



THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY



Issue 35 1955 Series



...I'll be a dir-r-ty bird...

# DANGEROUS CHARA



Dear Half-Bast,

The way I've got it figured is like this: When your brakes or the glass equipment won't work or give us gas, it's not us out there most of the trouble comes from guys who don't do their maintenance.

For me, when the going gets rough, the guy I want next to me is the one who keeps his stuff in top-notch operating shape. I'm with him all the way.

I figure that the guy who lets his maintenance slide is just driving nails in his own coffin—uh, too. He's the guy whose rifle jams when the absolute moment of the one whose hand won't run when you've got to move stuff to the front—last, or the guy whose tank stalls or his gas won't work when the stuff starts to fly.

If I could tell these characters how dangerous they are to their buddies and themselves—maybe they'd wake up and get on the ball.

Now about calling 'em for me!

Ep 2, B. G.

Dear Sergeant B.G.S.,  
Here with,  
F. H. G. - 10/10/10



# CTERS



## PS MAGAZINE

Volume 10, No. 10

FALL 1982

Specialty: An Introduction to the Study of  
the History of the United States and the  
World. This issue contains a special  
feature: a special section devoted to  
the study of the history of the United  
States and the world. This section  
contains a special feature: a special  
section devoted to the study of the  
history of the United States and the  
world.

## IN THIS ISSUE

### FEATURE ARTICLES

History & Geography: Mountains	
Diving	10
Climatology	11
Climatology: Mountains	12
Climatology: Mountains	13
Climatology: Mountains	14
Climatology: Mountains	15
Climatology: Mountains	16
Climatology: Mountains	17
Climatology: Mountains	18
Climatology: Mountains	19
Climatology: Mountains	20
Climatology: Mountains	21
Climatology: Mountains	22
Climatology: Mountains	23
Climatology: Mountains	24
Climatology: Mountains	25
Climatology: Mountains	26
Climatology: Mountains	27
Climatology: Mountains	28
Climatology: Mountains	29
Climatology: Mountains	30
Climatology: Mountains	31
Climatology: Mountains	32
Climatology: Mountains	33
Climatology: Mountains	34
Climatology: Mountains	35
Climatology: Mountains	36
Climatology: Mountains	37
Climatology: Mountains	38
Climatology: Mountains	39
Climatology: Mountains	40
Climatology: Mountains	41
Climatology: Mountains	42
Climatology: Mountains	43
Climatology: Mountains	44
Climatology: Mountains	45
Climatology: Mountains	46
Climatology: Mountains	47
Climatology: Mountains	48
Climatology: Mountains	49
Climatology: Mountains	50
Climatology: Mountains	51
Climatology: Mountains	52
Climatology: Mountains	53
Climatology: Mountains	54
Climatology: Mountains	55
Climatology: Mountains	56
Climatology: Mountains	57
Climatology: Mountains	58
Climatology: Mountains	59
Climatology: Mountains	60
Climatology: Mountains	61
Climatology: Mountains	62
Climatology: Mountains	63
Climatology: Mountains	64
Climatology: Mountains	65
Climatology: Mountains	66
Climatology: Mountains	67
Climatology: Mountains	68
Climatology: Mountains	69
Climatology: Mountains	70
Climatology: Mountains	71
Climatology: Mountains	72
Climatology: Mountains	73
Climatology: Mountains	74
Climatology: Mountains	75
Climatology: Mountains	76
Climatology: Mountains	77
Climatology: Mountains	78
Climatology: Mountains	79
Climatology: Mountains	80
Climatology: Mountains	81
Climatology: Mountains	82
Climatology: Mountains	83
Climatology: Mountains	84
Climatology: Mountains	85
Climatology: Mountains	86
Climatology: Mountains	87
Climatology: Mountains	88
Climatology: Mountains	89
Climatology: Mountains	90
Climatology: Mountains	91
Climatology: Mountains	92
Climatology: Mountains	93
Climatology: Mountains	94
Climatology: Mountains	95
Climatology: Mountains	96
Climatology: Mountains	97
Climatology: Mountains	98
Climatology: Mountains	99
Climatology: Mountains	100

### DEPARTMENTS

Climate: Mountains	10
Climate: Mountains	11
Climate: Mountains	12
Climate: Mountains	13
Climate: Mountains	14
Climate: Mountains	15
Climate: Mountains	16
Climate: Mountains	17
Climate: Mountains	18
Climate: Mountains	19
Climate: Mountains	20
Climate: Mountains	21
Climate: Mountains	22
Climate: Mountains	23
Climate: Mountains	24
Climate: Mountains	25
Climate: Mountains	26
Climate: Mountains	27
Climate: Mountains	28
Climate: Mountains	29
Climate: Mountains	30
Climate: Mountains	31
Climate: Mountains	32
Climate: Mountains	33
Climate: Mountains	34
Climate: Mountains	35
Climate: Mountains	36
Climate: Mountains	37
Climate: Mountains	38
Climate: Mountains	39
Climate: Mountains	40
Climate: Mountains	41
Climate: Mountains	42
Climate: Mountains	43
Climate: Mountains	44
Climate: Mountains	45
Climate: Mountains	46
Climate: Mountains	47
Climate: Mountains	48
Climate: Mountains	49
Climate: Mountains	50
Climate: Mountains	51
Climate: Mountains	52
Climate: Mountains	53
Climate: Mountains	54
Climate: Mountains	55
Climate: Mountains	56
Climate: Mountains	57
Climate: Mountains	58
Climate: Mountains	59
Climate: Mountains	60
Climate: Mountains	61
Climate: Mountains	62
Climate: Mountains	63
Climate: Mountains	64
Climate: Mountains	65
Climate: Mountains	66
Climate: Mountains	67
Climate: Mountains	68
Climate: Mountains	69
Climate: Mountains	70
Climate: Mountains	71
Climate: Mountains	72
Climate: Mountains	73
Climate: Mountains	74
Climate: Mountains	75
Climate: Mountains	76
Climate: Mountains	77
Climate: Mountains	78
Climate: Mountains	79
Climate: Mountains	80
Climate: Mountains	81
Climate: Mountains	82
Climate: Mountains	83
Climate: Mountains	84
Climate: Mountains	85
Climate: Mountains	86
Climate: Mountains	87
Climate: Mountains	88
Climate: Mountains	89
Climate: Mountains	90
Climate: Mountains	91
Climate: Mountains	92
Climate: Mountains	93
Climate: Mountains	94
Climate: Mountains	95
Climate: Mountains	96
Climate: Mountains	97
Climate: Mountains	98
Climate: Mountains	99
Climate: Mountains	100

The magazine is published by the  
National Geographic Society, Inc.,  
Washington, D.C. 20002. It is  
published by the National Geographic  
Society, Inc., Washington, D.C. 20002.  
The magazine is published by the  
National Geographic Society, Inc.,  
Washington, D.C. 20002.

The magazine is published by the  
National Geographic Society, Inc.,  
Washington, D.C. 20002. It is  
published by the National Geographic  
Society, Inc., Washington, D.C. 20002.  
The magazine is published by the  
National Geographic Society, Inc.,  
Washington, D.C. 20002.

ON THE DOWNHILL SIDE

**BRAKES**

WILL GIVE YOU  
FOR TRUCKS

KEEP  
IN  
GEAR

The road's downhill and whether there's other traffic going down or uphill, your engine's there to give you help, too.

And when the engine's braking power is all out that way, you'll have no choice. So that's no gear to squander that way to speed.

Learning to work with the clutch pedal down keeps the flow constant. The engine's in gear, the clutch is in a stable gear or both and you're better for the job, too.

#### HOW IT WORKS

When you get on low for work . . . gear for the engine gear that the clutch, in the transmission, is the clutch gear. That is the difference. The 5th gear rate for the gear is the difference when you're in the 5th gear. That's why you're driving gear. That is why the way you're driving is so easy. Because the engine's gear is the same. The amount of gear going into the engine, the engine has to use just as fast and as slow. That's why the clutch gear is the same. That's why the clutch gear is the same.

Now, it's the side of the road. When you get into gear from the side, you're driving. You're driving the engine, the gear, the gear, and the clutch gear. You're driving the big gear into the clutch gear and that's why you're driving.

That's why you're driving. The clutch gear is the same.

**A GOOD RULE  
TO FOLLOW:  
GO DOWN A HILL IN THE  
SAME GEAR YOU'D USE  
TO GO UP THAT HILL.**

# + ENGINE

## THE BEST HOLDING POWER ROLLING IN THE MOUNTAINS

The biggest danger to your vehicle in the mountains is how easy it is to get stuck during a downhill—especially when a cold falling snow and thin vehicles like it the road surface is more like frozen concrete than a frozen pond.

Even if you did get that mountain top cleared, your speed might be too fast to see the potholes when you try to get back in gear. That's why you get a mountain vehicle.

### Keep your vehicle under control—always.

Get acquainted with the speed limits on the mountain roads. Don't keep your speed down to 15 mph using the foot brake. Don't creep on the gas pedal, and remember that your automatic is taking over the vehicle's load.

Remember that you don't get out the quickest for the particular gear you're in.

### USE THE FOOT BRAKE

When you're going downhill and using your engine as a brake, you'll never be surprised if you don't hold for once with the foot brake.

Being downhill is the gas controlling the vehicle's load will only do the engine as the engine might lose its control, especially on a hill. They don't work to control the engine.

If you're driving on a hill you can't see the road ahead, you're in for trouble. So keep on your feet and your feet off the accelerator. The engine plus braking will keep your vehicle from rolling back.

When you're using the foot brake to help the engine, be sure you don't let go of the foot brake or you'll be on your own. Remember, there are no brakes on your vehicle when a hill is up.

### NO! DON'T KICK IT

Using the engine as a braking device is a good practice, but kicking the engine out of gear is a bad idea.

When you're on a hill, you should be in a gear that will allow the engine to keep the vehicle from rolling back. If you're in a gear that will allow the engine to keep the vehicle from rolling back, you should be in a gear that will allow the engine to keep the vehicle from rolling back.

Use your foot to hold the vehicle in a gear and use the foot brake.

If you're on a hill, you should be in a gear that will allow the engine to keep the vehicle from rolling back. If you're on a hill, you should be in a gear that will allow the engine to keep the vehicle from rolling back.



# DON'T GO OFF HALF-TORQUED



Photo courtesy of the U.S. Forest Service, Department of Agriculture



THE TORQUE WRENCH IS A PRECISION MEASUREMENT INSTRUMENT. IT IS NOT A HAMMER.

1



WHILE IT'S MADE OF SPRING STEEL... IT'S NOT AN ELASTIC LIMIT... YOU CAN READ THE LIMIT ON THE GAUGE. NEVER FORCE IT...

2



KEEP THE POWER STRAIGHT... BEYOND A COCKED POINT IS ONE SOMEBODY WHERE IT DOESN'T FIT.

3



DON'T GAUGE... IT'S BISH BOHS... OFFER.

7



KEEP STRAIGHT FEEL AND CLEAR OF BURD. YOUR TAIL WILL GIVE YOU THE DORS ON OIL. IF IT DOESN'T, USE YOUR BEST JUDGMENT. BUT KEEP THE CURANT.

LIKE GRANDPA'S CORSET, YOUR REVISIONS AND MOST MILITARY EQUIPMENT ... KEEPING THE PARTS TOGETHER IS THE HARD MAINTENANCE JOB ... USE YOUR FANTASTIC THE TORQUE WRENCH AND ADD TO IT THAN JUST PULL ... AND USE A JOTTA GIVE YOU AIGHTY BODDYEM MOST OF THEM VIAL BITS OF SMOY TORQUE.

3



NO, NO, NO ...

4



ON THE SIDE SHE USE EXTENSIONS FOR LOOSELY ANGLES, IT WON'T WORK THE BAL. READING FIRST, AT THE END OF THE HANDLE AND USE WITH THE SOFT YOURS SUB-NO.

5



BUT DON'T TRY IT ON THE HANDLE END OR YOU'LL SNAP IT, PAL.

6



ONE HULL, AND BOYS A TEF BITS TO BE SURE THEY'RE FREE SLIPPING ... IF THEY'RE BEYOND ROUND—GET NEW ONES.

7



START WITH AN ORDINARY WRENCH, FIRM IT DOWN LEVEL, IF BITS DRUG-TURN USE YOUR TORQUE WRENCH.

8



TORQUE WITH A STEADY SWEEP ... SHORT JERKS WILL WIGGLE THE BAL, PAL.

11



NOW LET'S SEE HOW IT WORKS... TO CHECK YOUR EQUIPMENT FOR CORRECT TORQUE.

12



FEEL BACK ON NUTS WITH AN ORDINARY WRENCH... BACK UP IF JUST FAR ENOUGH BOYS TOGET A BUBBLING START.

NOW SUPPOSE YOU GOT A BARRED THREAD OR A NUT OR BOLT THAT'S

TURN IT DOWN ABOUT FINGERMAN THICK <sup>1</sup> AWAY FROM DIAL.



NOW APPLY THE TORQUE. KEEP AN EYE ON THE NUT AND THE OTHER ON THE DIAL...

### SPECIAL WORD ABOUT CYLINDER HEADS



BE SURE YOU FOLLOW THE MANUAL FOR SEQUENCE ON THIS OR YOUR OTHER THE HEAD.

### HOW THE TORQUE



WRENCH TO GET THE TORQUE... A TORQUE OF 25... 100... 200...





HOW TIGHTEN ... WITH A  
NICE EVEN SWEEPING  
STROKE ... LIKE CLOSING A DOOR.



AN EXTRA TIGHT FIT (WHICH YOU GOTTA USE FOR SOME GOOD REASONS).



WHEN THE NEED  
BEGINS TO  
TURN ... READ  
THE DIAL.

SAY THE RIGHT  
TO TURN THE  
NEED TO LEFT-LEG.



SAY  
IT'S  
READ.

MAKE A NOTE  
ESPECIAL IF YOU  
DON'T BOOK/UP  
THERE.



HOW LET'S  
SAY THE CORRECT  
MORAL TORQUE  
IN THE PT-LEG.

NORMAL TO  
NORMAL TO  
NORMAL TO



HOW TO WRITE  
A LETTER OF  
THE WAY TO  
A GOOD

EVERY GOOD ROAD SIGNAGE IS DIFFERENT  
SO KEEP A TRAIL (AND/OR EXAMPLE)



AA 05



AA 06

# UNHAND THAT WRENCH

SHE MAY BE TIGHT.



## TEST TORQUE WRENCHES EVERY 30 DAYS

- 1 FIT A STANDARD SOCKET TO THE SQUARE DRIVE AND CLAMP IN A VICE SO WRENCH IS HORIZONTAL, FINE TO SWING.



- 2 HANG A KNOWN WEIGHT FROM THE HANDLE... 12 INCHES FROM COVER OF THE DRIVE.



- 6 "HEAR, BOB? THESE TWO COLUMNS OF WEIGHTS... THEY'LL BE USEFUL LATER."

DON'T GET FEARED IF FEARED.

SOCKET	MULTIPLY	DISTANCE	WEIGHT	FEET-POUNDS
TO WRENCH HAVING				
18 INCHES	15 x 14 =			
24 INCHES	15 x 2 =			
30 INCHES	25 x 20 =			
42 INCHES	25 x 3 =			



TESTANCE WITH A 34 POUND

WEIGHT 30

WRENCH 12

15 x 2 = 30

WHY STOP YR THREADS WITH A BSA TORCH,  
 AN IRON BRACKED CYLINDER SUCKER, CRACKED  
 CYLINDER HEADS, DR. BATS—ALL FROM A TORCH  
 WHICH CUTS THROUGH DON'T LET U RUN  
 YR CAREER... 1957 #



IF NOT LOTS MUCH, THE FIRST 6 MONTHS

**3** NOW THE READING IN  
 FOUR-FOUNDS (SHEETS  
 EQUAL THE HANGING  
 WEIGHT, WITH SUBJECT  
 AND WEIGHT WEIGHT.  
 20 SHEETS

—2 WEIGHT

15 WEIGHT

**4** FOR THE FIRST  
 JOB, CHECK  
 WITH FOUR  
 DIFFERENT  
 WEIGHTS.

**5** THEN YOU BATH GO  
 THROUGH THE SAME  
 DEAL ON THE OTHER  
 SIDE OF THE WAY  
 TO CHECK THE OTHER  
 HALF OF THE TORCH  
 SCALE.

**7** GOT A WEIGHT  
 CALIBRATED IN  
 FOUR-FOUNDS?

IF YOU'VE MADE  
 A MISTAKE?

1 FOOT  
 FOUNDS  
 FOUNDS  
 15 INCH  
 FOUNDS

HEY! THE  
 MISTAKE  
 YOU'VE  
 MADE IS  
 THAT IT  
 ISN'T  
 20  
 WEIGHTS  
 15?

THE  
 MISTAKE  
 YOU'VE  
 MADE IS  
 THAT YOU  
 AREN'T  
 ALLOWING  
 FOR THE  
 MISTAKE!

A MISTAKE  
 YOU'VE  
 MADE IS  
 THAT YOU  
 AREN'T  
 TELLING  
 THE TRUTH!

PEWEE  
 HEHEHE  
 YOU'VE  
 FOUND  
 IT!

## Concave Rodd's

"HOLD 'N' TIGHT CUP"



### *Flow + water + caution!*

There's more than one way to skin a rat, and there's more than one way to clean your vehicle.

The guys use your brain when you pick up that hose to clean the inside of your tank of truck.

Squirting a high pressure hose inside a truck tank to tank fighting compartment is the procedure a woman's man with a maid—yes, in asking for trouble.

Instruments, electrical accessories, and other delicate glasslike just won't stand to take a shot of pressurized water. So watch where you squirt that hose.

Best way to clean the inside of your truck cab or tank personnel compartments is with some water, a rag and some elbow grease.

### *Fill that hole*

Check for a hole in the exhaust elbow on the secondary burner hit (Oed Truck No. 4049-5754 7741 in your 80.00 or 82.00 shop vans.

Some of these burner hits got in the field with the wrong exhaust elbow welded to the double exhaust tube at the burner. If you are a 1/8" or 1/16" dia

hole in the elbow, loose the hole over grease.

If the hole isn't brazed, you'll have exhaust fumes coming out of it and that could be dangerous.

### *They'll blow...!*

Just watch parked you customer and removed passenger/cabin driver. Before starting your main engine, with 1/2" for mounting and the master switch on, make sure you've got all electrical equipment that off-parkably your radio and lights.

That rubber high surge of voltage when the master is released has just a fraction of a second—but plenty long enough to blow your light bulbs or radio tubes.

### *Got one?*

A rag in your hand is worth two in your face-locker—when it's time to check your oil. You don't want to show dirt in your condition.

Never wipe your fingertips on the ground or the fan belt. Oil kills the fan belt flap.

Fast clip-it to have a clean rag handy off-hours—in your glove compartment.

## *855 Throttle-and clearance*

As the muffler baffle, that is. These M70's with maintenance's wild numbers later F-100s have sometimes developed a bind when the thermowater valve goes through the clearance hole in



the muffler baffle (Fig. 1). In the baffle have been changed, and are now called "deflectors." (They are still a part of the baffle assembly, though.)



If you have one of the early M70's, and if your throttle isn't giving you trouble, you can show 'em one in the dimension shown on the sketch (Fig. 2) and that'll fix 'em up. You'll see an M70 on this.

## *875 Personal services*

Couple of minor items on the M75 personal services. The rear door steps on early models will last longer and are

best if a small triangular piece is welded into the right angle of the drain outlet (Fig. 3). 1/4-in. plate will do the trick.



A light sheetmetal safety plate cover bolted or welded around the engine compartment's CO<sub>2</sub> fire extinguisher pull handle will prevent a smolder on the driver's shoulder as he climbs out of the vehicle. It'll still permit instant pulling by hand (Fig. 4).



## *Once of prevention seven pounds of batteries*

Some of the boys complain that if they give their battery another the right kind of maintenance, the handles on the GEN's won't loose their too much lifting and finally give way. They've installed zinc batteries and some see this that way.

How about checking the handles before you lift? Keep the handle-carrier's concentration clean and free of corrosion with a good acid neutralizer like milk-wash. And strong-arm stuff like handling is not by any handle stay improve the handles for the STP's on duty. Life is our revolution.



And another thing. Could it be you're getting excessive corrosion because you're in the sloppy habit of over-filling the battery? Take it easy. Do the usual operation right and you won't have to do one or two of 'em or three-like cleaning battery cavities.

### *Exhaust catch-up*

Now's the time to stop reaching for the exhaust manifolds of your M39 personnel-carrier.

These manifolds get hot. The heat makes them expand. But if you tighten the nuts that hold them to the engine-head too tight, it won't have room to expand. And the manifold cracks.

On the M39 the rear and main gas only 20 to 25 bolts torque, and the middle one good only 11 to 15. That is, if the manifold's drawn evenly and firmly against the gasket first.

### *Watch the pads, kids*

If you're using rubber track pads on your light-tank stuff—keep those pad nuts right. A loose track pad'll be terrible and stuff work in between the pad and the plate. And how thing y'know—the plate's cracked.



## Handling L71 Joe can be—

### *Easy*

On late model M14A Tanks (and No. 100), or later), you'll find an air-duct door arrangement between the right half-hull motor door and the auxiliary generator hatchway (Fig 1). This new vent setup can get you a lot more—with less trouble—from your Belling's L71 Joe.

When the door opens (Fig 2), it lets cool air from the turret get to Joe—and at the same time draws off the dust in the main engine area. This stops the recirculation of hot engine-compressor air, and cuts the danger of overheating and vapor lock.

In cold weather, you keep the door closed (Fig 3 lower). That'll hold the pressure heater's warm air in the crew compartment where it's appreciated. And, with the door closed, warm air from L71 Joe can circulate through the main engine area—where it's needed.

The vent door also lets you get at the generator head-easier, quick and easy.

One thing to remember: You always close the door for deep-water flooding.



## *Easy* — *easy* to

Handle the way to remove the new auxiliary engine cooling air-duct assembly on late model M14 and M14A Belling tanks is clear. You:

1. turn engine gear box to its normal stop.
2. remove the main engine by maintenance.
3. remove main air ducts (A-D) from the main vent duct.
4. remove main vent duct from the engine area (A-D) to the main vent.
5. at vent opening, install auxiliary engine head and fuel main pipe to the vent.
6. remove (A, B) to the main vent air duct and remove air ducts (A, B) to the main vent.
7. remove the engine air duct from the vent to the engine.
8. remove air ducts.
9. install auxiliary generator in position and install the main engine head to the air duct.
10. remove main vent duct from the vent to the engine, and install the vent.



To install it—just reverse the procedure. But heed this: When you're lowering the auxiliary engine, raise the air duct as high as possible on the air cleaner. That'll keep L71 Joe from clogging on the tubes.

Breaking in our new  
Breaking-up of you—

## TANK RUB



Stowing up your baggy with a compass sure isn't military drill!

Chances are the replacement parts at the store you get will have lost a lot of their resilience—strength and bounce—while in storage. And if shipped right into rugged, normal use, they'll go to you fast.

Give them the right break-in treatment first—and you'll find they last a lot longer.

For the break-in, which can be done during your normal driving, line up your vehicle on a paved road, if one's available. If not, a smooth secondary road will do OK. Keep a close check for dead lines and loose connections, swages, and make 'em before riding off and again in 1 and 1½ miles—and give 'em a workout.

This break-in treatment is particularly important in hot weather, and





# BER TRACK



Here's something else to keep in mind: Even on well-maintained tracks, if you get driving around at sustained high speeds (30-MPH or more), it temperatures of 50° F. and up—so you're gonna get a little heat buildup in your track rollers. Beak's drinking, eating, and blowing.

Another thing that'll show up your rollers like a steam-bowl publisher: "M" (meaning your wheels) rough roads or rocky terrain. Try to avoid it.

If you happen to be operating in an old-fashioned hand-carriage mode (some people have it, but all), you'll probably find your drive train wearing faster on the inside. Beak's drinking, eating, and blowing.

You'll be using that slope in a TB one-of-these-days.



Do You Get Stuck  
in The Joints?...



## WHY TAKE LUBES WITH SAND FOR A CHASER?

When you start lubing with dirty grease, it's like fighting fire with gasoline—you don't help the problem; you make it worse.

And vehicles aren't the only victims of dirty lube. So are your seal and cover pieces—and working with moving parts.

There are plenty of things you can do to keep dirt out of friction joints when you lube your equipment.



ALWAYS USE  
CLEAN OIL  
CONTAINERS  
WHEN YOU  
OIL YOUR OIL



BE CAREFUL  
NOT TO GET  
DIRTY OIL ON  
YOURSELF



ALWAYS USE ONLY  
THE TIGHTEST AND  
SMALLEST HOLES IN  
IT WHEN POURING  
OIL INTO THE EQUIPMENT  
BEHIND THE  
LUBE CONTAINER HOLES



ALWAYS CHECK  
EQUIPMENT OIL  
LEVELS  
BEFORE A  
LONG TRIP



NEVER POUR  
OIL INTO THE  
EQUIPMENT  
OIL HOLES  
THAT ARE TO  
BE USED FOR  
OILING THE HOLES



NEVER POUR OIL  
OR GREASE INTO  
EQUIPMENT OIL  
HOLES OR OIL HOLES  
WHICH ARE NOT  
OIL HOLES



NEVER POUR OIL  
OR GREASE INTO  
EQUIPMENT OIL  
HOLES OR OIL HOLES  
WHICH ARE NOT  
OIL HOLES



NEVER POUR  
OIL OR GREASE  
INTO EQUIPMENT  
OIL HOLES OR OIL HOLES  
WHICH ARE NOT  
OIL HOLES

In the constant battle against wear and friction, grease is indispensable, but don't use it to shoot the gun out of your own equipment—keep it clean.

## M48 TANK REVIEW



### AIR CLEANER CLEAN-UP

Your M48 tank's oil-fuel-air cleaners need cleaning—before and during operation. Make sure they're in good shape, never run full of the right weight oil.



Wash in three and you'll add life to your engine. However, only at the given temperature won't trap the dirt. And lighter oils tend to get sucked right through into the combustion—dies and all.

When the cap gets 1/4 full of sludge, or the oil is thick as molasses (when it looks like SAE 50), clean it out. Take off the pan and cleaner, wash 'em with cleaning solvent, and shake 'em. Then



roll the pan to level (3-1/2 to 5-1/2 quarts) and assemble. In dry and dusty going—such as desert operations—the'll need that oil about once a day.



They save your engine and you'll save grief by remembering to clean the top of the cleaner before working on the pan and filter.

Just reach your hand into the inside air-duct and give 'em a' full around—you below the maintenance bottle. Oil splashing here when the backfire system dies and builds up fast when the dust's a-blow'. Tough sometimes to shake your power plant's breath down to a fair wheat.

When y'eed is building up, close 'em up like this. Remove the pan and filter, and replace the pan—without washing it. Take off the inside duct. (Turn the hold-downs spring counterclockwise, and the duct lifts right off.) Remove the anti-backflow balls. (The screen does it.)

Now scrape and wash down the top section; the pan will catch the grime and sludge. Dump it again, wash and dry it, throw in the filter and balls. Then put the whole works back together—refilling the pan with oil, such.

Some M&M's have the early-type Danaher air cleaners. This has only the narrow band to hold the oil-bath pan on. It's all right until you get to climatic' over rough ground, or when the backflow. You may find the pan lying in a deep puddle on the floor plate—and sufficient air going into the engine.

Some of the loco folk at Fort Kane have been hitching a couple of bolts to the air-cleaner frame and putting a piece of strap iron under the pan, fastening it in place with wing nuts. It cured their problem.



Of course, if you've got the later model cleaners with the cables and clamps holding the pan in place, you're OK.



Your M&M may have either of two types of air-cleaner access doors. On early models the door's mounted on a plate which is held to the bulkhead by top screws and clamps. Later models have the same door mounted directly in the bulkhead. To service the cleaners on either model, remove the locking handles and swing the door outward.

The auxiliary-engine air cleaner is on the right side of the hull, and y'gotta get it from the cover locker. This frame holds about a pint of oil—and should be kept filled and changed like the T&M says.



## WHEEL-BEARING ADJUSTMENT

So you'd like the wheel on adjusting roadwheel bearings number M41 with 1 LRL, here's how:



- 1** REMOVE  
BEARING  
CAP,  
WASHER,  
SPACER,  
AND  
NUT.



- 2** WITH THE  
BEARING CAP  
END OF AXLE  
NUT LOOSE,  
PUSH THE AXLE  
DOWN TO INSTALL.



- 3** INSTALL THE WHEEL  
NUT IN CENTER LINE  
WITHIN 20-30  
DEGREES EITHER  
WAY.



- 4** REMOVE  
THE NUT,  
WASHER, SPACER,  
BEARING CAP, AND  
COMPLETE ASSEMBLY AND  
REINSTALL.



- 5** REMOVE ADJUSTING  
NUT THROUGH  
WHEEL CENTER  
WITH WRENCH  
HOLDING AXLE  
FOR STEADY.



- 6** WITH THE NUT  
REMOVED, CHECK  
WHEEL BEARING  
FOR CLEARANCE  
WITH AXLE END  
OF THE CONE RING.



- 7** REMOVE ADJUSTING NUT AND WHEEL FROM THE  
VEHICLE WITH THE WRENCH AND REINSTALL WITH THE  
WASHER AND AXLE END THROUGH THE NEW  
BEARING. CHECK AXLE END OF THE CONE RING  
BEARING FOR CLEARANCE WITH END OF THE CONE RING END.



- 8** REMOVE  
WASHER,  
SPACER,  
NUT,  
AND CONE RING.



- 9** WITH THE NUT ON  
END OF AXLE.



- 10** WITH THE  
WASHER,  
SPACER,  
NUT, AND  
CONE RING  
IN PLACE.



## TOE-SION—BAR POINTERS

5. Now, the way that you install the toe-sion bar, really turns around on the way into about the 190 models for installation.

### ROADWHEEL

The bars installed from the right side have the electrician's arrow and come under Cowl Bush No. G226-705809. The left side bars, Cowl Bush No. G226-705800, have the electrician's arrow. That's on the roadwheel.

### TOE-SION HOLDER

The toe-sion holder (or bar) also takes a similar position but, it goes Cowl Bush No. G226-7278518 (with electrician's arrow) for the right side, Cowl Bush No. G226-7278519 (no arrow—clockwise arrow) for the left.

It's these ARP on some tanks to change the anchor plug when replacing a broken toe-sion bar. But—use it with the ARP. You replace these anchors only if the bar failure causes it to happen.

The anchor comes out the top. To get it in, you'll have to move the power pack and fuel tanks, or the roadwheel arm and arm bearing.

Here's a rundown on toe-sion bar replacement:



1. Remove the toe-sion bar from the vehicle's frame.



2. Insert the toe-sion bar into the vehicle's frame.



3. Tighten the nut on the toe-sion bar to secure it to the vehicle's frame.



4. Tighten the nut on the toe-sion bar to secure it to the vehicle's frame.



5. Tighten the nut on the toe-sion bar to secure it to the vehicle's frame.



6. Tighten the nut on the toe-sion bar to secure it to the vehicle's frame.



7. Tighten the nut on the toe-sion bar to secure it to the vehicle's frame.



8. Tighten the nut on the toe-sion bar to secure it to the vehicle's frame.

TOE-SION BAR IS A SPECIAL, PATENTED, MARKED, MARKED—AND SHOULD BE REPLACED BY THE ORIGINAL BAR ONLY.

# JOE DOPE

## BORE-SIGHTING THE BAZOOKA



YOU NEED. GOT ONLY ONE WAY TO  
BOMB: BUILT A ROCKET LAUNCHER—

**THE "WISAGE-EIGHT"  
METHOD**

BY  
CONSTRUCTING  
THIS  
SUPPORT  
YOU CAN  
USE IN  
YOUR  
FIELD  
POSITION  
TO  
MOUNT  
YOUR  
ROCKET  
LAUNCHER.



NOW YOU NEED TWO STRINGS  
ATTACHED TO THE ROCKET - EIGHT  
METERS. THE OTHER END OF  
SMALLER DEFLATION COIL...



**THEN INSERT  
WOODEN DISK FROM  
AMMO CONTAINER  
INTO BREACH  
END FOR YOUR BOMB  
SIGHT PLUG.**

**GET ONE  
WITH 1/2"  
PIEP-HOLE**

**LINE UP YOUR SIGHTS**

**1. SIGHT TRAIL  
PIEP-HOLE ...**

**2. SIGHT TRAIL  
REFLECTING  
SIGHT  
ASSEMBLY**

**ALL LINED UP DEAD ON!  
CHECK AT ELEVATION PLATE -  
POINTER SHOULD BE ON TO. IF  
NOT - ADJUST THE SIGHTS AND  
SLIP ELEVATION PLATE TO THE  
CORRECT POSITION TO. TIGHTEN UP.**

**CHECK THIS BOMB  
PIEP-HOLE ...  
STILL DEAD ON!**

**FROM BOMB'S  
PIEP-HOLE  
FROM SHOT  
PIEP-HOLE**



ANY NO-BODY  
 SHOOTING  
 THE WAY?



IN THAT CASE, BUDGE HIM IN  
 QUARTERS ... SCRATCH A MARK  
 ... AND FIVE CROSS-STRIKES  
 ACROSS OPENING ...



**LIKE THIS**

MOVE LASHOVER ON TOP-  
 OFF'S DEAD-ON HORIZON-  
 LINE OF CROSS-HAIRS,  
 THEN SEE THAT SHE STAYS  
 HOR HORIZ.



ALWAYS POINT TO THE  
 SET ZERO OF 40"  
 HORIZONTAL CENTER LINE



TO MOVE RIGHT (LEFTWAY) —  
 LOCKED HINGE (SLIGHTLY) TURN  
 HINGE UNTIL IT'S SHOCK ON  
 TARGET ... WITH BOSH.



TO MOVE UP AND DOWN —  
 JUST SPRING BUSH!  
 DON'T MOVE LASHOVER  
 OR YOUR GUN!

TURN TO BEST SIGHT POSITION,  
 LOCK RIGHT ... AND CHECK BOW-  
 POINT AT EACH ROCK POSITION.



IF IT'S NOT  
 DEAD-ON IN  
 ANY POSITION  
 ... IT'S A NOT-  
 WORKING-MOUNT  
 AND OFF WE GO  
 TO OBSERVE,  
 LOAD, TRIGGER.





# Dope Sheet



WE HAVE THE WORLD'S BEST EQU

**D**ad **MONEY**, the nervous report!  
But he is a genius, quite neat.  
The 'system' was handy...  
A straw-rover dandy...  
And lightning shot out of his seat.



**EQUIPMENT... Take care of it**

BY NICK BISHOP

# DON'T BLOW JOE

UNLESS YOU KNOW...



WANTING TO GET THE BEST DEAL ON YOUR CAR? DON'T LET THE SALES GUY...

WANT TO GET THE BEST DEAL ON YOUR CAR? DON'T LET THE SALES GUY...

WANT TO GET THE BEST DEAL ON YOUR CAR? DON'T LET THE SALES GUY...



KEEP THE CAR DEALER FROM KNOWING YOU'RE...





THE CAR IS  
 APPROXIMATELY  
 100 FEET FROM  
 THE BUILDING.  
 THE CAR IS  
 TRAVELING AT  
 APPROXIMATELY  
 30 MPH.



ARE YOU  
 SURE?

YES, I'VE  
 OBSERVED  
 THE CAR'S  
 POSITION  
 AND SPEED  
 AT ALL TIMES.



THE CAR IS  
 APPROXIMATELY  
 100 FEET FROM  
 THE BUILDING.  
 THE CAR IS  
 TRAVELING AT  
 APPROXIMATELY  
 30 MPH.



**THROTTLE  
 BORE OF  
 ASSEMBLED  
 CARBURATOR**



USE  
 THIS  
 PART  
 TO  
 IDENTIFY  
 THE  
 CARBURATOR



ARE  
 YOU  
 AN  
 HOUR  
 AT A  
 SAFETY  
 IS  
 OUT

ARE  
 YOU  
 AN  
 HOUR  
 AT A  
 SAFETY  
 IS  
 OUT



**WORKING  
 APPARATUS**  
 INCLUDING  
 ELECTRIC MOTOR,  
 GENERATOR, ETC.



USE  
 THIS  
 PART  
 TO  
 IDENTIFY  
 THE  
 CARBURATOR



WITH LIGHT AND TIGHT TURNS YOU CAN CLEAN WITH COMPRESSED AIR.

**SPARKPLUGS ...**

GET RID OF  
OIL AND DIRT



**BRAKE SHOE  
LININGS**



**RADIATOR  
CORE**

... NOW FROM BACK



**GENERATOR  
AND STARTER  
COMMUTATOR END**



**FUEL LINES ...** NOW BACKWARDS TO  
NORMAL FLOW - FROM FUEL PUMP BACK TO  
TANK. BUT FIRST DISCONNECT LINE OR TAKE  
GAS CAP OFF FUEL TANK.



AND KEEP SPARK  
FROM OPEN FLAME OR  
ELECTRICAL EQUIP-  
MENT  
IN USE.



**DISTRIBUTOR ...**

DIRT AND OIL CAN  
BE BLOWN FROM CAP  
... READY SET'S  
AND LUBRICATION  
CAP ... CLEAN AND  
DRY. REINSTALL AND  
TUNE AFTER ASSEMBLY IS CLEAN AND  
BLOWN DRY.



**BREAKEPLATE  
ASSEMBLY**

(REMOVE DETRIMENTAL  
TOBACCO) CLEAN  
WITH DEY-CLEANING  
SCOURER AND DRY  
WITH COMPRESSED AIR



**MAGNETOS**



**GAS FILTER  
ELEMENT**



**AIR MAZE  
FILTER DISK**



**KEEP IN MIND**

BEFORE YOU  
Aim AT A  
PART **BLOW**  
ONLY IF YOU  
KNOW IT  
CAN TAKE IT!





### HEAD GAPS

Dear Half-Mast,

What's the story on those head clips? Do we use them, or don't we?

PFC J. L. D.

Dear PFC J. L. D.,

TR-Ged 417 is being revised and is going on its way with those head clips—clips by title. The clips will say no mail for some reason you change a clip; then they'll come off and be left off.

In the meantime, until the TR does come out, you'll better ask your Ordnance officer if he wants them put back on or left off when you change your name.

*Half-Mast*

### 10 AND 10000

Dear Half-Mast,

I know that it is a common practice to send artillery to Ordnance maintenance every six months, but can you tell me what authority it would?

1st Col R. F. T.

Dear Colonel R. F. T.,

That's old mail. Sending artillery to Ordnance every six months is a hold-over from old-type tube orders which

said that certain parts would be listed semi-annually by Ordnance personnel.

Now's when new-type tube orders say: "Subscribed on time of discontinuity by Ordnance personnel." And SR 154-103-18 14p 541 says that "in a military unit, every item of Ordnance equipment in the hands of troops will be inspected by qualified Ordnance personnel once a year."

The inspector is the man who decides whether your equipment goes to an Ordnance shop. He'll tell you whether the work can be done where it is or in an Ordnance shop.

*Half-Mast*

### SEARCH THAT GAG

Dear Half-Mast,

When we requisition parts for our vehicles and don't get the parts, we stick an extra copy of the requisition in the map compartment.

When an inspection is pulled, and we get gipped for the parts that we ordered and didn't get, we pull out the stuffed requisition. The point? This copies out the gips. Good idea, don't you think?

CPT H. E. T.

Dear Walter H. E. T.,

You've hit on a serious factor here. Even though an impulsive gun is the more good when his impulsion and checks regulations against gags, the average soldier doesn't realize this. He figures he's just holding the pipe.



He's tried to have things kept in shape but he couldn't get the parts made it. So, he figures there's no use trying if he's going to get gaged anyway. He gets discouraged, and preventive maintenance goes down the drain.

Don't wipe the pipe out right in front of him and he'll be a happy fellow. He'll give you more and better preventive maintenance. You're right on-the-ball.

Half-Mast

#### ROCKET LAUNCHER ZP

Dear Half-Mast,

Our TN says the firing mechanism (Ref Stock No. 8042711912) on our M3 and M30M1 3.5-inch rocket launchers must have an electrical output of 40-mw. We've got several of these mechanisms (some stock which did not reach the required 40-mw output, but they did fire the pipe). Since low output will fire the rocket, couldn't the minimum required output be lowered?

L. R. F. M.

Dear Lt R. F. M.,

If you've got the new high-output firing mechanism (7148322), then here are the limits for rejection of the firing mechanism: Field rejection, below 15-mw; pre-embarkation rejection limits, under 30-mw; overhaul rejection limits, under 40-mw.

The 15-mw output is a reserve rate of about two-to-one required to usually fire the rocket. That 15-mw gives you enough reserve to make sure that your launcher will fire in all kinds of weather.

So, on firing mechanisms, in the field replace it if its output is below 15-mw.

You might want to dig up Change 2 (12 Oct 54) to TM9-2002 for the complete story (Fig. 1).



Half-Mast

#### ROCKET PASSAGE

Dear Half-Mast,

In spite of all we do, our M30M1's gas tank leaks when the fuel gage reading-needle sticks to the tank. We've replaced the pressure gasket, sealed around the seat with petroleum and even soldered one plate down. The solder job held until vibration broke it down. Have you had any experience with this?

Cpl J. S. C.



Dear Cpl J. A. L.,

Yep, I have. From what I've seen, the deal comes from around the screw threads holding the venting unit to the tank. By dipping the screws in petroleum oil (Fig 11), as well as putting the seal around the unit, you should stop the



leak. But before you do that, check the unit's gasket and make sure it's not damaged. If it is, replace it with a new one.

*Half-Mast*

#### DIAPER FOR RAMM'S

Dear Half-Mast,

We've been having a leak of a kind you're getting the water out of the ribbing in the leveling section of the venting mechanism on our M-1000 A-4 gun. There's 10 of these compartments (Fig 1) and we have to cap each one out with caps every time we get a good rain.



What do you say about drilling a hole in each of the compartments to let

the water drain out? Also, water won't drain out of the outriggers (Fig 1) like it should and we have to cap them out too. What do you say?

Cpl J. S. B.



Dear Cpl J. S. B.,

It's a mean situation, all right, but you won't have to worry about it long. The way that your piece goes to God-knows-who a check-up they'll still show holes for you. As for the outriggers, MWD God DEE-WH should've taken care of that. Check your gun back to see if it has been applied.

If you've got other drainage problems still in a LAR in there—and in the meanwhile speak to your Ordnance officer. He's the local doctor on the war, he may have a temporary field in his mind.

*Half-Mast*

#### DIAPER FOR SUBSTITUT

Dear Half-Mast,

When your last champagne's shot . . . what do you do?

PFC J. E. K.

Dear PFC J. J. K.,

Simple. Easy. Patch out your remains of those pins. Cut it in two. Put one half in, insert a short wood dowel, and on top of that put the other half. Put tape around outside holes to keep each of those pins from dropping out (Fig. 4).



Strictly an emergency deal, please. But, when you guys have a pinch . . . you just gotta.

*Half-Meat*

#### COMBINED BATTERY

Dear Half-Meat,

I received a new battery with the cells changed in one direction and the other one fully charged in the opposite direction. What happened?

Egt T. M. E.



Dear Sgt. T. M. E.,

It could happen—once in a million times. You see, since the services buy so many dry-charged batteries for long term storage and shipping, the manufacturer makes 'em all the same way. The cells are put together and charged before the battery is assembled.

So, it's just possible that someone along the line got 'em off in backwards. It would have to get by both the manufacturer and Ordnance inspectors to be shipped out. However, it does sound like one did slip by.

Turn in your mixed-up battery with an Unmanufacturing Equipment Report and the supply people will give you a good one.

*Half-Meat*

#### GET HALF-MEAT PINS MOVED



Sgt. Half-Meat, Coonix Squad, is out, the whole P5 Magazine staff, have been shipped to a new post—Rushon Arsenal, New Jersey.

So, when you've got something for Half-Meat, or if you want to ask Coonix some questions or other, his name is address your letter to them in care of—

P5 Magazine  
Rushon Arsenal  
Rushon, New Jersey

## ARMAMENT

### DON'T DOUBLECROSS YOUR BAR



Like they tell you in the news hall, a long, graceful reach can provide nothing but a hand-full of results. Specially when you're reaching for what the other man's got—like the hole of his Browning Automatic Rifle.

Swapping parts—by mistake or otherwise—is usually for the best. Sure, the parts both stink—and for most purposes they are. But they work here in the BAR, they come with the kit as your advantage to keep 'em close.

The same thing applies to parts for rifles, machine guns, pistols and carbines. Keep a sharp eye and a tight lip on your own parts and tell your buddy to do likewise. Leave the swapping up to Gendarm—and leave trading



#### New Gas-Cylinder Assembly

With the new type gas-cylinder assembly, regulating the gas pressure is simple as turning the regulator to the right position. If your rifle becomes sluggish when the weather gas port is wet, turn to a dryer port. The first index mark indicates and after are not leading you up. Take it apart and clean it like it tells you in PG 18. (If you don't have a copy, write Sgt Half-Brook, PG Magazine, Barlow Arsenal, Mechanics, N. J., and ask for one.)

#### Bar Magazine

It just stands to reason that your BAR'll go to seed if the bar gun gets too hot. A word to that magazine will put your weapon on a reservation the quicker's anything else. Avoid using broken magazines. If you can't fix 'em, turn 'em in for better ones.

Keep a sharp eye out, too, for corroded or bent ammunition. Never load any rounds that look like they haven't a thing left in the world. They'll give you more trouble than they're worth.

The loaded shells are—

## TANK FIREPOWER

### MAN-TURRET-MOUNTED .50s

One thing's for sure about the .50-cal. Add-on gun on the Chrysler turret:

It'll take care of you in every no other machine gun has ever done before. That is—if everything's on the up and up. However, a few pointers that'll help you make sure it is.

### Charging Mechanism

You gotta be careful with the turret charging mechanism (Fig. 1). It takes about 75 pounds of pressure to charge the gun—and that's a lot of push. The thing to remember is you'll be *pushed* in toward of yourself if it. But don't make sure nothing's loaded.

Since you're well protected from small-arms fire down in the turret, take your time in reloading and charging so there'll be little chance for a slip-up.

Case: If something goes wrong with your cable, the gun'll have to be recharged by the tank handle. And since it can't be done in the turret, somebody'll have to make the work out.

Talkin' about a tank handle, just when it has proved that you're supplied with—well, with some sort of handle in case of

an emergency. The ordinary .50-cal. tank handle is not short for the job so until you get the new universal handle you can make use out of a LUB-in socket



something similar. The diameter should be about 1 1/16 inch, and it has to be strong enough to do the work without bending.

If you want to get fancy you can always take a .50-cal. handle and weld a 1-in. piece on to make it long enough. But while you're doing that be sure to put a guard on it to keep it from going in so far that it hits the man. Or do the same thing with whatever you come up with (Fig. 2).





Keep the back handle in a safe and handy place and use it as much as possible. It'll save a lot of wear and tear on the changing table.

### Mounting The Wheel

There's a tip on getting the spliced chain on the gear mount lined up with the worm wheel (Fig. 14). Make a light line through hole and center the worm wheel until you get the chain aligned with the worm gear.

All you gotta do to remove the spliced chain is place a crowbar under the slot in the center of the shaft, depress the ball pin and push out.



### BALANCE YOUR

Check your 200' tank gun to see if it has a center-of-gravity mark on it. You'll find a T on mine some mine about

six inches in front of the gun shaft. If you find one, put some lead pins on it or Christmas tree tips in any place they want to remove the mine.



### YOUR CARE ABOUT

You gotta have an able cable (cable that had back) if you expect to do any good with the Mine gun in your 200' tank. That cable carries a mighty important load and if it ever snaps, you're got trouble.



It doesn't happen, tho'... not if you get it and get it new and then to keep it from getting all frayed up. Make sure the cable's riding through the lower pulley free and easy (Fig. 15). If it slips off and snaps, it'll break when the pressure's on.

Keep a sleep-ye, too, on the way it winds up on the shaft pulley. Could be that the had-back shaft going is slipping. There's gotta be tension on that

cable at all times, if there isn't something's wrong. Yell for Crabtree.

Never touch the power if the cable's out of whack or broken. If you do, the



brake may wear slightly fast and heat somewhat.

### BLACK IN THE BRICK

Have you done a lot of long-touring with your 70 and 90 cc ccw, gas tank full? Better give the hardware assembly the once-over the next time the gas is diminished to see if anything needs removing.

The two nickel-bronze cap-screws (Fig 5) which hold the brass bush-



ring lay on the brass ring have a bad habit of working loose when you do lots of riding. Same goes for the two screws on the bottom of the bush-ring legs which hold the track and tension spring adjustment housing.

Keep a jollyan eye on 'em and call Crabtree when they start wiggling free

and loose. They need to be torqued down tight.



### OH, THE OIL

It may surprise you, but your tank gets replenished—y'know, need to be filled at least every six months. Otherwise they get corroded inside.

The so-called spray gun to squirt some preservative lubricant (PS-Special, M.L. L-5444) into the two tube holes in the top-end of the cylinder. Also shoot some into the valve lifts. But make sure you clean all the dirt and stuff away from the holes first. This part of the cylinder doesn't benefit from all that oil in the other end.

The same thing applies to spacers to supply air-charge. Give 'em a going-over at least once every six months.

### TUNE THAT CASE

Here's a new piece for you MINKI gnomes who get your flying switch cable all fouled up behind the elevating handwheel. It's a bracket that'll keep the cable from being stretched and damaged when you work the elevating mechanism. Later models already have 'em.



### PROTECT YOUR MOAN

Always—and that's always—remove the cover which covers the competing head on the M18 competing right (THH) before reinserting the gear cover over the M18 twin-shaft job. The cover will snag on the revolving ball pinion and pry hub with the competing head and finally drive-shaft.

To make sure this doesn't happen, place a tag or record near the wheel lock



with another like this "Warning: Remove the competing right cover before inserting the head or pinion."

### THEY GOTTA BE ENGAGED

One thing's for sure: always be sure your drive-clutch on your M18 twin-shaft—You can't move 'em!



They simply won't put out until they're good and properly engaged. Try to force 'em against their will and what happens? They strip their gears and so fast to badge. And there you stand all hot and locked-up, with both feet out of water.

So, if you want to do any good with your moan, make sure the drive-clutch are lining in all OK. Some of the early models come out with insufficient drive-clutch mesh and they may need reworking. If you suspect any trouble with your gears, yell for Orlowski. They can be 'em up like it shows in Cadillac Service Bulletin No. 148.

# TRAILER JUICE

FOR THOSE FIRE CONTROL JOBS

REARSE THE CHARGE TO JUST THE RIGHT

So that you don't overcharge the batteries in your M242 and M241 for control systems, you're got to charge the charging rate of the charger—some manual—some better.

## TO ADJUST IN YOUR M242

1. SEE THE CHARGE RATE ADJUSTMENT CONTROL PANEL ON THE M242 CHARGER. THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE CHARGER. THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE CHARGER.



## AND IN THE M241 TRAILER

1. SEE THE CHARGE RATE ADJUSTMENT CONTROL PANEL ON THE M241 TRAILER. THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE TRAILER.



2. FOR CHARGE OPERATION, THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE CHARGER. THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE CHARGER.



2. FOR CHARGE OPERATION, THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE TRAILER. THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE TRAILER.



3. FOR BATTERY OPERATION, THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE CHARGER. THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE CHARGER.



3. FOR BATTERY OPERATION, THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE TRAILER. THE CHARGE RATE ADJUSTMENT CONTROL PANEL IS LOCATED ON THE REAR OF THE TRAILER.



BASE BATTERIES BUILT FOR THE M242/241 BATTERY BATTERY TO THE NEXT-GEN WITH KNOW





**DRY TYPING BATTERIES**

AND THE CHARGE BATTERY, IT'S THE ONLY ONE THAT'S  
 NOT TAKING AWAY A PENNY, AND THE CHARGE  
 BATTERY.

<p>A CHARGE BATTERY          WILL TAKE AWAY          10 CENTS.</p>	<p>A CHARGE BATTERY          WILL TAKE AWAY          10 CENTS.</p>	
<p>THE BATTERY IS MADE          OF CARBON AND ZINC,          WHICH CAN BE RECHARGED.</p>	<p>A CHARGE BATTERY          WILL TAKE AWAY          10 CENTS.</p>	



**A DAY LIKE TODAY**

In today's age of fast change, when everything goes  
 wrong, nothing works right? Everything's all-butted?  
 And left-handed?

Then you might want to try the help desk. It's the help desk,  
 the help desk, the help desk. Then today, tell him all your  
 problems. What you want, what doesn't work, right. Give  
 him all the details, and he'll give you the help desk's things  
 up. He'll find a helping hand and push ahead's help.

# SUPPLY & DIRECTIVES



## YOUR SUP DATA

Dear *Navy-Man*,

Is there a regulation that says to not look the "Basic" and "Auxiliary" lists on an issue slip (Form 444)? Isn't the auxiliary half the basis for the requirements? If by some the basis is explained?

LT J. G. A.

Dear Lieutenant J. G. A.,

It's good supply procedure to use the basic list as emergency and special requisitions. In those cases the basic instructions apply for coding, issuing and record keeping done for the supply

agency. On a routine requisition that does by authority, the basic covers a special program.

There's no specific Army regulation which states that the basic must always be quoted. In some commands it's SOP to use both on all requisitions. In other areas it's called for only as special and emergency requisitions.

So, until a reg shows otherwise, the decision is up to local supply policy.

*Harry Moore*

## KNOW THE DIFFERENCE

Most of the parts and components of your early model General Motors full-tracked M15 (T10E1) vehicle will not interchange with the parts and components of the later models, so it's not an "if"ing.

Now we present to you a list, brief but comprehensive. (Class, you know you'll know what's what, but just to be sure.)

Item	Model M15 (T10E1) Interchangeable to later	Model M15 (T10E1) Model M15 (T10E2) Model M15 (T10E3) Model M15 (T10E4)
Engine - 6 cyl.	500-01286	500-01286
Gasoline - 40 gal.	500-01286	500-01286
Oil - 10 gal.	500-01286	500-01286
Water - 10 gal.	500-01286	500-01286
Electric - 12 volt	500-01286	500-01286
Hydraulic - 12 volt	500-01286	500-01286
Transmission - 12 volt	500-01286	500-01286
Drive shaft - 12 volt	500-01286	500-01286
Propeller shaft - 12 volt	500-01286	500-01286
Final drive - 12 volt	500-01286	500-01286
Track link - 12 volt	500-01286	500-01286
Track roller - 12 volt	500-01286	500-01286
Track guide - 12 volt	500-01286	500-01286
Track tensioner - 12 volt	500-01286	500-01286
Track sprocket - 12 volt	500-01286	500-01286
Track idler - 12 volt	500-01286	500-01286
Track pin - 12 volt	500-01286	500-01286
Track bush - 12 volt	500-01286	500-01286
Track pad - 12 volt	500-01286	500-01286
Track cleat - 12 volt	500-01286	500-01286
Track cover - 12 volt	500-01286	500-01286
Track bracket - 12 volt	500-01286	500-01286
Track roller bracket - 12 volt	500-01286	500-01286
Track sprocket bracket - 12 volt	500-01286	500-01286
Track idler bracket - 12 volt	500-01286	500-01286
Track pin bracket - 12 volt	500-01286	500-01286
Track bush bracket - 12 volt	500-01286	500-01286
Track pad bracket - 12 volt	500-01286	500-01286
Track cleat bracket - 12 volt	500-01286	500-01286
Track cover bracket - 12 volt	500-01286	500-01286
Track bracket - 12 volt	500-01286	500-01286
Track roller bracket - 12 volt	500-01286	500-01286
Track sprocket bracket - 12 volt	500-01286	500-01286
Track idler bracket - 12 volt	500-01286	500-01286
Track pin bracket - 12 volt	500-01286	500-01286
Track bush bracket - 12 volt	500-01286	500-01286
Track pad bracket - 12 volt	500-01286	500-01286
Track cleat bracket - 12 volt	500-01286	500-01286
Track cover bracket - 12 volt	500-01286	500-01286
Track bracket - 12 volt	500-01286	500-01286
Track roller bracket - 12 volt	500-01286	500-01286
Track sprocket bracket - 12 volt	500-01286	500-01286
Track idler bracket - 12 volt	500-01286	500-01286
Track pin bracket - 12 volt	500-01286	500-01286
Track bush bracket - 12 volt	500-01286	500-01286
Track pad bracket - 12 volt	500-01286	500-01286
Track cleat bracket - 12 volt	500-01286	500-01286
Track cover bracket - 12 volt	500-01286	500-01286





HERE'S A LIST OF ADDITIONAL OFFICIAL PUBLICATIONS OF THE COUNCIL. EACH ONE HELDS ONE OF THESE TO A LOT OF USE.

### THE SCOOP

THE SCOOP IS THE COUNCIL'S OFFICIAL PUBLICATION. IT IS A MONTHLY JOURNAL OF THE COUNCIL'S ACTIVITIES. IT IS A SOURCE OF INFORMATION FOR THE COUNCIL'S MEMBERS AND FOR THE PUBLIC. IT IS A SOURCE OF INFORMATION FOR THE COUNCIL'S MEMBERS AND FOR THE PUBLIC. IT IS A SOURCE OF INFORMATION FOR THE COUNCIL'S MEMBERS AND FOR THE PUBLIC.

### THE SCOOP

THE SCOOP IS THE COUNCIL'S OFFICIAL PUBLICATION. IT IS A MONTHLY JOURNAL OF THE COUNCIL'S ACTIVITIES. IT IS A SOURCE OF INFORMATION FOR THE COUNCIL'S MEMBERS AND FOR THE PUBLIC. IT IS A SOURCE OF INFORMATION FOR THE COUNCIL'S MEMBERS AND FOR THE PUBLIC. IT IS A SOURCE OF INFORMATION FOR THE COUNCIL'S MEMBERS AND FOR THE PUBLIC.

### MEMBERSHIP

#### MEMBERSHIP

MEMBERSHIP IN THE COUNCIL IS OPEN TO ALL PERSONS WHO ARE INTERESTED IN THE COUNCIL'S ACTIVITIES. MEMBERSHIP IS OPEN TO ALL PERSONS WHO ARE INTERESTED IN THE COUNCIL'S ACTIVITIES. MEMBERSHIP IS OPEN TO ALL PERSONS WHO ARE INTERESTED IN THE COUNCIL'S ACTIVITIES. MEMBERSHIP IS OPEN TO ALL PERSONS WHO ARE INTERESTED IN THE COUNCIL'S ACTIVITIES.

### MEMBERSHIP

MEMBERSHIP IN THE COUNCIL IS OPEN TO ALL PERSONS WHO ARE INTERESTED IN THE COUNCIL'S ACTIVITIES. MEMBERSHIP IS OPEN TO ALL PERSONS WHO ARE INTERESTED IN THE COUNCIL'S ACTIVITIES. MEMBERSHIP IS OPEN TO ALL PERSONS WHO ARE INTERESTED IN THE COUNCIL'S ACTIVITIES. MEMBERSHIP IS OPEN TO ALL PERSONS WHO ARE INTERESTED IN THE COUNCIL'S ACTIVITIES.

### MEMBERSHIP

1. Individual Membership
2. Organizational Membership
3. Youth Membership



## ENGINEERS



NOT WORRIED ABOUT A PROBLEM?



### WEAK JOINTS?

Dear Sgt. Dixon:

I have had a lot of trouble with the ball joints on the control and return linkage of the Gar Wood "Buckeye" Crane I am doing a recent inspection. These assemblies kept breaking off just before the 3/16-in. dia nut when too much pressure was used. I made some new handles out of untreated oak and added to the nutline just behind the bar nut. This solved my problem, as the untreated oak's field of failure than cast-iron or cast steel.

PEC G. H.

Dear PEC G. H.:

Man, you called the first right down the middle. It's smooth-throated guys like you who make things easier for your buddies. The manufacturer thought the ball joints on the control and return linkage of the "Buckeye" were weak, too. And he's done something about it. The ball joint you had trouble with carried a load number of

C.111. Now you can get a new and much stronger joint for your "Buck-eye." That new part number is 600054. You can see the difference in the size in Fig. 1. The new ball joint has been used on all late models of the crane, beginning with M20A-100. Nope, you don't have to make 'em any more. Just order 'em and you're in business.

Sgt. Dixon

### TOOL, TOOL!

Dear Sgt. Dixon:

Why aren't cranes and shovels equipped with windshield wipers and signal horns? These accessories aren't even mentioned as a modification for this equipment.

From my experience as a heavy equipment operator I feel that these items would be very cheap but insurance for all concerned.

The signal horn would be a real safety feature, especially on loading or hauling operations. It does draw your eye, maybe when it's necessary to warn people on the ground that they're dangerously near trucks that are backing up, or when they're in the blind path of other moving equipment.



As for the windshield wiper—well, it's just plain impossible to keep the windshield clean any other way during operations.

It sure would help if you can tell me if there's anyway to get these items for my equipment.

Cpl L. B.

Dear Cpl L. B.:

These accessories can't be used on standard Engineer equipment. You see, this type of equipment is usually operated from an open cab and with the aid of hand signals from a ground guide.



As for wipers, they're delicately set. It takes a lot of safety time to operate from an open cab. With the windshield and windows pushed or tilted out of the way, the safe ways would be rendered as all times. That way there's no danger of explosion and the operator has a much clearer and safer view of what ever he's shooting, aiming or bombing. He can see the ground crew better, too, and vice versa.

You're right about the need for a warning system for some heavy equipment operations. I know a crew operator who takes his M1 G, which do all jobs and says, "It's need an extra man's time."

If you can share this with your specific operator the crew's an added safety device, get your supervisor to check AR 750-9 (Jan 53) and its Changes 1, 2 and 3. They'll tell you

when and how emergency changes or additions can be made to approved standard equipment.

And last, but not least, it's always a good idea to discuss safety problems with the Post Safety Officer. Ask your boss to take a look at AR 385-10 (Mar 53). It covers safety responsibilities at installations.

Sgt. Oeger

#### CALL FOR AN ENGINEER



Ever had a maintenance problem that's had you up a tree? Maybe you have many times. The next time you run up against a trouble, your 1-2 and 3-4 officers can send out to find a post Engineer Regiment Maintenance Officer. These officers have highly skilled Engineers Regiment maintenance technicians (AR 600) who are ready, willing, and able to lend a hand with most any problem except financial.

For instance, they'll provide you with the proper maintenance and operating your Engineer equipment (new and old), help you get the right parts, tips and publications, show you how to get rid of extra equipment, and make you in getting unnecessary equipment replaced. Maybe that may have a whole long list of ways to show you how to do your maintenance checks better and better. There are just a few of their activities. You can find out the ways in AR 750-11, better about it today.

Ask the HMO in your area. All prospects do to let him know you got trouble.





Some Hot Chicks On...

# TRACKING



No, you're not abnormal and don't panic and don't let the idea scare! There's nothing in your Caterpillar's new tracks.

On new tracks, like on a lot of other new parts, a certain amount of settling-in is OK—no less. "Wear-in" should eliminate this once your tractor gets in some rolling.

This kind of settling-in you can take without too much worry. On the other hand, if your tractor's crawling in such spots is due because of wrong track adjustment, that's a different matter... and you'd best make tracks for your tractor's reputation. And, of course, you do the same when your tractor's chugging along on bare tracks.

Track adjustment on most series of 8L, 9L, 10L, 12L, 13L and 16L tractors is correct when the track can be raised 1-1/2 to 2 inches above the top-center track-roller clearance (Fig. 1). On earlier 8L tractors that don't have roller rollers, the adjustment is correct when there's 1-1/2 to 2 inches as in Fig. 2.






You can get full details on track adjustment for your own model tractor in the TM or Caterpillar maintenance manual.

Timely adjustment and care of track parts in the best track-care lanes... and here are some of the things your tractor in the field and depot shops can do to keep your tractor track-happy... just don't neglect or hold up repairs on field behavior or in the shop beyond the point where they can't be unduly excused.



# CATS

Here are some things that'll make it much easier for a long time.

	Track Feet	Treatment
	Splinters	Push out and rub in to give new wearing surfaces.
	Soreness	Switch feet from one side to the other and build up with wool or wool on new rim.
	Worn	Keep them clean and right—avoid rough surfaces due to wear. Switch side to side like sprockets.
	Wet	Replace feet to provide new wearing surfaces, just like you switch tires on a truck.
	Glue	When sprockets can be built up with welded feet to keep the shoe in the running. Regroove shoe built right-hand up.





## CONTRIBUTIONS



FILE IN THE MAILBOX

Dear Editor,

We keep an open-to-the-bellows position of our M11 boxes in EODC's exhaust stack for treating and breaking them.

There's a real how-right area to it (Fig. 1) that should be kept clean. Only rags, oil-like materials or anything that'll burn should be kept out of it.



If that bellows section gets in gas, it'll show a red-hot blue on the steel components. If there's anything in it to burn, it'll burn. It's lapped.

We think our bellows section for cracks or rusting so we can replace it before it gets

Montford National Guard  
Barracks de Soto, Maryland



STOP STOPPER

Dear Editor,

Our ESOB rearview lens was wide-out a brake stop, so we used your goal of Army ingenuity and made up an



adjustable stop like you see in the big steel (Fig. 2). Without this gadget you might break the pedal off when your foot hits the brake pedal wrong. That's no laughing matter.

Also, we keep a daily eye on the brake-pedal pin to make sure it's mounted right and says the way.

Pvt James F. Ambrose  
Camp Soto

### SAVE THE SOUP

Dear Editor,

We made a stored platform for our mailer's suspension lines that holds our rags above dirt, water and mud that sometimes seep through and puddle on



the bottom. The wet wall makes rot and mold in the window that can leak in water. This stops that (Fig. 3).

Alfred Condy E. Miller  
Rt. 1, Fairfax, Virginia

### HEAR-GUARD ACTION

Dear Editor,

Drivers who haul cargo trailers help our window protectors will accept or buy and up with their glass boards. Specially devised of the 1-1/2" x 2" and 2-1/2" x 2" size and plastic mats, which have the rear window exposed to the vehicle and windows of shipping cargo.

Putting a window in this sort of damage is a simple matter. All we need was some heavy wire mesh or screen. And, of course, protection from your OTC's OTC's OTC's effect.



We attached the screen to the rear side of the frame with screws so it keeps the glass from being damaged by the cargo during sudden stops (Fig. 4).

Commercial made or screen will do the job fine.

Wallace Englishert  
44 Dix, New Jersey



(Ed Note—This sort of life gets the go-around from *AP* 7/26/63, with *Changes* 1, 2 and 3.)

### OVERHEAD VOLTAGE

Dear Editor,

It's a darn shame, but there's a mighty good weather man who's in a good way more. He had his hand on a steel bit, analyzing it, when the tap touched a high-voltage line.

Now whenever we find we have to work a wrench or any other equipment that is electric, we try to get the power cut off.

If we can't, we keep a careful eye on the line and the load at all times.

MAC Oul Co. (E)

(Ed Note—Just remember that a man working on dry boards and getting his feet with a dry rope has a lot better chance if it should touch than a man on the ground touching the lead with his hands.)

## *Connie Rodd's BRIEFS*



### *Sliding your seats*

The days are long in a drive with Old Buck No. 11-C-5001 to start the engine of your 440, 444A, 447 or 448 made in '78 Old 317. If you use make-shift methods, you'll burn out the instrument panel wiring or rub the master cylinder/line.

### *Take it easy*

You get over 84,000 when running or replacing the extreme-plunger holding screws Old Buck No. 200F-100100 on your 46-400 412. Get the rough with 'em and they'll break off in the brush plug. Be on the right end and take it easy, will ya?

### *Page-after dinner*

You AAA guys with 46-400 guys may as well turn in those 412 413-cars. You simply don't need 'em. Your 412 will do everything that needs to be done in your 460 roller-coaster gear on the block. So you might as well let those 412's right hand to supply.

### *Building steel lights*

Here's how to order replacement lights for the backside of your steel made light, railroad type, Old Buck No.

011 80046. They're not in the factory yet, but're authorized for using only.

### *Call or look it*

Having trouble with your 43-400 4301 gear assembly working into the heater box assembly or the head pump working on both sides at the same time 177 441, don't break it. Your Onassis office wants to know what it's the gear up in touch with the Office, Chief of Engineers, Am. 0004, or Franklin Street, Am. 444 10, by telephone or letter and let them know you're having trouble. A technician'll be there on the double.

### *Point of anticipation*

You high on engine life spend for your Hydro-Park tanks will not only cause the vehicle to stop but doesn't do the transmission any good. Check the life according to your 112 44-44-44, and get it done in 178,000's, that's the point of anticipation.

### *It's not out it?*

Once you've got the questioning done of the department name in Old Buck 001, please to sit tight and hold y'low a mile long. It's being worked. You'll be seeing the latest edges on the copper end in a new direction soon.

GOOD

PREVENTIVE  
MAINTENANCE

IS SIMPLE  
ARITHMETIC

... Adds to morale



... Divides the worries

MULTIPLIES EFFICIENCY

