

# The 'A M M OTORS

ARMY

MOTORS

VOLUME 2

OCTOBER 15 1941

NUMBER 6

THE HOLABIRD Q.M. DEPOT

MOTOR TRANSPORT SCHOOL

BALTIMORE, MARYLAND



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Address all correspondence to: The Editor,  
Holabird Quartermaster Depot,  
Baltimore, Maryland.



# THE 'AM

VOLUME 2

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NUMBER 7

HORSE SENSE IS ONE THING YOU CAN'T LEARN FROM ANYBODY, NOT EVEN A MOTOR TRANSPORT INSTRUCTOR OR THE WRITER OF AN ARMY MOTOR MAINTENANCE TEXT. YOU'VE PROBABLY GOT A LITTLE OF IT ALREADY—MOST OF US HAVE—BUT ONLY *you* CAN DEVELOP IT AND PUT IT TO WORK. IF YOU DON'T, ALL THE RULES IN THE BOOK MAY BE USELESS.

JUST TO SEE WHETHER WEBSTER HAD EVER HEARD OF IT, WE LOOKED UP THE EXPRESSION IN THE DICTIONARY. THERE IT WAS: "HORSE SENSE—INSTINCTIVE PRACTICAL COMMON SENSE. *Colloq., U.S.*" THOSE LAST WORDS, *Colloq., U.S.*, INTERESTED US ESPECIALLY. THEY SEEMED TO MAKE HORSE SENSE THE SPECIAL PROPERTY OF AMERICANS, FOR THEY ALONE IN THE ENGLISH-SPEAKING WORLD USE THE TERM. USE THE TERM, THAT IS—BUT NOT ALWAYS THE HORSE SENSE.

LET'S TALK ABOUT COLLARS FOR A FEW MINUTES—NOT HORSE COLLARS AND NOT COLLARS THAT SERGEANTS GET HOT UNDER, BUT THE IRON OR STEEL COLLARS THAT MAKE A SHAFT FIT IN AN OPENING THAT WOULD OTHERWISE BE TOO BIG FOR IT.

THE OTHER DAY WE HEARD A COMPLAINT THAT HAD COME TO HOLABIRD FROM THE FIELD. SOME OF THE BOYS HAVE BEEN HAVING A BIT OF TROUBLE IN BORING THE CAMSHAFT BEARING OF A 1941 CHEVROLET, BECAUSE THE BORING BAR REGULARLY SUPPLIED TO THIRD-ECHELON MAINTENANCE UNITS WON'T FIT. IT WAS DEVISED BEFORE THE 1941 MODELS CAME OUT, AND CAN BE CENTERED IN THEM ONLY WITH A SPECIAL KIND OF COLLAR.

"O.K.," THE BOYS SAY, "GIVE US THE COLLARS, AND WE'LL USE 'EM." AND THAT'S WHERE THE HORSE SENSE COMES IN AGAIN. YOU SEE, IT'S EXPENSIVE AND CUMBERSOME TO CARRY AROUND A LOT OF DIFFERENT SIZE COLLARS THAT MAYBE YOU'LL NEVER USE. SO THEY AREN'T SUPPLIED. YOU ROLL YOUR OWN. HOW? LIKE THIS:

SOMEWHERE A RESOURCEFUL THIRD-ECHELON MECHANIC NEEDED A LARGE COLLAR IN A HURRY FOR A CAMSHAFT BEARING. THE ONLY ONE THAT HAPPENED TO BE KICKING AROUND WAS MUCH TOO SMALL. BUT TRAGEDY, GENTLE READER, WAS AVERTED BY OUR HERO. ON HIS LATHE HE TURNED THIS COLLAR TO A SIZE THAT FITTED PERFECTLY.

WHEN HE GOT BACK TO CAMP, HE MADE ANOTHER FROM A PIECE OF SCRAP IRON TO REPLACE THE ONE HE HAD ENLARGED. HE COULD HAVE MADE THE CORRECT ONE FROM SCRAP IRON IN THE FIRST PLACE IF HE'D HAD ANY.

NO MATTER WHAT KIND OF CAMSHAFT BEARING THE MANUFACTURERS CONCOCT, THAT MECHANIC WILL KNOW HOW TO BORE IT WITHOUT SENDING FRANTIC SOS CALLS FOR ANOTHER KIND OF COLLAR.

HE KNOWS HIS OATS.



Cartoons for this article furnished by U.S. Rubber Company

Gentlemen, before beginning the strangest story ever published in this magazine, a brief note of warning:

*The following information is not to be used by speculators or profiteers for their own selfish ends. All persons found hoarding or looting the materials named in this article with a view to "getting-rich-quick," will be subject to military court-martial. However, sensible conservation of the materials will be encouraged.*

Incredible as a tale told by an idiot, was the series of events that began a half hour after midnight, January 3, 1942. At that moment, the United States of America was cut off completely from its rubber supply --- profoundly vital to national life and defense.

From that moment on, the huge stocks of reserve rubber dwindled rapidly until on March 5, all civilian use of rubber was prohibited. Private automobile traffic came to a standstill, with millions of passenger vehicles lining the streets and highways of the nation. The mad vision of



rusting automobiles stripped of tires, rubber gaskets and insulation, became a commonplace.

On April 12, a desperate, emergency "rubber" drive brought forth millions of hot-water bottles, overshoes, garden hoses, nipples, sink stoppers and corsets. Three million pounds of scrap rubber thus collected, only momentarily relieved the crisis.

In the early morning of May 26, sixteen men and three women were executed in Philadelphia, Pa., by a firing squad after they were discovered hoarding stocks of rubber. For the next three weeks the tabloid newspapers headlined the uncovering of each new "rubber band" by the FBI.

The latter part of the year 1942 constituted the "Substitution" period of American rubber. With the production of synthetic rubber satisfying only 8 percent of the country's needs, a frenzied scramble to substitute for rubber began. Iron tires appeared on military vehicles and were discarded because they couldn't meet the high speed requirements. Cloth and fiber "pneumatics" were tried with various degrees of failure.

Then on February 6, 1943, the Associated Press released a story about a twelve-year-old child wonder in Columbus, Ohio, who had developed an amazing new material with almost three-fourths the life and flexibility of rubber. For an agonizing six weeks there was complete silence. Then a story leaked

out that the tremendous hoard of gold buried in the ground at Fort Knox, was being rushed to industrial plants throughout the East. Rumor ran riot until the public clamor for news could no longer be stilled.

On May 9, the Department of the Interior announced that a new substitute for rubber had indeed been discovered, but declined to give details. Wall Street was thrown into a panic and unloading on the stock exchange



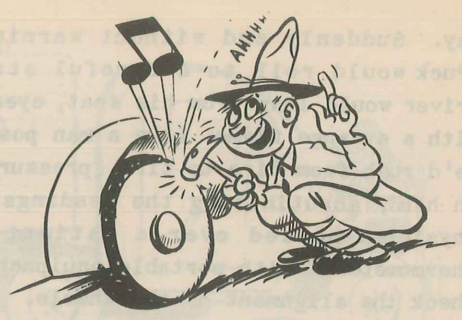
reached hysteria, as confirmation of the story that the nation's gold was being distributed to factories, reached the street.

A radio announcement by the President was suddenly scheduled and at 9 P. M. Thursday, June 2nd, the President of the United States delivered a fireside chat in which he announced that the country was going off the gold standard and adopting rubber as a base for its currency. The reason, he stated, was that the new substitute for rubber consisted mainly of common sand, wood fiber and GOLD.

For ten shattering days and nights, the economic structure of the United States and Latin America rocked and swayed. The number of suicides reached staggering proportions. A man in Los Angeles, California, announced that he would lead a procession of the faithful to the end of the earth, which he declared was in a hitherto unknown corner of Death Valley; from that point, both he and the faithful would step off into heaven.

The first "golden" tires appeared in the Army maneuvers during August and September. They were of a shimmering blonde color and gave off a musical sound when tapped with a hammer.

From Tin Pan Alley came the song: "Your Hair is Like the Gold of a Tire" and a housewife in Little Rock won \$5000.00 in a contest for naming a new cola drink, "Golden Tire Cola."

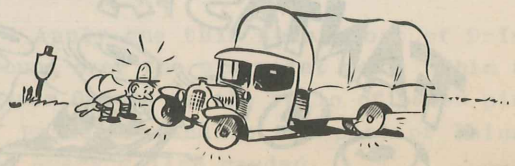


Apropos of the fact that the money of the nation was based on rubber, the newspapers played lightly on the stories of people who were arrested because they signed checks which "didn't bounce." A radio wisecracker said, "Goodnight folks, and don't take any golden nickels --- Ha, ha, ha, haaah."

Since the new, golden tires were issued for use on Army Motor Transports only (there being virtually no civilian motor traffic), strict orders on tire care were issued from the Office of The Quartermaster General in Washington.

In the old carefree days, circa September 1941, constant exhortations had flowed forth from that office on keeping tires properly inflated and wheels properly aligned. But like the gentle rain that falleth from heaven, they were just one of those things. Sometimes you did, sometimes you didn't. Millions of tire miles were cast in the gutter --- it was estimated that five pounds of continued underinflation, lost over 20 percent of the tire mileage; one half inch of improper alignment dragged the tire sideways 87 feet in every mile. Over the broad countryside a wide river of valuable rubber had poured, uncared for, into the limbo.

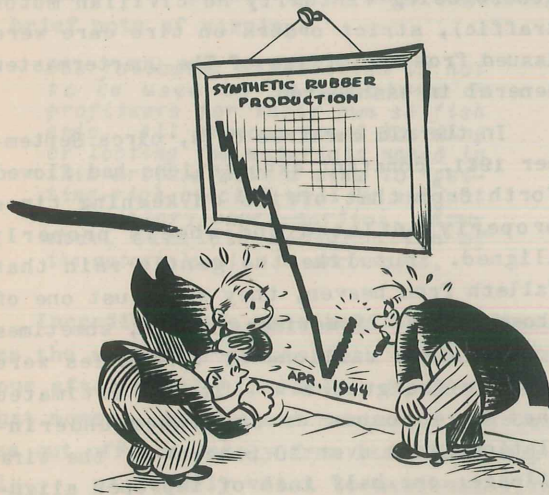
But with tires made of gold, a strange psychosis born of past values seized the truck drivers of the Army. Unneeded were the penalties for disregard of tire needs, threats were unnecessary. A strange zeal for tire care settled upon the minds of military drivers. A two and a half ton truck would be seen riding along the high-



way. Suddenly and without warning, the truck would roll to a careful stop, the driver would leap from his seat, eyes alight with a strange flame. Like a man possessed, he'd rush from tire to tire, pressure gauge in hand, scrutinizing the readings like a physician poised over a patient with a thermometer. With portable equipment, he'd check the alignment of the wheels.

Anxiety relieved, the driver would sigh deeply, whisk a stray speck of dust from the tire and carefully proceed another four miles upon his way.

Tragic to see, however, was the chauffeur who found a tire an eighth of a pound underinflated. One stalwart, bronze youth to whom this happened was found face down, roaring and sobbing in the gutter, feet flailing the earth like an anguished child.



For eight more months the situation continued. Then in April 1944, the tide began to turn. The production of synthetic rubber rose and rose. In June, the golden tires disappeared and synthetic rubber took their place. Gradually, ever so gradually, normalcy returned --- until at last gold was restored to its rightful place and rubber stepped down to its own base, yet vital station.

Thus ended the weirdest era of American history. The "Rubber" period stretching from January 3, 1942, to April, 1944. Slowly, ever so slowly, the hectic days settled back into history like savage waves after a storm, fading back, becoming a part of the dimming past.

And the only remnant of those wild days are the military truck drivers of the present. Though rubber abounds in good and plenty, the habits generated by the epoch of the Golden Tires continues. Like a throwback to the dead past, is the tradition of looking after tires --- the terrible dopelike urge to see that the tires are all right.



On a bright summer's morning, you might see an olive-drab truck riding along the highway.

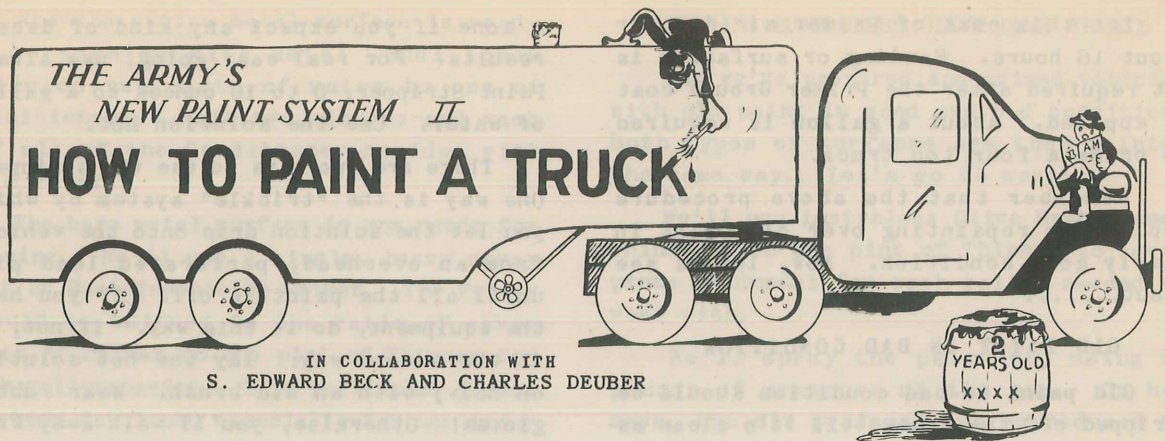
Suddenly and without warning, the vehicle rolls to a careful stop, the driver leaps from his seat, eyes aflame. Feverishly he rushes from tire to tire, pressure gauge in hand, scrutinizing the readings hungrily. With portable equipment he checks the alignment of the wheels.

Anxiety relieved, he sighs deeply, pats the tire tenderly and rolls upon his way -- a noble dungareed figure nursing his truck west down the golden highway to where the sun is setting.

Tonight he'll dream and in his dream, he'll check the tires, and check the tires .....and.....check.....the.....tires..... ZZZ.....check.....Zzz.....the.....zzzzzz .....zzzzzz.....tires.....zzzzzzzzzzzzzzzz.

A slave to the golden past.





IN COLLABORATION WITH  
S. EDWARD BECK AND CHARLES DEUBER

Sweat and blood are the chief ingredients of the paints that graduate from the little testing lab at Holabird.

Paints are knifed, scratched, drowned, bruised, disemboweled and bent in the testing. Next thing you know they'll be fried like an egg.

But one thing you must remember: all paints undergoing tests are applied to surfaces the "Army way," and these paints will stand up best, under conditions represented by the tests, only if they are applied the good, old Army way. Don't put 'em on dogpatch style!

Today's lesson deals with applying new paint over old paint in good condition and bad. Both spraying and brushing are considered.

#### IF THE OLD SURFACE IS GOOD

Use Light Duty Cleaner to prepare the chassis and under-frame for painting. Dissolve an ounce or two of the cleaner in a gallon of water and spray it on hot with a steam gun. If you don't have a steam gun, mix one quart of Degreasing Solvent with five quarts of kerosene and spray it on. Let it stand for thirty minutes --- then flush it off with water.

Don't use the Light Duty Cleaner or the Degreasing solution on the body paint. Sponge the body paint with soap and water. Use regular Army issue soap with cold water. Sponge the vehicle body with sidewise strokes, moving upward from the bottom of the vehicle, to avoid streaking. After washing, rinse off all soapy water with plenty of clean, cold water.

Now rest 'yore' weary bones until the vehicle is thoroughly dry.

Your next step will be to get rid of the rust and loose paint that are clinging to the old paint job. Massage off the rust with a stiff wire brush and sand off the cracked, loose and blistered paint 'til the bare, metal hide of the truck is exposed. With an old brush or a rag, carefully apply Metal Conditioner (2 parts water to 1 part Conditioner) to the bare metal and the rusty spots. Leave it on for two minutes then slosh it off with water.

The Metal Conditioner-water solution removes rust and produces a "tooth" or surface to which paint will cling like a bunch of barnacles.

Try not to get the solution on the painted surface. And don't get it on your hands --- use rubber gloves. If you do get it on your skin, apply baking soda, then douse with water.

Now sand the entire vehicle lightly with number 240 wet or dry paper and wash it down with mineral spirits (or a mixture of 2 parts of gasoline to 1 part of Synthetic Thinner).

You're about ready to start painting --- so mask the parts of the vehicle which are not to be painted, and "blow" the entire vehicle with air to remove dust particles.

Apply one thin spray coat of Primer Ground over the old paint coat. Thin the Primer Ground in the ratio of seven pints of Primer Ground to one pint of Thinner for every gallon needed.

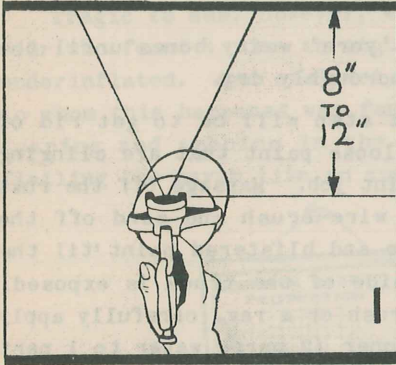
SEE PAGE 185 FOR SPECIFICATIONS ON ALL MATERIAL MENTIONED.

Let this coat of Primer air-dry for about 16 hours. Sanding or surfacing is not required after the Primer Ground coat is applied. About a gallon is required to prime a four ton truck.

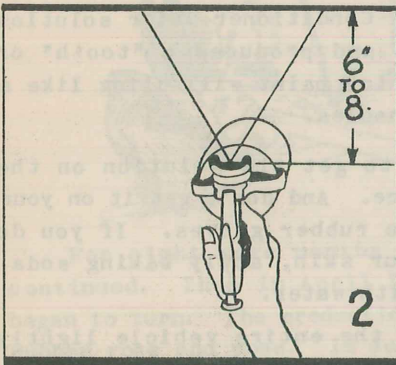
Remember that the above procedure applies to repainting over old paint in fairly good condition. Now, let us see about.....

#### OLD PAINT IN BAD CONDITION

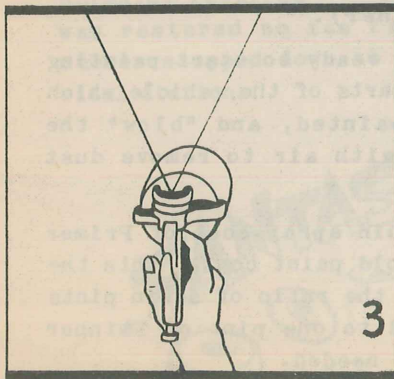
Old paint in bad condition should be stripped off the truck 'til it's clean as



1. When spraying enamels, gun should be held 8 to 12 inches from the work.

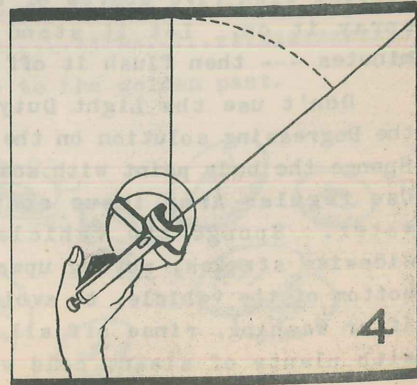


2. When spraying lacquers, hold the gun 6 to 8 inches from the metal.



3. Spray gun should always be held at right angles to the work. Do not swing the gun in an arc.

4. Holding the gun at an angle to the work generally results in a rough finish.



a bone if you expect any kind of decent results. For real easy going, use Alkali Paint Stripper, 6 to 10 ounces to a gallon of water. Use the solution hot.

There are two ways to use the stripper. One way is the "trickle" system by which you let the solution drip onto the vehicle from an overhead, perforated lead pipe until all the paint is off. If you have the equipment, do it this way. If not, do it the second way: lay the hot solution on heavy with an old brush. Wear rubber gloves! Otherwise, you'll walk away from the job with hands that're nothing but a fistful of bones. Let the stripper act on the paint for about five minutes then hose it off with cold water. Repeat the performance on spots where the paint hasn't come off.

After you've got all the paint off, remove every trace of the stripper with cold water. Be especially thorough at moldings, door jambs, etc. Any stripper that's left on the surface will raise all kinds of Cain with your paint job --- like blistering, whitening or removal of the paint.

#### A COUPLE OF HINTS

Keep stripper away from wood. Stripper swells wood like a belly full of beans --- then eats into it like an acid. Strip wood with solvent or burn or sand off the paint.

Stripper is poison on your skin --- if you get any on, wash it off quickly and neutralize any remaining alkali with vinegar.

Stripper is a little too tricky to spray on --- do it with a brush.

If messing around with an alkali stripper doesn't appeal to you, use other kinds of strippers such as chlorinated solvents.



Now the entire metal surface is ready to be treated with Metal Conditioner (diluted two parts of water to one of Conditioner). Wait two minutes and wash off all of the Conditioner residue with cold water.

The bare metal surface is now ready for priming. We'll use a single, heavy spray coat of Rust-Inhibiting Primer. The Primer should be thinned in the ratio of seven pints of Primer to one pint of Thinner for each gallon needed. This particular Primer has been developed especially for use under lustreless olive drab enamel and should be applied somewhat more heavily than ordinary Primers. A four-ton truck requires about one and one half gallons. Grease spots left on the metal under the Primer will soak through and give you a messy job that may need re-doing --- be careful!

Let the Primer coat air-dry for about sixteen hours. You need not surface it, sand it or use putty.

#### APPLYING LUSTRELESS OLIVE DRAB ENAMEL

Now we've prepared and primed vehicles with old paint in good and bad condition. Both types of surfaces are then painted the same way. Let's go to work:

We'll use Lustreless Olive Drab Enamel thinned with one pint of Thinner to seven pints of Enamel for each gallon needed to work with.

We'll spray the paint on, using 55 pounds of pressure at the gun. On hot days, the air pressure can be reduced 10 or 15 pounds --- reduce it though before you begin to paint so that the entire job gets the same pressure. If you don't, color changes will appear. Use the gun



5. When the gun is held at the correct distance from the work, and the air and color are properly adjusted, the pattern should be as illustrated.

6. A salt and pepper effect that is heavy in the center indicates that the air pressure is not high enough.

7. A dumb-bell shaped pattern, heavy at each end and weak in the center results from excessive atomizing air pressure.

8. When a pattern is wider at either top or bottom it indicates the fluid nozzle is clogged and should be cleaned.

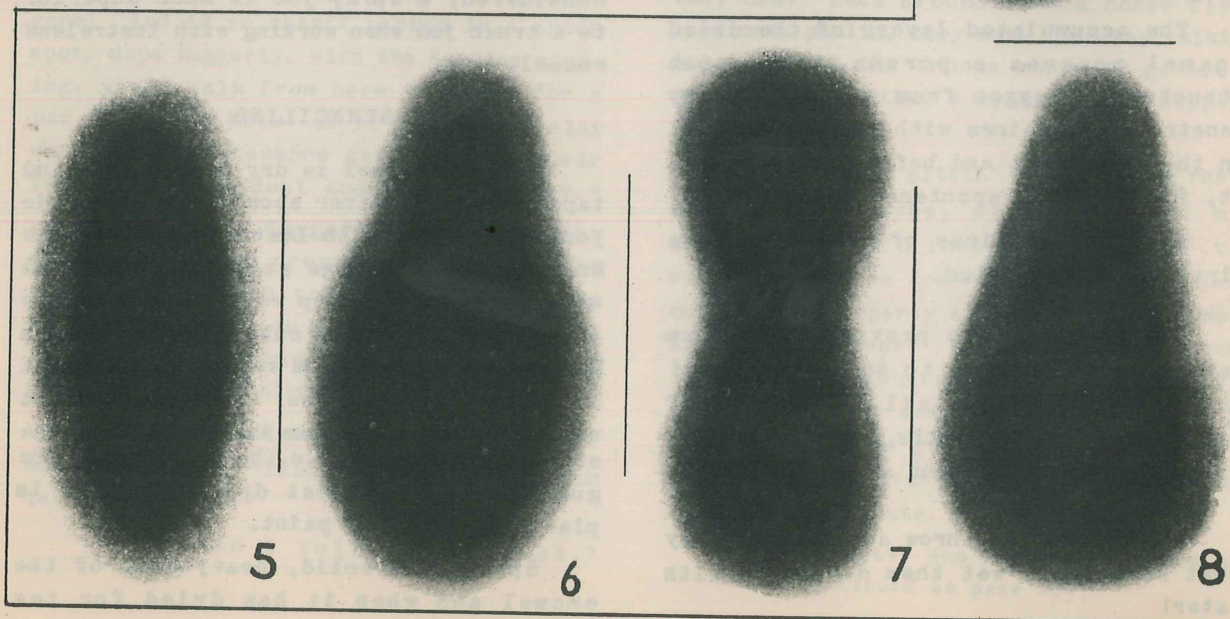
9. A crescent shaped pattern will be caused by a clogged air passage.

A wavy finish results when the gun is held too close to the work.

When the gun is held too far from the work, a rough pebbly surface results.



9



5

6

7

8

almost wide open to get a full, wet coat, and hold it no more than 18 inches away from the surface.

We've got to watch out for "dusting", that is, the paint hitting the surface in little half-dry blobs. In very hot weather, our Thinner may be too volatile, that is, it will evaporate before the paint hits the surface and cause dusting. The addition of two ounces of clean kerosene to a gallon of Thinner before it is used to dilute the paint, will relieve this condition.

If a heavy film of paint is desired, a second full wet coat does the trick. A drying time of two hours is best between coats, but it's worth the time and effort because two coats will give you a much better job.

The four-ton truck we have just painted, took about three gallons of enamel.

#### WARNING

Lustreless Olive Drab Enamel is a greater fire hazard than ordinary glossy paints. In the can it's safer because its ingredients are less inflammable. The fire hazard rears its ugly head in the spray dust. Wherever this dust has been allowed to accumulate and build up, (as in spray booths and corners and cracks of the paint shop) the danger of fire lurks.

The accumulated layers of the dried enamel possess a porous, honeycomb structure. Oxygen from the air easily penetrates, combines with the drying oils in the spray dust and before anyone knows it, flares up in spontaneous combustion.

A number of fires of this kind have already been reported.

The only way to prevent this from happening to you, is to *keep your paint shop clean*. Scrape all the spray off walls, out of spray booths, corners and any place else where it might accumulate.

And before you throw away these spray dust scrapings, wet them down well with water!

#### BRUSH APPLICATION OF LUSTRELESS ENAMEL

For shops which are not yet equipped with spray apparatus, a note on the brush application of lustreless enamel is in order.

First clean the vehicle and prepare it for paint the same as for spray application. For brushing, Primer Ground or Rust-Inhibiting Primer, is used just as it comes in the can --- or thinned no more than 5% (one-to-twenty). Brush on as thin a coat as possible. If the primer dries too quickly, a "slower" thinner is needed. Two ounces of clean kerosene added to a gallon of thinner will slow it up.

You'll need about three quarts of Primer for a four-ton truck. Let the Primer coat air-dry for about 16 hours.

For brushing, thin the lustreless olive drab enamel the same way you did the primer. In laying the paint on, "flow" it on and pass the brush through the paint as little as possible. Apply a medium heavy coat. One coat is satisfactory but two coats make a tougher and more lasting surface. Allow 16 hours drying time between coats.

Two gallons of enamel should do for a four-ton truck.

Remember, it is impossible to apply lustreless enamel by brush without leaving brush marks in the finished work. Streaking and flooding also occur. All things considered, a spray job is much superior to a brush job when working with lustreless enamel.

#### STENCILING

When the enamel is dry enough to stand taping (usually after about four hours) do your stenciling with Lustreless Blue Drab Enamel. Gummed edge stencils should be used to produce sharp edges and make the job easier. But trouble often occurs because the stencil gum sticks to the paint and causes dark smudges. Perhaps the best way is to apply the gum to the back of the stencil, rather than to the paint job. The gum should be almost dry before it is placed against the paint.

Spray on a solid, heavy coat of the enamel and when it has dried for ten

minutes, remove the paper stencils.

If gum smudges remain, wipe them off lightly with gasoline after the enamel has dried for two hours. Be careful not to get gasoline on the numerals or designs themselves.

Now, remove the masking tape, clean the windows and tires, and give the job a final inspection. Except for another sixteen hours drying time which the vehicle should have if possible, your job is done. There may be some old-timers in the audience who as they read this, remember a few tricks they have up their sleeves about painting. But as far as painting with the new lustreless enamel goes, that's where they ought to leave their tricks --- up their

sleeves. For the paints which have been selected by the Army will do the job best only when the above procedure is followed.

#### SPECIFICATIONS:

*Light Duty Cleaner - QMC Tent. Spec. ES-542*  
*Degreasing Solvent - QMC Tent. Spec. ES-398a*  
*Metal Conditioner - QMC Tent. Spec. ES-431a*  
*Synthetic Thinner - Specification ES-370b*  
*Primer Ground - QMC Tent. Spec. ES-360a*  
*Lustreless Olive Drab Enamel - QMC Tent. Spec. ES-474c*  
*Lustreless Blue Drab Enamel - QMC Tent. Spec. ES-510b, Type A*  
*Paint Stripper Alkali - QMC Tent. Spec. ES-452a*  
*Primer, Rust - Inhibiting, Spec. ES-359b*

# Jumpin' Jeeps O'Flaherty on supply

Haggerty gave a grunt of disgust and flicked a shower of sweat from his brow to the dusty road. "Jumpin' Jeeps! That fuel pump would have to die when there's no spare handy."

Walking around to the cab he leaned and nudged O'Flaherty into wakefulness. "Yea, I know", O'Flaherty yawned, "the pump's gone. And if we wasn't parked in a shady spot, dope Haggerty, with the birdies singing, you'd walk from here to Wayne for a new one. But bein' as it is, we'll relax until the maintenance gang can get their tails outa the dust and roll this way."

"You know, Haggerty" and Haggerty rolled over and propped himself on the trunk of the tree to listen, "what this Man's Army needs is a new supply system. I got it all worked out. A honey. And when I tell the Colonel ...."

"You'll be Private O'Flaherty again," mused Haggerty. "Like the time the Old Man let you try ...."

"And when I tell the Colonel,"

O'Flaherty repeated grimly ....

".... The whole supply system will work bee-utifully," Haggerty finished.

"Yea, you doughhead it will. Like this it'll work. You seen those jeep airypplanes at the maneuvers—the ones they used for observation? 65 horse, 4 cylinder engine they had. Duck around like a horse fly. Land on a paulin, they can. Two-way talkie sets to tell the troops where to go—remember? Well, that's my emergency supply system."

"Look at us. Sittin' here for the rest of the day, maybe, all on account of because we need a fuel pump. Holdin' up vital supplies we are—whole division wiped out because Haggerty ain't got a fuel pump. What's the answer? Listen! What we need is aerial maintenance. Flick a switch in the cab, whisper sweet nothin's in the ear phone and before you know it that little flyin' jeep is over dropping the part you need in a parachute.

"What's that? Who's going to waste an  
(Continued on page 204)

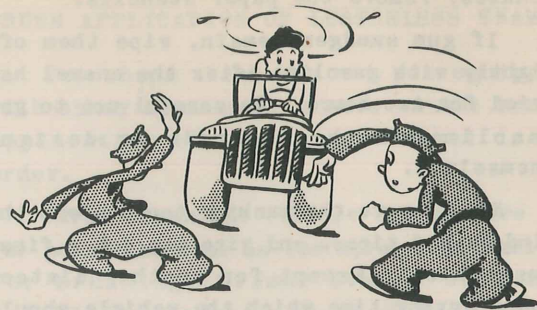
# what's the meaning of this?

We hear there's been quite a question about who commands whom in motor march movements. The law on this is laid down in paragraph 66 of FM 25-10, but different people seem to read different meanings into words. For the sake of clarity, here's an unofficial opinion on the question.

A motor vehicle unit - car, truck or otherwise - which is an integral part of say, a regiment, is naturally under direct control of the regimental commander on the march or any other time, just like any other unit of the command. Any troops that it transports as part of a regimental activity are also commanded by the regimental commander.

However, if a division commander or higher command orders a Quartermaster Motor Transport unit to transport a regiment of which it is not organically a part, the Quartermaster unit commander is in full control of the motor unit and the convoy. The troop commander doesn't control the operation of the column except in a tactical emergency, but does administer and discipline his troops as long as his orders do not interfere with the operation of the motor march.

Ah ha! you're probably muttering. Who decides what is a tactical emergency? Technically, of course, the senior line officer is responsible for deciding and if he decides right, fine and dandy; but if he decides wrong, well ... you guess. Practically, you'll usually find that the march unit commander and the senior line officer will talk things over - in a hurry if the tactical emergency is emerging - and decide together what to do. Cooperation between commanders in matters like this is absolutely essential and the only sensible way of getting anywhere.



Following up our NEWS FLASH in the August issue, here's something further on the distinction between various motor transport terms. The following are unofficial definitions, but they sound reasonable to us.

**ORGANIC.**- Permanently included, by authority of Tables of Organization or other competent order, as part of a single command.

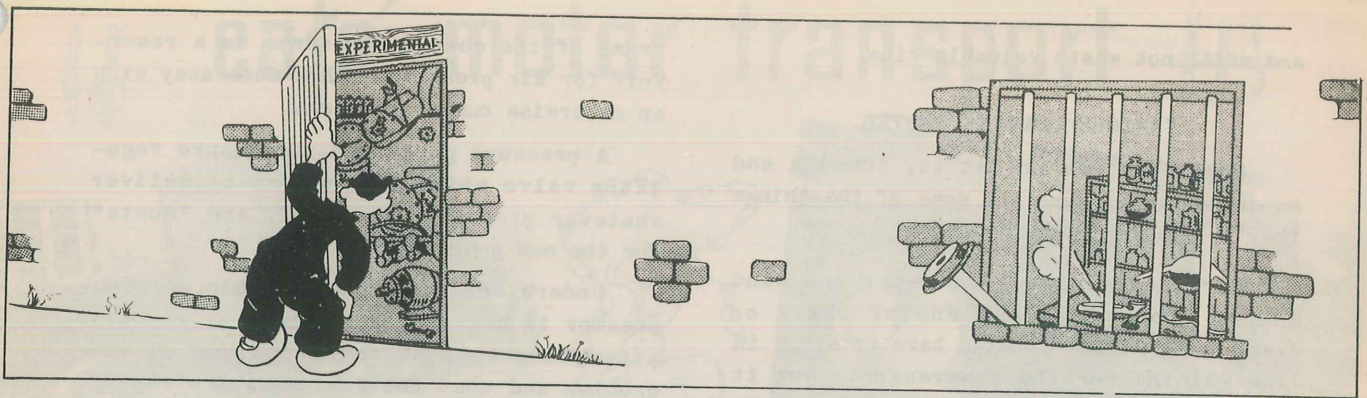
**CONVOY.**- Vehicles organized to operate as a column to transport troops or supplies which remain under control of a commander other than that of the column.

**TRAIN.**- Organic vehicles, organized for the purpose of transporting weapons, equipment, and supplies of their unit.

(Continued on Page 200)

PROPOSED DISTINCTIONS BETWEEN SOME MOTOR TRANSPORT TERMS:	CONVOY	TRAIN	MOTORIZED UNIT	MOTOR COLUMN	MOTOR MARCH UNIT	MOTOR MARCH
AN ACTION OR METHOD OF ACTION	MAYBE	NO	NO	NO	NO	YES
A MILITARY UNIT	YES	YES	YES	YES	YES	NO
A GROUP OF VEHICLES	YES	YES	YES	YES	MAYBE	NO
ONE VEHICLE	NO	MAYBE	MAYBE	NO	MAYBE	NO
VEHICLES AND LOADS PART OF SAME MILITARY UNIT	NO	YES	YES	MAYBE	MAYBE	MAYBE
MOTOR VEHICLES	MAYBE	MAYBE	YES	YES	YES	NO
TRANSPORTS PERSONNEL	MAYBE	MAYBE	YES	MAYBE	MAYBE	MAYBE
TRANSPORTS WEAPONS, EQUIPMENT, SUPPLIES	MAYBE	YES	YES	MAYBE	MAYBE	MAYBE
TRANSPORTS PERSONNEL OR THINGS	YES	MAYBE	YES	MAYBE	YES	YES
OPERATES AS A UNIT	YES	MAYBE	YES	YES	YES	MAYBE
MARCHES ON SINGLE ROUTE	YES	MAYBE	MAYBE	YES	YES	MAYBE
MARCHES ON SEVERAL ROUTES	NO	MAYBE	MAYBE	NO	NO	MAYBE
SINGLE COMMAND FOR LOAD AND VEHICLE	NO	YES	YES	MAYBE	MAYBE	MAYBE
* VEHICLES UNDER ONE COMMAND. - LOADS ANOTHER	YES	NO	NO	MAYBE	MAYBE	MAYBE
A CONVOY	YES	NO	NO	MAYBE	MAYBE	MAYBE
A TRAIN	NO	YES	NO	MAYBE	MAYBE	NO
MOTORIZED UNIT	NO	NO	YES	MAYBE	MAYBE	NO
MOTOR COLUMN	MAYBE	MAYBE	MAYBE	YES	MAYBE	NO
MOTOR MARCH UNIT	MAYBE	MAYBE	MAYBE	MAYBE	YES	NO
MOTOR MARCH MADE BY	YES	YES	YES	YES	YES	NO

\* EXCEPT IN A TACTICAL EMERGENCY



The United States has enough of the most valuable raw material in the world to give every man, woman, and child five million times as much as they will need in the next two million years. There is enough left over for cats, dogs, snakes, rabbits, raccoons and alligators. But if we don't soon find a way to stuff it into truck tires faster--it's good night shirt! The most valuable raw material in the world today is air. Plain old fashioned air. To breathe, to sail boats in, to fire torpedoes with, to run trucks on. Air! And the biggest problem today is how to get it into truck tires fast.

To begin at the beginning, let's go back to the tire-testing convoy of May 1941, (The September 'AM). One of the astonishing results brought home by this tire-testing convoy is the fact that military truck tires are good for *ten times* the mileage the Army gets out of them. The prime reason why the Army isn't getting it's money's worth is that tires aren't being kept properly inflated.

After much talk and further testing, it was stated that tires must be checked for proper inflation at least every three days and filled, if need be.

#### PLENTY OF AIR--LITTLE TIME

But then came the rub. There are 630

THE ENGINEERS  
WEEP BITTER TEARS  
FOR WANT OF A PUMP~~  
A PORTABLE, POWERFUL,  
PRACTICAL PUMP~~  
TO INFLATE A FLAT  
IN NOTHING FLAT~~  
OR BETTER'N THAT.



tires to be checked in a typical truck company. How long does it take to fill them, using the compressor in our present Third Echelon mobile truck? With trucks parading around it, merrv-go-round style, or with the compressor mounted on a trailer, we got as much confusion and hoop-de-do as a three ring circus--and you simply can't calculate the time. Not to mention that a truck outfit is lucky if it can find a mobile air compressor oftener than once in two weeks. Can we, under present conditions, afford to spend as many hours as we do to check tires?

You can answer that question three ways: We can take it easy and check tires less often. Which of course means we get only one-tenth the mileage built into tires (more or less, depending on just how often we decide to check them). But this is a heck of a note--what with our future rubber supply in danger.

Then we can go ahead and check tires every three days. This saves a lot of rubber but with present equipment we waste a lot of valuable time.

In either case: it's save time and waste rubber or save rubber and waste time.

But there's a third road open--and it happens to be the road the Engineers are traveling, to wit: Beg, borrow, steal or invent some device or procedure to help get air into tires at least every three days

and still not waste valuable time.

#### VARIOUS DEVICES TESTED

Engineers are hot at it, testing and experimenting. Here are some of the things they're playing with:

First there are Foot Pedal and Hand Pumps. You could put one of these on every truck—then nobody'd have to stand in line waiting for the compressor. But it takes a man and a manually-operated pump at least twenty minutes to bring a 750-20 tire up from 30 pounds to 50. Not saying what it does to the guy pumping.

Then there's the Spark Plug Tire Pump. All you do is screw out a spark plug and screw one end of this gadget into the engine. As the engine runs, air is pumped through a hose into the tire. As with the hand pump, every truck could have one. But the Spark Plug Pump has its disadvantages. For one thing it takes too long to pump air into the tire and has a hard job even developing enough pressure for truck tires. For another thing, when you've got the spark plug out of the engine, you've got to ground the secondary wire. Otherwise a potential will be built up and a coil burns out. Not having been born last Friday, we know how many coils would be allowed to burn out should this be adopted.

#### PORTABLE COMPRESSOR LOOKS GOOD

A portable air compressor seems to be the best of the lot. A big step forward but still.... There are a half a dozen different models of portable compressor and the Engineers are in the throes of testing them. None has yet emerged as the champ, but the Engineers have a good idea of what they want.

They'd like a portable air compressor weighing about 100 pounds, compact enough to be stored in a truck with other equipment and shovable hither and yon wheelbarrow fashion, on one small front wheel. Powered by a gasoline engine and with a pulley drive, the compressor should have the engine (heavy) mounted up front and the compressor (light) in back to make wheeling easier.

One very clever idea is to have the

frame of the compressor serve as a reservoir for air pressure. This does away with an otherwise cumbersome tank.

A pressure gauge and a pressure regulator valve which can be set to deliver whatever pressure is needed, are "musts" for the new gadget.

Understand now, the Portable Air Compressor is not the last word. We're only attempting to show the magnitude of the problem and what the Engineers are really up against.

#### MANY ANGLES TO PROBLEM

Some of you fellows thinking of passenger cars, are going to say, "Well, why inflate tires three times a week anyway? They don't lose their air that fast!"

Ah, but there you make ze mistake, my friend. Army trucks, carrying heavy loads in all kinds of weather over rough terrain are not to be compared with passenger cars. They really lose air.

If you'd been checking your tires every couple days, you'd know this.

Think also of how many "going bad" tires you'd have caught in the nick of time with frequent inspections. Think too, of the value of making everyone tire-conscious this way.

"Well, then", you say, "Why pass out only one portable air compressor to each company? Why not pass out one to every couple trucks? Then the whole company wouldn't have to stand in line waiting for the compressor to come along."

Maybe you've got something there, Chick. It would cut the time down something marvelous. If it takes an outfit five hours to inflate its tires with one compressor—it would take only 2-1/2 hours with two compressors.....and etc.

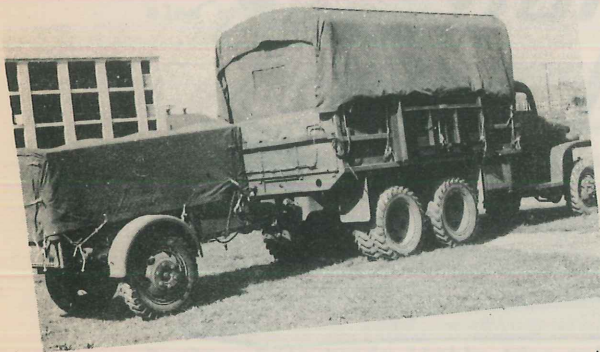
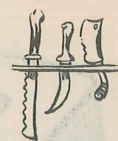
But let's be practical. You can't pass out bulky compressors for every few trucks and you can't make them small enough. Not to mention that air compressors don't grow on trees. Costus monee.

Well, at any rate and all arguments aside, let's sum up and see what we've got: Though we may appear to be complaining be-

(Continued on Page 207)



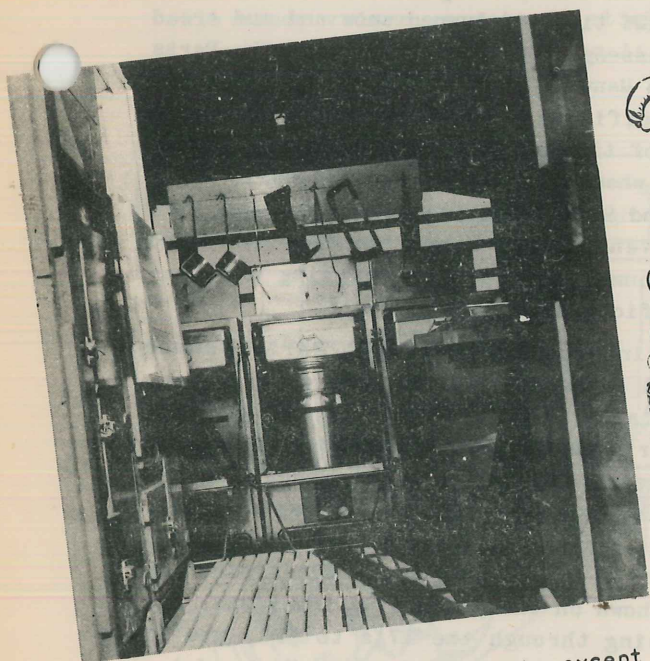
# cafe' motor transport



Lookie, Lookie, Lookie, here comes cookie all tricked out with a snazzy idea for a field kitchen. As you and I know, there ain't no sech thing as a field kitchen really. All cookie gets is the refrigerator, stoves, table-top cabinet, utensils... and the privilege of using whatever truck is handy to cart them around. (Them's beans in that thar trailer.)



But here we see the worm turning—cookie has swiped himself a truck for keeps. No more tossing cookie anything from a heavy wrecker to a surfboard to cart his stuff around in. Strictly class from henceforth. (We don't mean to encourage tying up a 2-1/2 ton, 6x6 for cookie's use alone—trucks got to be spread around for everybody's use—but this is just to show what one clever outfit did. A trailer might be more sensible.)



Here's the interior set-up complete except for flies. Along the wall at left stands the refrigerator. Up front are the stoves. At the right is a small table-top cabinet. On top of the cabinet rests the small pan containing the hairs with which cookie garnishes the soup.



And here's cookie and friend hard at work posing for the photographers. (When cookie straightens up, his skull will pop the electric bulb overhead—which accounts for the slight sprinkling of glass in the raviolies.) If cookie up front ever grabbed a hot bucket of soup with bare hands like that, you'd hear his screams a mile away. Cookie's friend is diligently pounding holes in the shallow pan with a meat cleaver.



You'd be surprised how many sections and branches in the OQMG work and sweat away day after day with little recognition and little thanks, until suddenly they burst forth with the fruit of their labors. Way down deep in the back of our heads we have carried a vague remembrance of a name that went something like this: The Parts Standardization Section, Spare Parts Branch, Motor Transport Division, Office of the Quartermaster General. It was just a name to us until they broke into print with their Parts Common Manual.

#### INVALUABLE REFERENCE

This walloping book, which has been out only a short while, lists a large percentage of the materials and parts used in army vehicles. As a reference in preparing purchase requisitions and orders it's a honey. What's more, they're working away at it continually, sending out revisions as new materials are developed or as parts change. Practically everyone who has a finger in the maintenance pie should have received a copy. It's gone to all Corps Areas, Depots, Divisions, Light and Heavy Maintenance Companies, Posts, Camps and Stations, and Air Corps Maintenance units. Incidentally, the distribution is being handled directly by the P.S.S., S.P.B., M.T.D., O.Q.M.G. Be sure to keep in touch with them when you move, so you'll receive your changes.

#### COMPLETE PART CLASSIFICATION

"And what's the use of this manual?" you'll say. "All the dope on parts is sup-

posed to be in the Federal Stock Catalogue." Maybe so, but the Federal Catalogue in most cases has given Federal Stock Numbers to materials and parts by groups only, without specifying any particular size or type. For example, Automobile Tires were carried in the Federal Catalogue under Classification 8, with a group Federal number, which included everything from a 4.00x8 to a 10.00x24 tire and lumped snow and mud tread and passenger tires all together. The Parts Common Manual, on the other hand, has given a specification number to each size and type of tire so that you can't possibly go wrong when ordering things. A 6.00x16 4-ply Mud and Snow Tread Passenger Car type tire is given Federal Stock No. 8-T-5964, and that number can't mean anything but that specific kind of tire.

Finding things in the Parts Common Manual is as easy as changing a valve cap. There's an index in the front, showing all the articles listed alphabetically by the complete name, with their Federal stock catalogue classification. For example, "Plugs, spark" are shown under classification 17-P. By turning to classification 17, shown on the projecting index tab, and thumbing through the 17's to "P", you'll find the plugs completely described, with a list of the makes and models of vehicles they are used on. In the same way, "Bolts" are listed in the index under classification 43-B. Thumbing through the book to tab 43 you'll find any kind of bolt you want, together with the threads per inch, diameter and length. Easy going, eh?

Behind the index are two pages explain-



ing the breakdown of the various Federal classifications. Class 7, "Fuels", runs from charcoal to wood and includes fuel oil, coke, gasoline and practically anything else that will burn.

**SPECIAL BEARING TREATMENT**

The only exception to the Federal stock number layout is in ball bearings: Timken and New Departure. Instead of having a Federal stock number, these show the Bearing Manufacturer's number with a cross reference to the number the Vehicle Manufacturer has given the same bearing in his parts books. This handy little idea makes it unnecessary to keep separate records and bins for bearings with different bearing and vehicle manufacturers' parts numbers. You see, as far as the bearing is concerned, it has the same bearing manufacturer's number whether it's used on a Studebaker or a Ward LaFrance.

Not much more we can tell you about this handy volume, except to stick to it closer than a pay check and use it as you would a kid brother.

# Acknowledgments

THE FOLLOWING INDIVIDUALS AND CORPORATIONS HAVE CONTRIBUTED MATERIAL TO THE 'AM DURING APRIL - SEPTEMBER, 1941.

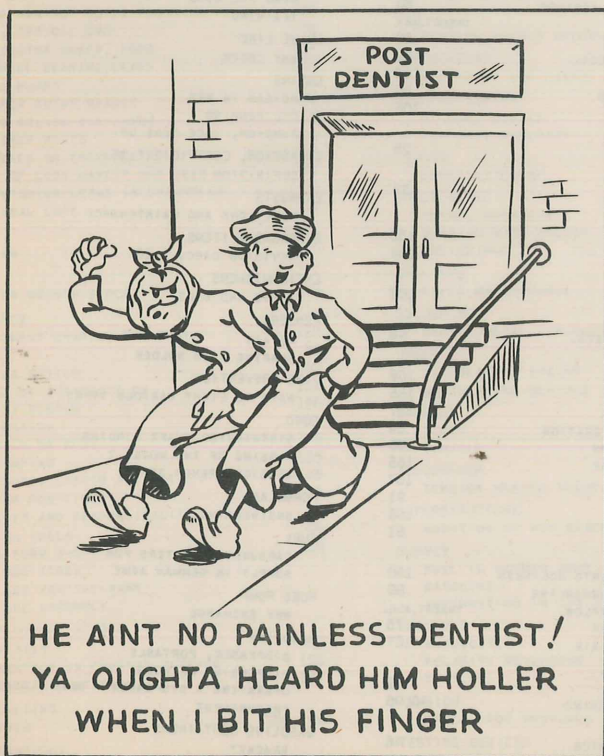
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In case you didn't know, THE 'AM accepts contributions from the field. Gripes, problems, solutions to problems--whatnot. You'll get a free subscription to THE 'AM for your trouble -- you lucky fellow you!

MEN ARE STILL DYING WITH THEIR BOOTS ON - THE ACCELERATOR



# Semi-Annual Index

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# vehicle spacing in columns



REVISED FROM THE AUGUST INFANTRY JOURNAL

One of those jobs that look easy, but aren't, is spacing the vehicles in a motor column so that they won't get in each other's way. Offhand, you'd think it would be simple enough—just shut your eyes, think of a number (say, a nice, round one like 100) and put it to work like this: "O.K., boys, just stay 100 yards apart till you get to Dogpatch Junction."

But right away you run into trouble. How do you know 100 is the right number? You've got to have your vehicles far enough apart to reduce dust, fatigue, accidents, and interference with other traffic. Yet they've got to be close enough so they won't gum up the highways, especially at bottlenecks, or get separated and lost in city traffic like one convoy we read about in the newspapers. Then again, if they're close together, they're easier to defend from the air or from the ground; and if they're farther apart, they're harder to attack from the same points. So you pays your money and you takes your choice.

Well, let's suppose your choice was 100 after all, and they've started rolling. It's 60 miles to Dogpatch Junction, and you've ordered a constant speed of 30 miles per hour. Now, if it were a super-duper extra-special highway, and you didn't have to slow down or stop in the whole sixty miles, you'd come pretty close to making the distance in 2 hours, which, as we calculate it, is 120 minutes.

CONSTRUCTION AHEAD (HEH, HEH!)

While we're supposing, let's make it interesting. Let's suppose that the State

Highway Department tore up half a mile of this boulevard of dreams last week, and you can't do better than 15 miles per hour for that distance.

If you're driving alone, you won't lose a great deal of time—approximately 1 minute. Total running time, 121 minutes. Still not bad.

But this is a motor march unit, and you've commanded the vehicles to keep an interval of 100 yards. What's going to happen to Vehicle No. 2 while you're thumping along in your command car at half speed through half a mile of dust? You guessed it: he's doing exactly the same thing, but *he had to slow down 100 yards before you did*, to keep his distance. And, what's more, you'll have to hold your buggy down to 15 miles per hour until he has passed the rough spot and can keep up with you at 30. So if there are 2 vehicles instead of 1, the time lost is a few seconds longer. Take a look at Figure 1, if you don't believe it.

Remember this: Every vehicle in the column will add 100 yards to the distance over which all must reduce their speed. It isn't so bad with a small unit, but suppose you have a 30-mile column of vehicles, as well you might in maneuvers. This column will travel only 29-1/2 of the 60 miles to Dogpatch Junction at full speed. All the rest of the way, some of the vehicles will be passing through the devil's half mile. In effect, 30 miles of bad roadway have been added to the half mile which actually exists, and the travel time has grown from 121 to 181 minutes.

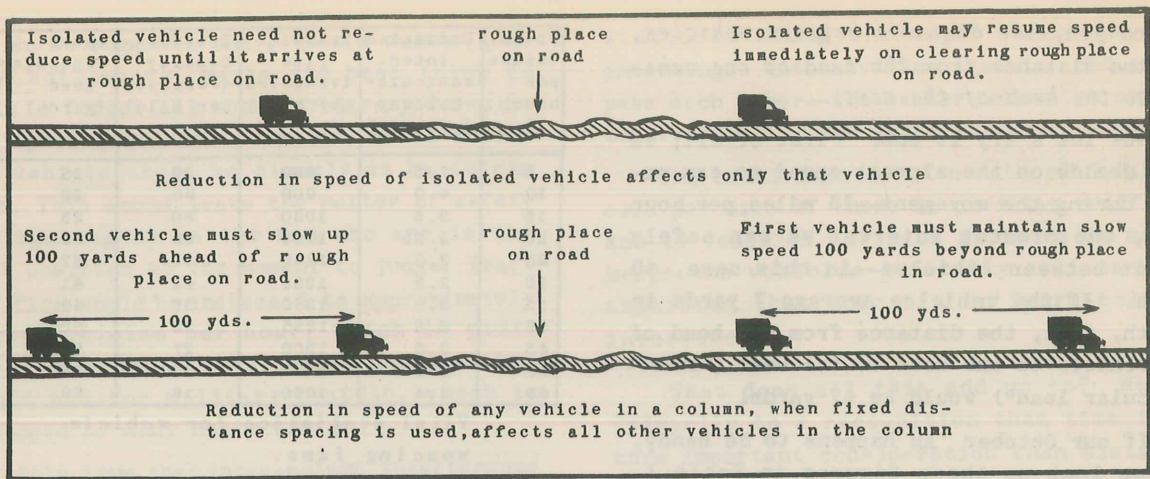


Figure 1

**INTRA-COLUMN INTERFERENCE**

This delaying of one vehicle by another in a column is called "intra-column interference." How to hold it to a minimum is one of the toughest problems in commanding a convoy or motor march. One easy way would be to take another route, but usually the other route is worse. Another way would be to divide the column into sections each a few miles long. But this has only a limited value, for plenty of intra-column interferences will continue within each section.

Here is another way of meeting the problem. It isn't very difficult to understand, if you merely think of vehicles in a column not as being 100 yards apart at all speeds, but as being a certain number of seconds apart as they pass a given point.

Let's start the boys to Dogpatch Junction all over again—this time telling them to stay 8.2 seconds apart. Presto! Look at Figure 2 and see what has happened. On good road, their distance apart is 120 yards, and on the rough section it is re-

duced to 60 yards while speed is cut in half. Then the distance automatically increases once more to 120 yards as soon as the vehicles again pick up speed. At all times, however, the vehicles are 8.2 seconds apart; at no time do they get in each other's way or become too far separated. *Intra-column interference has been completely avoided, just like that!* Running time for every vehicle in the column, only 121 minutes.

There's just one worm in the apple. How is a driver going to tell when he is exactly 8.2 seconds behind the next vehicle? He can't carry a stop watch or a metronome, and even if he did they wouldn't help much.

**THE MAGIC NUMBER**

The answer is in a magic number called the "speedometer multiple." From Table I you can select any speedometer multiple that fits the conditions of the journey. Then all the driver has to do is multiply his speedometer reading by the magic number, and there's his distance—not, we should

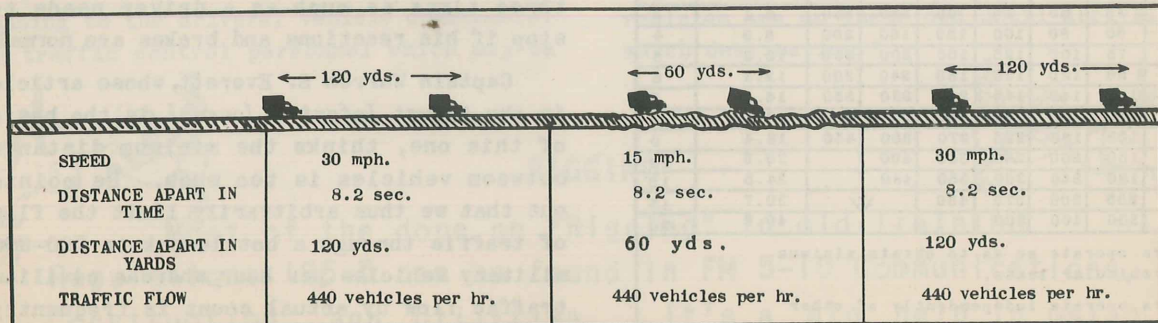


Figure 2: Use of constant headways to eliminate intra-column interference.

remind you, the distance between vehicles, but the distance from the head of one vehicle to the head of the next.

Now let's try it out. First of all, we must decide on the slowest speed we can expect during the movement—15 miles per hour. Next, the closest interval we can safely permit between vehicles—in this case, 40 yards. If the vehicles average 7 yards in length, then, the distance from the head of one vehicle to the head of the next ("intervehicular lead") would be 47 yards.

If our October 'AM happens to be handy, we can look up these figures in Table I, and we'll find that the speedometer multiple for them is a little more than 3. If not, we can get the same result by simple arithmetic. Merely divide the intervehicular lead (47) by the minimum speed (15). Answer, 47/15, or 3 plus. To be on the safe side, you might prescribe a speedometer multiple of 4, which allows the same interval of 8.2 seconds between vehicles that we used in going to Dogpatch Junction.

Just to prove we weren't fooling when we called those speedometer multiples magic numbers, here's another trick you can do with them. You can control the length of time it takes the entire column to pass any point you choose. Just pick out a new speedometer multiple and pass the word along. It's easier to do if you halt the column first, but even that isn't necessary. If you reduce the multiple while the column is in motion, the head of the column must

Speed (miles per hour)	Estimated Intervehicular Headway (seconds)	Traffic Flow (vehicles per hour)	Traffic Density (vehicles per mile)	Intervehicular Lead (yards)
5	7.5	480	96	18
10	4.0	900	90	20
15	3.5	1030	69	25
20	3.25	1108	55	32
25	3.0	1200	48	37
30	2.8	1285	43	41
35	2.8	1285	37	48
40	2.8	1285	32	55
45	3.0	1200	27	65
50	3.1	1160	23	76
60	3.4	1060	18	98

Vital statistics for vehicle spacing fans.

slow down while the others close up; if you increase it, the leading vehicle must move out at the fastest safe speed possible while other vehicles adjust their spacing by speeding up, slowing down, or stopping.

SPIN THE BOTTLENECK

But the best part about using the magic speedometer multiple is that traffic jams are not likely to occur at a bottleneck. It is practically impossible to feed vehicles into the average bottleneck faster than they can move through it, if they are properly spaced according to the number of seconds between vehicles.

The only danger is that the vehicles won't move through the bottleneck as fast as the bottleneck will take them. After all, what interests us most at such a point is how to keep 'em rolling through as fast as possible.

For a long time it has been customary not to let any vehicle approach closer to the one in front than twice the speedometer reading in yards. At 15 miles per hour, this would be 30 yards, which is just about three times as much as a driver needs to stop if his reactions and brakes are normal.

Captain Warren S. Everett, whose article in the August *Infantry Journal* is the basis of this one, thinks the minimum distance between vehicles is too much. He points out that we thus arbitrarily limit the flow of traffic through a bottleneck to 700-800 military vehicles per hour, whereas civilian traffic flow by actual count is frequently 2,000 vehicles per hour in a single lane, and sometimes as much as 2,700 or 2,800.

Speed (miles per hour)	Interval between vehicles at all speeds (seconds)							Speedometer Multiple
	5	10	15	20	25	30	40	
Intervehicular lead (yards)								
↓ 20	30	40	50	60	80	100	4.1	2
30	45	60	75	90	120	150	6.1	3
20	40	60	80	100	120	160	8.2	4
25	50	75	100	125	150	200	10.2	5
30	60	90	120	150	180	240	12.3	6
35	70	105	140	175	210	280	14.3	7
40	80	120	160	200	240	320	16.4	8
45	90	135	180	225	270	360	18.4	9
50	100	150	200	250	300	400	20.5	10
60	120	180	240	300	360	480	24.5	12
75	160	225	300	375	450	✓	30.7	15
100	200	300	400	500	✓	✓	40.9	20

↓ Drivers operate so as to obtain minimum intervehicular leads.  
 ↓ Drivers operate independently of other vehicles in the column.

Table 1

So he suggests that, when a column gets to a bottleneck, maybe the best thing to do is to forget all about arbitrary formulas for spacing and tell each driver to follow the vehicle ahead as closely as he thinks safe. This would leave the matter of safety and spacing up to the men who are in the best position at the moment to judge. Traffic flow would be increased to approximately 1,285 vehicles per hour, which is still much lower than the civilian average, but isn't bad for military traffic, which is composed of many heavy trucks.

It's true that intra-column interference may be somewhat worse than when the column moves with a fixed number of seconds as the interval, but interference will be much less than if each driver has to remain a prescribed distance back of the vehicle he is following. Furthermore, the column reverts to a regular plan of spacing as soon as the bottleneck is passed.

#### INFILTRATION MARCHING

Another logical exception to spacing vehicles by the "magic number" is found in what is called "infiltration marching." This is used when it is desirable to mix light military traffic with heavy civilian traffic without causing serious inconvenience to either, or when good military strategy demands that the column should move with secrecy, deception, and dispersion.

So if you're planning to send a convoy or motor march unit to Dogpatch Junction or even Gopher Prairie, all you have to do is give each driver a map marked with the route, a general idea of the speed he is to maintain, and a kick in the pants. Allow a reasonable interval between vehicles when they start, and then leave the matter of spacing to the drivers, vehicle commanders, or traffic control personnel which may be

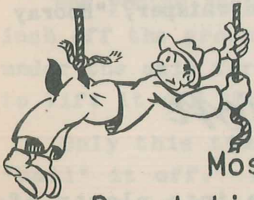
stationed along the way. Vehicles may intermingle with civilian traffic, and even pass each other—the better to deceive enemy observers.

The usual infiltration rate of 5 vehicles per mile if there is civilian traffic, and 10 vehicles per mile if there is not, keeps the vehicles generally well enough separated that there is no intra-column interference.

What does all this add up to? Well, primarily to a recognition that time is a more important consideration than distance in motor marches. Back in the days when most troop movements were by foot column, which marched 2-1/2 miles per hour over almost any kind of road, distance and time were equally significant, but times have changed.

Motor marches vary from 5 to 60 miles per hour. Distances are important only as they affect travel time and the time-length of columns. We select the faster of two routes even though it is twice as long in miles as the other. We don't care much whether a column is 50 miles long or 100 miles long; what we really want to know—what we most certainly need to know in planning troop movements—is how many minutes the tail of a column is behind the head.

So now let's stop supposing, and start that column rolling in earnest, with an order somewhat like this: "Speedometer multiple 4 in the country; head of the column will halt to close the column to a speedometer multiple of 2 before passing through cities." Or, if conditions allow it, "Column will move by infiltration; vehicles begin 30 seconds apart; thereafter vehicles are on their own until arrival at march destination."



#### RIGGING

Most of the dope on "Rigging" in old Training Regulations 185-5 can be found in FM 5-10 Communications, Construction, and Utilities. It's a big help in using MTTSB Z-10 on Winches and Z-14 on Wrecker Trucks.





## *Cigars and Funnels*

From Major C. Elford Smith (he of the tire tool in the August 'AM) at Fort Bragg comes two new ones that look good to us.

"B" Co. of the 86th QM Regt (LM) have a neat trick for keeping their job orders. File 'em in cigar boxes! Job orders fit neatly into them, they're kept clean and the Supply Sergeant can separate all the paper work for the different 2nd echelon outfits they serve. Try it.

And the other one is the brain child of Colonel John S. Chambers, First Army Quartermaster, who solved the problem of how to fill the gas tanks of Jeeps and passenger cars from the new five gallon gas cans. Those cars are not provided with filling nozzles, but you can make a swell funnel from the #10 chow cans used by the messes. One hundred and fifty of the First Army vehicles are using 'em, and everybody's happy!

## *Boom Extension*

Occasionally there swims into our vision some rare and clever soul who has thunk up an idea --- a good idea --- that will do the Army a lot of good without costing it a red penny.

Such a soul is Captain Frank R. Swoger, Company C, 53rd QM Regiment. Captain Swoger's idea is a trick to add sixteen and a half inches of reach to the boom of a two and a half ton wrecker. This will enable said boom (in company with a chain

hoist) to lift the engine out of trucks with front mounted winches.

In the past, these winches --- which stick out in the front of the trucks --- prevented the trucks from getting far enough under the boom hoist so that their engines could be lifted out.

Why it was like trying to touch a hippopotamus's forehead to a brick wall --- the snout, the proboscis, the schnozzola, got in the way.

Well, Captain Swoger's idea went like this: he got a two foot length of one inch bar stock, bent it into a loop and welded it onto the end of the boom. Then, before anyone could say boo! - he hung a one and a half ton chain hoist on the loop.

That's all. As you can easily imagine, this arrangement adds sixteen and a half inches of reach to the boom. Ain't it keen?

You don't need extra or boughten equipment. The bar stock grows on trees (Well, anyway, you'll know where to get a piece.), and the one and a half ton chain hoist is standard equipment in fourth echelon set number two.

Now the next time you want the engine lifted out of a truck with a front winch, just drive 'er under the boom of the two and a half ton wrecker and whisper, "Hooray for Captain Swoger!"

## *Ruinination*

If you want to run into plenty of trouble, just forget all about tightening the cylinder head, bolts, and exhaust manifold bolts on new trucks during the first 100 miles of operation; or at any time when

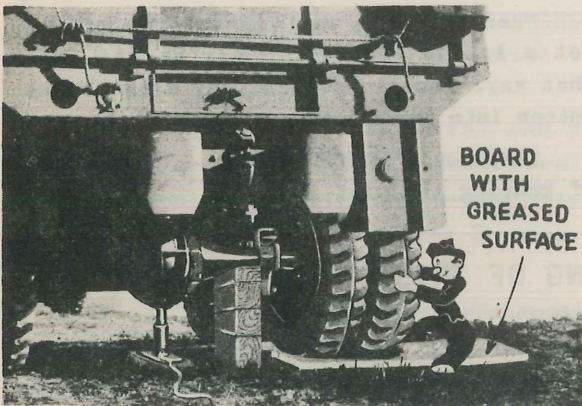


you have removed the head or the exhaust manifold. Neglecting this vital maintenance point allows the head and the manifold to warp, causing all kinds of trouble in the engine.

## *Pulling Tires*

Gentlemen, the brain is quicker than the brawn. In evidence we offer the "Greasy-Slide-Board" trick.

This is a simple maneuver to make lifting dual or single wheels off trucks, easy as falling off a greased log.



All you need is a one inch board twice as long as the width of the dual tires on the wheel you're about to lift off --- and twice as wide as the tire contact with the road. (For instance, if the dual tires measure 2 feet across, cut your board 4 feet long. If the tire measures 8 inches at point of contact with the road, cut your board 16 inches wide.)

A handful of grease to smear all over the "upside" of the board completes the equipment.

Now you've jacked up the wheel about an inch off the ground as usual (with blocks under the axle for safety), and are ready to lift it off the axle.

Only this time you don't lift it or "bull" it off. You slide your greased board under the width of the dual tires and gently pull. That's all --- just gently and firmly pull --- and to your utter amazement, the big, heavy tire glides

easily off the axle and over the greased board.

No strain to lift it off the axle, no struggle to support the weight of the tire against your hairy chest. You won't get ruptured and you won't rip the threads off the end of the axle.

Use the same process in taking off a single tire.

"But don't tilt the wheel --- or it'll tilt you," says "Pat" O'Connor, Senior Instructor here at Holabird. He's the gent whose trick it is.

"Just let the board support the weight of the tire," says Pat, "And as a parting shot, slip a couple chocks under the front wheels when jacking up a truck. That way you won't pull the truck off the jack while you're working."

## *Steering*

Hey! Wait a minute. Those steering stops on the front driving axles aren't put there for you to file or knock off. They're there to control the steering radius, and if you start monkeying with them - well, you might just as well put those trucks to bed. Leave those steering stops alone if you want to get there, and check the angle regularly by the maintenance manual specifications.

## *G.M.C. Axles*

Incidentally, the axle used to illustrate the GMC axle puller article on page 121 of the August 'AM was from a Dodge. You don't need the gadget for that truck, so don't try to use it. Keep the tool for the GMC.

## *Jack Fluid*

I don't care what you say, Pedro, you can't use beer in hydraulic jacks. No I'm not narrowminded.....what? No you can't use that either.

All right, I'll tell you what you can use---and even make it up into a chart which

you can hang up in the shop and read when you need it. What? You do all your reading in the.....

Well, you just hang this chart up in the shop somewhere—then when you got to add fluid to the jack or have to fill it after overhauling, you know what to use. You dassent use the wrong type fluid—you could bust the seals in the jack; or maybe it would lock in the raised position or come down heavy when you was underneath the truck. And putting oil in a jack that's made for special fluid only, swells up the crimps something fierce.

What? You still think that..... Well, don't let me catch you near my jacks with them ideas.

Use what's on the chart and remember that most of these here units use or can use a 10W motor oil which can be diluted 50% with Navy No. 9045 transformer oil for temperatures below -15° F.

TYPE UNIT	FLUID
Blackhawk	10W Motor Oil (Use
G.A.C. Mfg.Co. (Powerplus)	50% Navy No. 9045
Weaver	Transformer Oil for
Hein-Werner	temperatures below
Manley	150 F.
Marquette	
Dayton	
American Hydraulics	Navy No. 9045 Trans-
Buda	former Oil
Joyce-Gridland	Shock Absorber Fluid
Walker Mfg. Co.	
Vickers, Inc.	Brake Fluid
Simmons Mfg. Co.	Specifies own fluid,
	and warns against
	use of oil or brake
	fluid.

*Squirt*

When about to add air to your tires, let a little of the old air squirt out. That way, you'll blow out any dirt that's gotten into the valves.

Keep your valve caps on -- and be sure of keeping the dirt out.

### WHAT'S THE MEANING OF THIS?

(Continued from Page 186)

**MOTORIZED UNIT.**— Any military unit except a mechanized or armored unit, which includes sufficient organic motor vehicles to transport at one time all of its personnel, weapons, equipment and supplies. The part of the unit which carries the weapons, equipment, and supplies may be organized into a *train* or trains. Units may be semi-motorized or partly motorized.

**MOTOR COLUMN.**— Any two or more motor vehicles operating together, one behind another, over the same route.

**MOTOR MARCH.**— The movement of one or more motor vehicles, motor convoys,

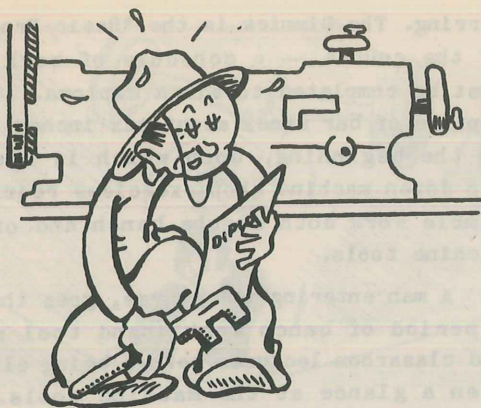
motorized units, motor trains, or motor columns.

**MOTOR MARCH UNIT.**— One or more vehicles, under a single commander for purposes of control, in a motor march.

The chart elaborates on them somewhat and shows their relation. A convoy, for example (reading down the first column) may be an "action or a method of action" and it *must* be a "military unit." Going down the line, we find it can be a "group of vehicles," but it can *never* march "on several routes" nor can it be a "train" or a "motorized unit."

### SCRAPE THOSE STICKERS OFF THE WINDSHIELD.....PRONTO!

A simple little two inch sticker on your windshield will hide a 2½ ton truck from your view at 100 feet. Even at twenty-five miles an hour it is too late to stop when you don't see an obstruction within this distance.



# machinists course

When they come in, they don't know their ears from their elbows. When they go out, they're basic machinists trained to approach a problem without fear or trepidation, take it by the horns and make it say Daddy.

Peace, Lawd, it's wonderful and it happens at Holabird. Every month twenty enlisted men are enrolled in the Machinist Course at the Holabird QM Motor Transport School.

At the end of a thorough three months training, they go out, with a hard-earned diploma that calls them basic machinists with all the rights and privileges thereunto appertaining.

Not only that, but they know which end

of a milling machine is up — and have — and can — complete precision work on this, and every other machine encountered in a third echelon shop: drill press, lathe, shaper, boring bar, lapping machine, milling machine, hone and grinder.

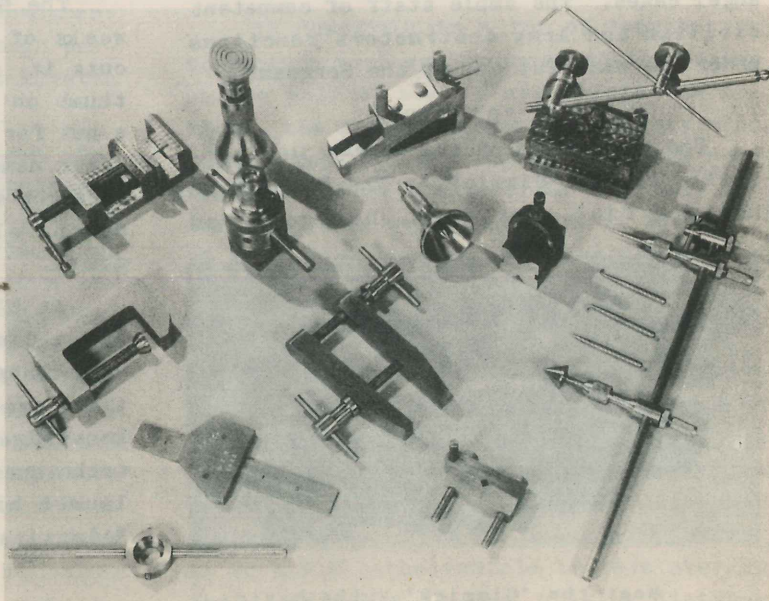
The school maintains a nice balance of twenty percent classroom and eighty percent shop work. Not more than seventy students are ever in attendance at any one time — which means enough hand and precision tools to go 'round — no waiting in line. Speaking of tools, the list of tools (Page 207) presented to each and every student is plenty impressive.

The machine tools used are in tiptop shape and kept that way — they're the

(Please turn the page)



Here's some gadgets to hang on your Christmas tree! Machinists' tools made by the students in The Machinists' Course. They call them 'Elective Projects' - we call them marvelous. How'd you like that Toolmakers' Vise (top, left) to play with? Or that surface gauge (top right) to pick your teeth with.



same class of machines the men will work with in the field.

#### PLENTY OF INSTRUCTORS

As for instructors — at Holabird they grow on trees — well, anyway, there are plenty of them for the Machinist Course, giving what almost amounts to individual instruction. What's more, each instructor is a specialist in his field.

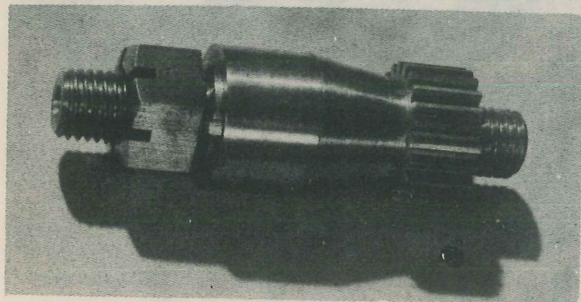
This abundance of instructors solves the old problem of the "bright" student in public education, where, like ships crossing the ocean in convoy, the fastest must slacken down to the pace of the slowest. Here the shining lights run along in high gear, finish their basic course and go on to the fashioning of difficult "electives."

No wonder somebody once said, "The Army would be the greatest educational force in the United States if it only had some #\$\$%&!\$ coeds and a &\*\$\$#%& good football team!"

Captain W. G. Campbell is the officer in charge of the Machinist Course. Captain Campbell, an engineer from way back, calls the tune and Technical Sergeant T. H. Featherston gets the tune played. Sergeant Featherston is an able "Sarge" of the old school, who has whipped up enough spirit and morale in the course to ice a dozen angel cakes. The ample staff of competent civilian and Army instructors functions under the watchful eye of the Sergeant.

#### THE "GIMMICK"

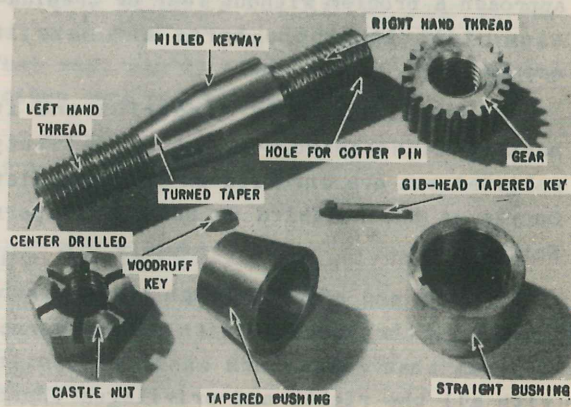
The curriculum of the course in a nutshell, is the "Gimmick." The Gimmick is neither fish, nor fowl, nor good red



Meet the 'Gimmick' - the basic project of the course.

herring. The Gimmick is the "Basic Project" of the course — a schedule of work that must be completed to win a diploma. It is a piece of bar stock about six inches long, in the beginning, upon which is wrought two dozen machine shop exercises requiring nimble work both at the bench and on the machine tools.

A man entering the course, goes through a period of bench work (hand tool work) and classroom lectures before being allowed even a glance at the machine tools. He warms up on the machine tools by cutting a couple of useful tools like lathe dogs and machinists' clamps — then goes to work on his Gimmick.



The Gimmick disassembled - sculpture from a machine tool. And everything fits to 1/1000 of an inch.

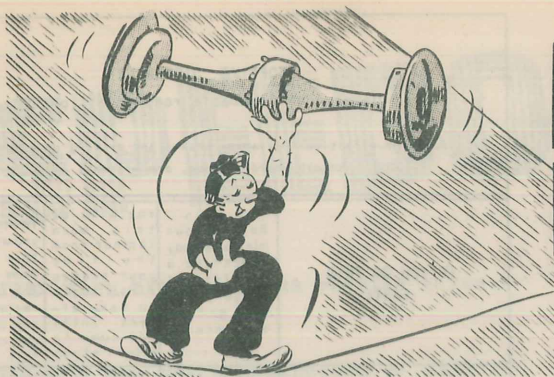
The Gimmick takes a man through nine weeks of instruction. In that time, he cuts it, tapers it, threads it, bangs his thumb on it, cuts, hexes and castellates a nut for it, cuts a gear for it, calls it dirty names, fits it with a tapered and a straight sleeve, keys it — does everything except slam it up against the outhouse door.

At the end of the nine weeks, he's got a Gimmick, a speaking and a working acquaintance with a lot of shiny tools that used to be Greek to him, a firm knowledge of machine shop practices and techniques — a springboard from which to launch himself into the more difficult "electives" of the course.

#### ELECTIVE PROJECTS

The electives -- or "elective pro-

(Continued on Page 207)



# balanced braking

In the June 1941 issue, we published a brake testing schedule based on I.C.C. reports. In this we're gonna see what factors come into consideration in stopping your vehicle. First - a few fundamentals.

## MOVING BODIES CAN WORK

Remember that any moving body possesses kinetic energy, which is the ability to do work. This energy depends entirely upon the weight and velocity of the body, and is measured in *foot pounds*. In order to bring a moving body to rest, its kinetic energy must be removed, or absorbed; that is, a resisting force (brake) must do an amount of work (foot pounds) on the body (truck) exactly equal to its kinetic energy. If the weight of a moving truck is doubled, its kinetic energy is doubled, but if its speed is doubled the kinetic energy is increased four times. Remember: To brake a truck you must have enough power at your command to overcome its kinetic energy.

By balanced braking, we mean that the brake application must be simultaneous on all wheels, and in proportion to the weight carried by those wheels. For instance, if 80% of the weight of a vehicle and cargo is carried by the rear axle, the rear wheels should have 80% of the total braking power. I.C.C. requirements demand that a vehicle with brakes on all wheels stop in a maximum distance of 30 feet at 20 miles per hour. Undoubtedly, when the truck comes from the factory, it has this high standard of efficiency built into it. However, constant maintenance and care are required to maintain this standard.

## MECHANICAL TIME LAG

But mechanical factors alone do not stop your truck. There are other things that enter into consideration besides the driver's reaction time, etc.

We assume that the maximum retarding force is instantly available at the tire at the ground. Actually, it takes a fraction of a second to build up to *maximum* brake application. At 20 M.P.H., 1/3 of a second time-lag in reaching maximum braking power would mean an extra distance of 10 feet in the total stopping distance. A theoretical time-lag of 1/2 second would increase the distance to 15 feet. Therefore, we see that the brakes must be in nearly perfect condition to meet safe braking requirements.

It doesn't take a lot of imagination to picture what would happen if the brakes on one pair of wheels are delayed in action: the results might make mighty nice scrap iron. Tests have shown, in some tractor-trailer combinations when only the trailer brakes were used, that at 20 M.P.H. 75 feet were required to stop the moving vehicle.

## DRIVER REACTION TIME

Another factor involved is the human reaction time, or the time that elapses from the moment the driver senses the need to stop until his foot presses the brake pedal. The average time for a driver to accomplish this act is about 3/4 second. At 20 M.P.H., the vehicle travels over 20 feet. Add this to your braking distance and the mechanical time-lag. Take a look

at the answer - this total is the distance it actually takes you to stop. Well -- can you afford to go ripping around without good brakes on your trucks?

**BRAKE FAULTS AND EFFECTS**

1. A wheel bearing out of adjustment will cause eccentric brake drums, resulting in uneven, erratic braking.

2. Eccentric brake shoes, due to poor adjustment, will not apply pressure evenly, resulting in uneven braking.

3. Grease or oil on the brake liner and brake drum surfaces will reduce friction causing the brakes to lose their effectiveness.

4. Scored, bellmouthed, or eccentric brakes, should be reground or replaced in order to give proper braking action.

5. Irregularly worn brake shoe liners will cause uneven braking causing the vehicle to swerve to one side when brakes are applied.

6. Dust and dirt between the brake rubbing surfaces lessen friction and score drums.

7. Kinked connecting hose will cause an improper flow of fluid from the master cylinder to the brake chambers.

8. Faulty relay valves will not properly relay the braking action from tractor to trailer, and in case the tractor and trailer become disconnected, it may fail to produce an automatic brake application.

STOPPING DISTANCES					
Under most favorable road conditions					
(Based on effective four-wheel brakes and driving on a level, smooth, hard-surface, dry highway)					
IF YOU GO THIS FAST:		Before your mind and body react* to a warning of danger, you will go this distance:	You will go this much farther from the time your brakes first begin to take effect until you come to a full stop:	In other words, you will travel this distance from the time you are first aware of danger until your car comes to a full stop:	
(Miles Per Hour)	(Equivalent Feet Per Second)	THIS IS "REACTION-TIME DISTANCE" (Feet)	THIS IS "BRAKING DISTANCE" (Feet)	THIS IS "TOTAL STOPPING DISTANCE" ** (Feet)	
10	15	11	7	18	
15	22	16	15	31	
20	30	22	28	50	
25	37	27	43	70	
30	44	33	62	95	
35	51	38	84	122	
40	59	44	109	153	
45	66	49	135	184	
50	73	55	172	227	
55	81	60	210	270	
60	88	66	248	314	

\*Average reaction time of 0.75 second.  
 \*\*The figures in this column are for average reaction time and good brakes. The total stopping distance from 30 m.p.h. for a person with 2-second reaction time, driving a car with POOR BRAKES, would be 88 plus 100, or 188 feet (or nearly twice the distance given above).

9. Loose or leaking hydraulic wheel cylinders will permit air to enter into the brake lines. Air is easily compressed under pressure, and this will cause uneven and dangerous brake application.

10. Dirty hydraulic brake fluid will attack and corrode working parts in the hydraulic brake system.

**JUMPIN' JEEPS**

(Continued from page 185)

airplane dropping one fuel pump for one truck? And where's the maintenance buggy?

"Jus' where the one is today. Either way behind tending the strays or cracked up itself or hauled off to patch up some outfit miles from here. Yea, they eventually get through—but what do we do during the eventually? Sittin' here smoking, now. Sure, but not when the bullets are flyin' and somebody desperately needing what we got.

"O.K., O.K. It's war, see! We're a convoy tailing across country because the

roads are shot. Blackout driving at night. We got separated. The rest o'em go through. We stagger on and first one thing goes wrong, then another. We patch 'em up and finally get stuck. No go. No parts.

"The MO's screaming uncle and there's no uncle to help 'em. Two days it's gonna take to get them parts. What are you gonna do—get out and carry the cargo?

"No sir, the two way walkie-talkie gets goin' and before you know it the jumpin' jeep swoops down and lets loose with a packet of spare parts in a parachute. You

(Continued on page 207)

# SPEEDOMETERS

## WHICH TELL YOU HOW FAST NOT TO GO

REVISED FROM THE SEPTEMBER POPULAR SCIENCE

There's one on the dashboard of each of America's 30,000,000 cars. Yet few people know very much about it. They call it a speedometer when it tells them they're getting good gas mileage. They call it cock-eyed when it doesn't. They're wrong on both counts since, technically, it is a velocity indicator plus one, sometimes two, odometers; and it isn't cock-eyed.

There are times when it doesn't tell you exactly how fast you are going, but the fault is not in its watchlike works. The manufacturer set it with a progressive error, which is about two miles fast at 40. Paradoxically, it is a very accurate error --- one that will never misguide you into thinking you are going *slower* than you really are!

### SPEEDOMETERS ALWAYS VARY

Most speedometer makers will gladly explain that this is not a trick to make you think you are Barney Oldfield. Tires, they point out, constantly change in diameter, according to your speed, the pavement texture, air temperature, rain, bumps, load, tire wear, altitude, and even pavement color. But wheel diameter governs the reading of your speedometer, so the most accurate instrument possible still could not tell you exactly how fast you drive at all times. It *might* say you were doing less than the speed limit when you were exceeding it --- dangerous business on several counts --- if it were not set on the safe, or high, side.

### WORK BY MAGNETISM

Ask a dozen drivers how their speedometers work and you might get a dozen answers. If one of them says "by magnet-

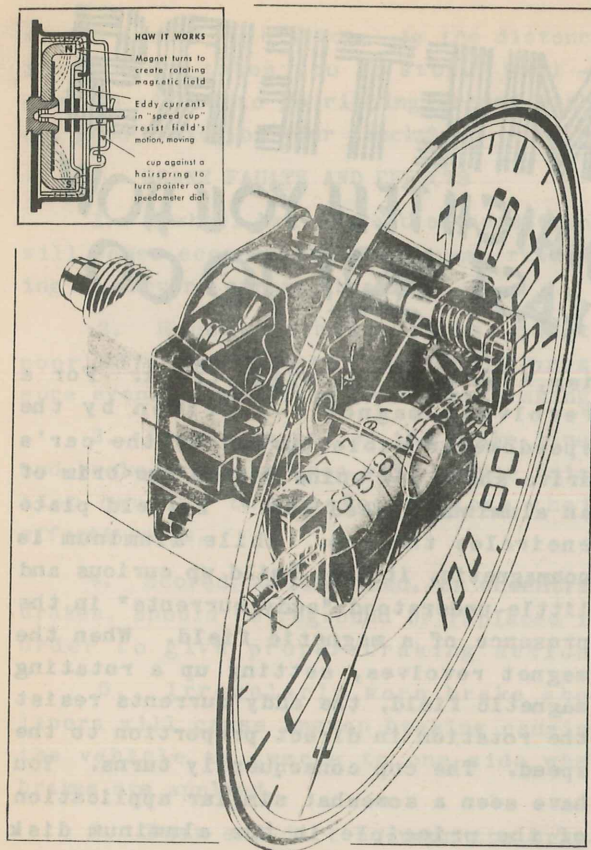
ism," he's on the right track. For a revolving magnet --- driven by the speedometer cable turned by the car's drive shaft --- spins within the brim of an aluminum "speed cup." A field plate encircles the cup. While aluminum is nonmagnetic, it does build up curious and little-understood "eddy currents" in the presence of a magnetic field. When the magnet revolves, setting up a rotating magnetic field, the eddy currents resist the rotation in direct proportion to the speed. The cup consequently turns. You have seen a somewhat similar application of the principle in the aluminum disk behind the glass front of your household electric meter. In your speedometer, the speed cup turns against a delicate hairspring, and a hand on the end of the speed-cup shaft points to the proper numbers on the dial for you to read.

In cold weather, there are more eddy currents in the aluminum cup, and readings ordinarily would be high. So a piece of special metal is clamped to the revolving magnet to "short-circuit" some of the magnet's force in exactly the right amount to compensate for the increased eddy currents.

Delicate balance of the speed-cup assembly prevents jolts or changes in car speed from setting the hand into back flips, and bearings like those in a fine clock give it quietness and long life.

### SPEEDOMETERS DON'T INDICATE SPEED IN WRECKS

Engineers scoff at the theory that wrecked speedometers, with their "needles stuck at 80," or anywhere else, prove at what speed a car was going before a



highway crash. For while speedometers are sturdy, they may not withstand the impacts of violent car collisions. And if something breaks, or a shattered glass lens is shoved into the dial, anything can happen to the needle, and where it comes to rest is decided by countless different chances of fate.

The worm-gear sets, which turn the mileage indicator, have a cumulative ratio

of 1,001 turns of the speedometer cable to one -- or one mile -- on the odometer. So, too, the cable turns at 1,001 revolutions a minute when you are driving at 60. These fixed ratios simplify the calibrating of speedometers at the factory, where each is checked with constant-speed electric motors at 10, 30, 60, and 80 miles an hour on its dial.

Once calibrated, it would take major accidents to change them. For by an ingenious method their magnets are made "permanent." To visualize the method, imagine a pail filled to the brim with water. If you tip the pail, some of the water will spill. A magnet, too, will hold just so much and, when "full," a blow or certain types of electrical interference will spill some of its magnetic force. So speedometer magnets are first filled to the brim in a direct-current magnetic field. During calibration, an alternating-current magnetic field that penetrates right through the case of the finished speedometer withdraws much of the magnetism leaving exactly enough for an accurate reading, but far too little to run any risk of further spilling.

While a stop lug keeps your speedometer hand from recording "below zero" when you back up, there is nothing to prevent the odometer from running backwards. Like your watch, speedometers are meant to be left alone. Genuine skill is needed to build or service them.

## DEATH DOESN'T WAIT FOR A BATTLE

A soldier at Fort Leonard Wood was killed recently by a tire lock ring.

A poorly placed lock ring with fifty or sixty pounds pressure behind it can blow off like a bullet—and do just as much damage. The February 'AM carried a warning about this in the article 'Truck Lock Rings' and it'll do no one a darn bit of harm to go back and read it.

Briefly, the article said to place the lock ring firmly in place before inflating the tire. Shoot five or ten pounds of air in, then tap the ring lightly all around to make sure it's properly seated. Give the tire another ten pounds and check the ring again.

Then before inflating the tire further, place it with the lock ring down or facing away from you. Then go ahead and complete the inflation.

One soldier has already been killed by ignoring this procedure—it can happen to you next, buddy, and don't think it can't!



## MACHINISTS' COURSE

(Continued From Page 202)

jects" — are a number of difficult machinist's tools that a man may elect to make. There is for instance, a Toolmaker's Vise which calls for a high degree of skill, much blood, sweat and tears; a "Height Gauge", "V-Blocks", a "Bell Center Punch", a "Planer Jack", all tough nuts to chisel out of a hunk of iron. Yet the average man in the course knocks out at least three or four of these difficult projects, and takes them with him as additions to his tool kit.

Our man, when he completes his course in the Machine Shop, goes forth with a hornier hand and a sharper eye. He's got a good working knowledge of Shop Math, can read a blueprint, sketch his work in free-hand — and is well grounded in standard machine shop and automatic practices. If he's got stuff on the ball, he'll be groomed as an instructor.

In civilian life, he'll be welcome in any shop as a junior machinist; after a few years of Army experience, he'll call himself a Machinist First Class.

Formerly, the Machine Shop — which dates back to World War I with the Holabird QM Depot — offered a nine months course open to both officers and enlisted men. For the past year, however, the instruction has been concentrated into a three

## EXPERIMENTAL

(Continued From Page 188)

fore the new portable air compressor even hits the field, we have only tried to make one point clear. And that is, that we've got to go one step more. We've got to find a better—a ripsnorter of a device or a humdinger of an idea—to be more freely distributed to trucks—to help us stuff air into tires—but faster!

40,000 PEOPLE DIED OF GAS LAST YEAR.  
Twenty-seven inhaled it, 46 lit it...  
and 39,927 stepped on it!

month period and is open to enlisted men only. These men are selected by their commanding officers under an allotment schedule.

The course itself has been developed by the faculty over a period of years — plans, blueprints, models, even the Gimmick is a product of the instructor's ingenuity. And don't belittle the Gimmick — for it's unique among machine shop projects.

As one student says, "It don't mean a thing -- but it's fine for sluggin' rats."

And in a farfetched and roundabout way, it may help Uncle Sam do just that ..... slug rats.

12 Hacksaw blades	1 Socket wrench
1 Tool box	handle
4 Calipers	1 Oil can
5 Chisels	1 Pliers
1 File cleaner	6 Punches
1 Divider	2 Rules
1 Drift	1 Scraper
2 Files	3 Screwdrivers
1 Hacksaw frame	1 Scriber
2 Gages	Squares
1 Goggles	1 Stone
2 Hammers	8 Wrenches
2 File and tool handles	1 Lock and key
	Set of micrometers

These are the tools they get.

## JUMPIN' JEEPS

(Continued from page 204)

hustle 'em into the trucks and....

"What airypplanes? The enemy? Shoot 'em down? Naw! Those jeep planes go hedge hoppin' along so low you could keep them covered with a .45. Say they do get in a jam—they can land in the middle of an ordinary road and scoot under a tree. Just like us. Take it easy until things clear off.

They're clearing now? Waddye mean? The maintenance crew's comin? Get goin', Haggerty, and tell 'em what's wrong."



# HOT OFF THE WIRE



FOLLOWING SEPTEMBER FLASH ON THINNER ES 370 B DISSOLVING BLACKOUT LIGHT LENSES--LACQUER THINNER 350 AND INTERMEDIATE THINNER 414 ALSO DISSOLVE BLACKOUT LENSES.



REPORTS OF BROKEN MANIFOLD BOLTS INDICATE MOTOR TRANSPORT TECHNICAL BULLETIN Z-13 "RECEPTION, INSPECTION AND BREAKING-IN OF NEW MOTOR VEHICLES", IS NOT BEING FOLLOWED.

EFFICIENCY OF MOTOR TRANSPORT UNITS IN THIRD ARMY MANEUVERS MAKING HEADLINES AND DRAWING PUBLISHED COMMENT FROM MAJOR GENERAL BEIGHTLER "DID A GREAT JOB" AND SECRETARY STIMSON "NEVER SAW BETTER ROAD DISCIPLINE...SPACING OF VEHICLES, RATE OF SPEED AND REGULARITY ADMIRABLE." KEEP 'EM ROLLING, LADS!

FM 21-6 LISTS THE LATEST AVAILABLE TECHNICAL PUBLICATIONS. UNTIL THE NEXT REVISION COMES OUT ADD THE FOLLOWING LIST OF (TECHNICAL MANUAL) MAINTENANCE MANUALS AND PARTS LISTS TO IT. THEY CAN BE HAD FROM THE ADJUTANT GENERAL'S OFFICE AS OUTLINED IN "INFORMATION UNLIMITED", PAGE 167, SEPTEMBER 'AM.

HOW'D YOU LIKE THE ANGEL CAKE YOU FOUND IN YOUR RADIATOR WHEN FLUSHING IT WITH BAKING SODA AS RECOMMENDED ON PAGE 160 SEPTEMBER 'AM? GAVE US A HEADACHE. TRY WASHING SODA INSTEAD AND LEAVE COOKIE IN PEACE.

MANUFACTURER	MODEL NO.	PARTS LIST T.M. NUMBER	MAINT. MAN. T.M. NUMBER
AUTOCAR	U-5044	10-1160	10-1160
CHEVROLET	G-7105-06-16-07-17-13-27	10-1126	10-1127
DIAMOND T	967	10-1602	10-1603
DODGE	VF-401-402-403	10-1178	10-1193
"	VF-404-405-406-407	10-1122 PLUS CHANGE NO. 1	10-1179
"	WC-1 to 10	10-1210	10-1211
"	VC-1,2,3,4,5	10-1120	10-1211
"	WC-1,3,4,5,6,7,8,9,10,11	10-1200	10-1201
"	WC-12 to 20		
"	WC-4,6,7,8,9,10,11 AND		
"	WC-12 to 20	10-1198	
"	WC-4,6,7,8,9,10,11	10-1104 PLUS PRICE LIST CHANGE NO. 1	10-1105
"	CCKWX-353		10-1401
G.M.C.	CCKWX-353	10-1500	10-1501
"	AFKX-352	10-1136	10-1136
"	CCKW-352 and 353	10-1140	10-1141
"	AFKX-352	10-1370	10-1370
"	K-7	10-1148	
INTERNATIONAL	"A" TRAILER	10-1150	10-1149
NASH-KELVINATOR	P-11, PRELIMINARY	10-1502 PLUS CHANGE NO. 1	10-1503
PLYMOUTH	P-11		
"	US-6		
STUDEBAKER	US-6	1102	1103
"		1204	1205
WILLEYS	MA		
BANTAM	BRC		

CONTRACT BULLETIN #160 SAYS 5 AND 2-1/2 GAL. PUMP TYPE AND 5-GAL. BACK PACK PUMP TYPE FIRE EXTINGUISHERS, HOSE, AND FOAM-MAKING SOLUTIONS ARE AVAILABLE. READ THE BULLETIN TO SEE WHEN, WHERE AND HOW TO GET THEM.



FOLLOWING FLASH SEPTEMBER ON NEW STENCILS UNDERSTAND MANUFACTURER'S REPRESENTATIVE TOURING FIELD TO INSTRUCT IN APPLICATION.

MASTER PARTS BOOKS NOW IN THE FIELD WITHOUT T/M NUMBERS ARE USELESS. CHUCK THEM AWAY. THEY CONTAIN COMMERCIAL ITEMS THAT ONLY CONFUSE PARTS ORDERING. ALSO SCRAP ANY OLD MAINTENANCE MANUALS AND PARTS LISTS THAT DUPLICATE EXISTING BOOKS WITH T/M NUMBERS. IF THE T/M NUMBERS ARE ON THE NOMENCLATURE PLATE CHECK AND SEE THAT YOU HAVE THOSE MANUALS - ANYTHING ELSE IS N.G.

EACH MODEL OF A MILITARY MOTOR VEHICLE REQUIRES FROM 1,500 TO 2,500 ITEMS OF SPARE PARTS. THE QUARTERMASTER CORPS PLANS TO STOCK A MAXIMUM SUPPLY OF PARTS SUFFICIENT FOR APPROXIMATELY ONE YEAR AND A MINIMUM SUPPLY FOR SIX MONTHS IN THE SEVEN ESTABLISHED DEPOTS. THE ARMY HAS NOW RECEIVED ABOUT ONE-HALF OF ITS BASIC INITIAL SUPPLY OF PARTS.



# digests-comments

CURRENT TECHNICAL MAGAZINES

"FLEET OWNER"  
September 1941

"Wheel Balancing" - One in a series devoted to helping get the most out of tires, with the pressing needs of the Defense Program uppermost in mind. Treats of faulty alignment, describing tests for the two types of unbalanced front wheels—'static' and dynamic'. Also presents some exceptionally graphic figures to emphasize the importance of maintaining correct inflation and of avoiding abrupt stops and starts.

"BUS TRANSPORTATION"  
September 1941

"New Substitutes for Old Standbys—" - How the need to develop substitute materials is being dealt with by bus manufacturers. The chief problem with this industry was to find a substitute for aluminum. Before cast iron pistons come into practical use many changes in engine design may be necessary. The article lays considerable stress on the value of recapping and retreading, referring to experiments conducted here at Holabird.



Here's a chance for every company commander to get the latest news of what's going on in the commercial motor world. MOTOR SERVICE MAGAZINE, from which THE 'AM frequently reprints, has offered a free subscription to company commanders of light and heavy maintenance units. MOTOR SERVICE should prove extremely helpful to the non-coms in these units. If you want a copy regularly, drop a card to The Editor, Holabird Quartermaster Depot, Baltimore, Maryland, giving your organization and address.



"AUTOMOBILE DIGEST"  
September 1941

"Tire Recapping" - Another story on the vital importance of tire recapping.

"Clogged Air Cleaners" - Your engine breathes just as you do. Stuff a cork in your mouth and hold your nose. Feel good? Neither does your engine when the air cleaner's dirty.

"Servicing Modern Horns" - Horns can go almost indefinitely without servicing, but when they need it, they need it. Here's what to do.

"Piston Pins" - The importance of pin fit and the trouble it can cause is far greater than many mechanics realize. Read this and see why.

"Clutch Troubles" - An article on their causes and cures.

"CAVALRY JOURNAL"  
September - October 1941

"Locating North On Pan Aerial Photograph" - If the mess is north from you and you head south looking for it ... well, maybe you're not hungry. But if you are, this'll tell you how to go straight.

"River Crossing" - Unless you have an amphibian, you'll want to read this article. Tells you how to float a jeep across in your handkerchief.

"9th. Reconnaissance Troop on Maneuvers" - What they did, with some interesting comparisons between motorcycles and jeeps.

"Distant Officer's Patrols" The interesting results of an experiment with radio equipped jeeps.

# FEELING Blue?

YOU SHOULD. IT'S A SAD FACT, BUT 4207 MOTOR VEHICLE ACCIDENTS HAVE INJURED 500 SOLDIERS SO FAR THIS YEAR AND COST 344,000 BUCKS. THAT'S SOMETHING TO FEEL BLUE ABOUT.

HERE'S SOMETHING ELSE: DID YOU KNOW THAT EVERY 2 HOURS, SEVEN PEOPLE ARE PLANTED SIX FEET DEEP BECAUSE OF OFF-THE-JOB ACCIDENTS? YOU MAY TAKE EVERY PRECAUTION DEMANDED BY THE ARMY WHILE YOU'RE ON THE JOB, BUT IF YOU FORGET ALL ABOUT SAFETY WHEN IT'S TIME TO KNOCK OFF YOU'RE ONLY DOING HALF YOUR WORK. YES, WORK. BEING SAFE IS A HARD JOB. ANY FOOL CAN HAVE AN ACCIDENT WITH NO WORK AT ALL.

THESE OFF-THE-JOB ACCIDENTS ARE A PROBLEM. THE NATIONAL SAFETY COUNCIL INVESTIGATED SOME FOUR THOUSAND OF THEM AND CAME UP WITH SOME SURPRISING FACTS. THE PEOPLE ON THE RECEIVING END OF THEIR OWN CARELESSNESS SPENT 13 DAYS IN THE HOSPITAL, AND HAD TO KEEP AWAY FROM WORK FOR 7 WEEKS AFTER THEY CAME OUT. IT COST SOMEBODY ABOUT FOUR HUNDRED BUCKS FOR EACH OF THESE CASES.

IF YOU LAND IN AN ARMY HOSPITAL YOU'RE NOT PAYING THE BILLS DIRECTLY. BUT YOU'RE PAYING JUST THE SAME. THE OTHER MEN ARE FORGING AHEAD AND GETTING EXTRA CASH FROM PROMOTIONS WHILE YOU'RE NURSING THE INJURIES. YOU'RE JUST THAT MUCH BEHIND WHEN YOU GET OUT—IF YOU GET OUT.