemy. Why?

The only persons TSB's will aid and comfort are the working mechanics. Give 'em to them as needs 'em!